# PHASE II
# INVESTIGATION REPORT

AREA B: PARCEL B4
TRADEPOINT ATLANTIC
SPARROWS POINT, MARYLAND

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# TABLE OF CONTENTS

1.0 INTRODUCTION ..... 1
1.1. Site History ..... 2
1.2. Objectives ..... 3
2.0 ENVIRONMENTAL SETTING ..... 4
2.1. Land Use and Surface Features ..... 4
2.2. Regional Geology ..... 4
2.3. Site Geology/Hydrogeology ..... 5
3.0 SITE INVESTIGATION ..... 6
3.1. Sample Target Identification ..... 6
3.2. Soil Investigation ..... 8
3.3. Sub-Slab Soil Gas Investigation ..... 9
3.4. Supplemental PCB Delineation ..... 10
3.5. Management of Investigation-Derived Waste (IDW) ..... 11
4.0 ANALYTICAL RESULTS ..... 12
4.1. Soil Conditions ..... 12
4.1.1. Soil Conditions: Organic Compounds ..... 12
4.1.2. Soil Conditions: Inorganic Constituents ..... 13
4.1.3. Soil Conditions: Results Summary ..... 13
4.1.4. Supplemental PCB Delineation ..... 14
4.1.5. Summary of NAPL Observations in Soil Cores ..... 14
4.2. Sub-Slab Soil Gas Conditions ..... 15
5.0 DATA USABILITY ASSESSMENT ..... 16
5.1. Data Verification ..... 16
5.2. Data Validation ..... 17
5.3. Data Usability ..... 17
6.0 HUMAN HEALTH SCREENING LEVEL RISK ANALYSIS (SLRA) ..... 20
6.1. Analysis Process ..... 20
6.2. Parcel B4 SLRA Results and Risk Characterization ..... 23
7.0 FINDINGS AND RECOMMENDATIONS ..... 27
7.1. Soil ..... 27
7.2. Non-Aqueous Phase Liquid ..... 28
7.3. Human Health Screening Analysis ..... 29
7.4. Sub-Slab Soil Gas ..... 30
7.5. Recommendations ..... 30
8.0 REFERENCES ..... 33

# TABLE OF CONTENTS
# (CONT.)

## FIGURES

Figure 1 Area A and Area B Parcel Map ..... Following Text
Figure 2 1916 Shoreline Map ..... Following Text
Figure 3 Soil Boring Sample Locations ..... Following Text
Figure 4 Sub-Slab Soil Gas Sample Locations ..... Following Text
Figure S-1 Summary of Exceedances – SVOCs in Soil ..... Following Text
Figure S-2 Summary of Exceedances – PCBs in Soil ..... Following Text
Figure S-3 Summary of Exceedances – TPH-DRO/GRO in Soil ..... Following Text
Figure S-4 Summary of Exceedances – Inorganics in Soil ..... Following Text
Figure 5 PCB Delineation Sample Locations (B4-037-SB) ..... Following Text

## TABLES

Table 1 Historical Site Drawing Details ..... Following Text
Table 2 Field Shifted Boring Locations ..... Following Text
Table 3 TCLP Results for Solid IDW ..... Following Text
Table 4 TCLP Results for Liquid IDW ..... Following Text
Table 5 Summary of Organics Detected in Soil ..... Following Text
Table 6 Summary of Inorganics Detected in Soil ..... Following Text
Table 7 Statistical Summary of Soil PAL Exceedances ..... Following Text
Table 8 Soil PAL Exceedances for Specific Targets ..... Following Text
Table 9 Soil PCB Delineation Results (B4-037-SB) ..... Following Text
Table 10 Summary of Organics Detected in Sub-Slab Soil Gas ..... Following Text
Table 11 Rejected Analytical Soil Results ..... Following Text
Table 12 COPC Screening Analysis ..... Following Text
Table 13 Assessment of Lead ..... Following Text
Table 14 Exposure Point Concentrations – Surface Soil ..... Following Text
Table 15 Exposure Point Concentrations – Sub-Surface Soil ..... Following Text

# TABLE OF CONTENTS
# (CONT.)

Table 16 Exposure Point Concentrations – Pooled Soil ..... Following Text
Table 17 Risk Ratios – Composite Worker Surface Soil ..... Following Text
Table 18 Risk Ratios – Composite Worker Sub-Surface Soil ..... Following Text
Table 19 Risk Ratios – Composite Worker Pooled Soil ..... Following Text
Table 20 Risk Ratios – Construction Worker Surface Soil ..... Following Text
Table 21 Risk Ratios – Construction Worker Sub-Surface Soil ..... Following Text
Table 22 Risk Ratios – Construction Worker Pooled Soil ..... Following Text

## APPENDICES

Appendix A Final Sample Summary Table ..... Following Text
Appendix B Soil Boring Logs ..... Following Text
Appendix C PID Calibration Log ..... Following Text
Appendix D Parcel Specific IDW Drum Log ..... Following Text
Appendix E Summary of QA/QC Samples ..... Following Text
Appendix F Evaluation of Data Completeness ..... Following Text
Appendix G Construction Worker SSLs – Calculation Spreadsheet ..... Following Text

## ELECTRONIC ATTACHMENTS

Soil Laboratory Certificates of Analysis ..... Electronic Attachment
Soil Data Validation Reports – *Pending (not all PDFs received)* ..... Electronic Attachment
Sub-Slab Soil Gas Laboratory Certificates of Analysis ..... Electronic Attachment
Sub-Slab Soil Gas Data Validation Reports ..... Electronic Attachment
Soil ProUCL Input Tables (formatted analytical data) ..... Electronic Attachment
Soil ProUCL Output Tables ..... Electronic Attachment

# 1.0 INTRODUCTION

ARM Group Inc. (ARM), on behalf of EnviroAnalytics Group (EAG), has completed a Phase II Investigation of a portion of the Tradepoint Atlantic property (formerly Sparrows Point Terminal, LLC) that has been designated as Area B: Parcel B4 (the Site). Parcel B4 is comprised of 72.1 acres of the approximately 3,100-acre former steel making facility (**Figure 1**). The Site is bounded to the south by the former Coke Oven Laboratory and the Kinder Morgan Warehouse (Parcel B18), to the north by the former Primary Rolling Mills (Parcel B1), to the west by the former Shipyard (currently outside of Tradepoint Atlantic property), and to the east by the Fender Area and the former Steel Making Area (Parcel B5). Parcel B4 includes a 5,750 square foot building designated as the Maintenance Repair Shop.

The central portion of the Site has undergone recent industrial redevelopment as noted in the Response and Development Work Plan for Area B: Sub-Parcel B4-1 (Automotive and RO-RO Distribution Center), Revision 2 dated August 10, 2016. Sub-Parcel B4-1 represents 21.0 acres which were separated from the greater Parcel B4 in order to develop the sub-parcel. This Phase II Investigation Report addresses the entire Parcel B4, including both Sub-Parcel B4-1 (the 21.0 acre developed area) and the remaining undeveloped area of Parcel B4 (51.1 acres).

The Phase II Investigation was performed in accordance with procedures outlined in the approved Phase II Investigation Work Plan – Parcel B4. This Work Plan (dated July 8, 2016) was approved by the Maryland Department of the Environment and the United States Environmental Protection Agency on June 30, 2016 (based on a comment response letter dated March 9, 2016 which preceded the final submission of the Work Plan). A supplemental PCB delineation investigation was also completed following the initial Phase II Investigation based on the receipt of analytical data. The proposed PCB delineation plan was approved by the MDE on October 11, 2016, with the expectation that the initial investigation area would be expanded if further elevated concentrations of PCBs were encountered. Site investigations were performed in compliance with requirements pursuant to the following:

- Administrative Consent Order (ACO) between Tradepoint Atlantic (formerly Sparrows Point Terminal, LLC) and the Maryland Department of the Environment (effective September 12, 2014); and
- Settlement Agreement and Covenant Not to Sue (SA) between Tradepoint Atlantic (formerly Sparrows Point Terminal, LLC) and the United States Environmental Protection Agency (effective November 25, 2014).

Parcel B4 is part of the acreage that was removed (Carveout Area) from inclusion in the Multimedia Consent Decree between Bethlehem Steel Corporation, the United States Environmental Protection Agency (EPA), and the Maryland Department of the Environment (MDE) (effective October 8, 1997) as documented in correspondence received from EPA on

September 12, 2014. Based on this agreement, EPA 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 EPA's RCRA Corrective Action authorities.

An application to enter the Tradepoint Atlantic property into the Maryland Department of the Environment Voluntary Cleanup Program (MDE-VCP) was submitted to MDE on September 10, 2014. The property's current and anticipated future use is Tier 3 (Industrial), and plans for the property include demolition and redevelopment over the next several years.

### 1.1. SITE HISTORY

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

The Maintenance Repair Shop located in the southwestern area of Parcel B4 was formerly occupied by the Phoenix Aggregate and Industrial Minerals Company. Based on historic aerial images available through Google Earth Pro, the building was constructed between August 2006 and September 2007. The company was active while the steel facility was operational, and primarily served to process slag into aggregate for resale. The building was used for the maintenance of company equipment, and processing operations took place elsewhere on the property. There were no aggregate stockpiles observed nearby the building in the historic aerial images. More recently, the building has been occupied by MCM Management Corporation (MCM) as an equipment maintenance and repair facility.

Parcel B4 was formerly occupied by part of the Former Steel Making Area. Several iron and steel work processes were completed within the boundary of Parcel B4. Descriptions of the facilities and processes are provided below:

**Basic Oxygen Furnace (BOF):**

Basic oxygen steel making replaced the older open hearth furnace method. Basic oxygen steel making is a method of primary steel making in which carbon-rich molten pig iron is made into steel. Blowing oxygen through molten pig iron lowers the carbon content of the alloy and changes it into low-carbon steel. The process is known as basic because fluxes of burnt lime or dolomite, which are chemical bases, are added to promote the removal of impurities and protect the lining of the converter. The BOF received hot metal from the blast furnaces, scrap steel, and additional recyclable additives. After it was removed from the blast furnaces, the hot metal was

passed through a desulfurization process or sent directly to the BOF. Pure oxygen was blown through a water-cooled lance to produce carbon monoxide, which accelerates the metallurgical reactions in the iron. After completion, the molten steel was poured into a ladle, where other alloying agents could be added.

**Mould Yard:**

When the BOF facilities were unable to receive the hot metals produced from the blast furnaces, the iron could be temporarily stored in the Mould Yard. The hot metal was poured on the ground and allowed to cool. Once it was cooled it could be broken into smaller pieces and then transferred to the BOF.

**Continuous Caster:**

Ladles of steel from the BOF were taken to the Continuous Caster Ladle Metallurgy Station where they could be first reheated with an oxygen lance and/or chemistry adjusted by adding alloys and other materials and argon stirred. The steel then was moved by crane to the Slab Caster. Steel was then poured into the water-jacketed strand mould of the Slab Caster, from which a continuous slab was formed. The slab entered a roller containment area within the Slab Caster, where it was cooled with water sprays. The slabs then were cut to size by using a torch and then transferred to slab storage or the Hot Strip Mill. Fumes generated by the reactions were controlled by baghouses.

### 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 analysis 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 B4, 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 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 plant. According to the Phase I Environmental Site Assessment (ESA) prepared by Weaver Boos dated May 19, 2014, the property is zoned Manufacturing Heavy-Industrial Major (MH-IM). Surrounding property zoning classifications (beyond Tradepoint Atlantic) include the following: Manufacturing Light (ML); Resource Conservation (RC); Density Residential (DR); Business Roadside (BR); Business Major (BM); Business Local (BL); and Residential Office (RO). Light industrial and commercial properties are located northeast of the property and northwest of the property across Bear Creek. Residential areas of Edgemere and Fort Howard are located northeast of the property across Jones Creek and to the southeast across Old Road Bay, respectively. Residential and commercial areas of Dundalk are located northwest of the property across Bear Creek.

According to topographic maps provided by EAG, the Site is at an elevation of approximately 14 feet above mean sea level (amsl). Elevations at the Site range from 10 to 17 feet amsl across the majority of the parcel area, with increased elevations (>20 feet amsl) documented around several small stockpiles. Across most of the Site, the surface elevations are fairly uniform. According to Figure B-2 of the Stormwater Pollution Prevention Plan (SWPPP) Revision 3 dated August 19, 2016, stormwater from the majority of the Site appears to flow toward National Pollution Discharge Elimination System (NPDES) Outfall 012, which discharges through a Shipyard impoundment to Bear Creek. Runoff from the northern-central area of the parcel appears to drain through Parcels B1 and B17 to Outfall 013. Stormwater runoff from the eastern edge of the parcel appears to drain to the distant Outfall 001 located within Parcel B5 (at the mouth of the Pennwood Canal identified on **Figure 1**).

## 2.2. REGIONAL GEOLOGY

The Site is located within the Atlantic Coastal Plain Physiographic Province (Coastal Plain). The western boundary of the Coastal Plain is the "Fall Line", which separates the Coastal Plain from the Piedmont Plateau Province. The Fall Line runs from northeast to southwest along the western boundary of the Chesapeake Bay, passing through Elkton (MD), Havre de Grace (MD), Baltimore City (MD), and Laurel (MD). The eastern boundary of the Coastal Plain is the off-shore Continental Shelf.

The unconsolidated sediments beneath the Site belong to the Talbot Formation (Pleistocene), which is then underlain by the Cretaceous formations which comprise the Potomac Group (Patapsco Formation, Arundel Formation and the Patuxent Formation). The Potomac Group formations are comprised of unconsolidated sediments of varying thicknesses and types, which

may be several hundred feet to several thousand feet thick. These unconsolidated formations may overlie deeper Mesozoic and/or Precambrian bedrock. Depth to bedrock is approximately 700 feet within the Site.

### 2.3. SITE GEOLOGY/HYDROGEOLOGY

Groundcover at the Site is comprised of approximately 66% natural soils based on the approximate shoreline of the Sparrows Point Peninsula in 1916, as shown on **Figure 2** (adapted from Figure 2-20 in the Description of Current Conditions (DCC) Report prepared by Rust Environmental and Infrastructure, dated January 1998).

In general, the encountered subsurface geology included slag fill materials overlying natural soils, which included fine-grained sediments (clays and silts) and coarse grained sediments (sands). Shallow groundwater was observed in the soil borings at depths ranging from 4.1 to 14.5 feet below the ground surface (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 112 soil samples (from 56 boring locations), 117 additional PCB delineation soil samples (from 49 boring locations), and 3 sub-slab soil gas samples were collected for analysis between February 29, 2016 and December 13, 2016 as part of the Parcel B4 Phase II Investigation. This Phase II Investigation utilized methods and protocols that followed the procedures included in the Quality Assurance Project Plan (QAPP) dated October 2, 2015 (updated April 5, 2016) 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 B4 Work Plan dated July 8, 2016, and the QAPP.

All site characterization activities were conducted under the site-specific health and safety plan (HASP) provided as Appendix F 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 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 Environmental and Infrastructure. The following RECs were identified in the Parcel B4 Work Plan: Oil House (REC 8C, Finding 203) and Gas Pumping Station (REC 8D, Finding 204). There were no additional SWMUs or AOCs identified as sampling targets, although several non-releasing units were identified from the DCC Report Table 3-1 (identified in the Work Plan). Since these features were not observed to be releasing, they were not considered by Rust Environmental and Infrastructure to be a risk for significant environmental impact and were screened out (not proposed for further action).

Four (4) 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 13 drip legs identified inside the boundary of Parcel B4. A summary of the specific drawings covering the Site is presented in **Table 1**.

Additional Findings (non-RECs) from the Phase I ESA or features on the historical drawings which were identified as potential environmental concerns were also reviewed and targeted as applicable. Sampling target locations were identified if the historical site drawings depicted industrial activities or a specific feature at a location that may have been a source of environmental contamination that impacted the Site. Based on the review of plant drawings and Phase I ESA documents (or based on direct agency guidance for additional features), sampling targets were identified at the Site that included the following: Emergency Plating Pit, Substations/Transformers, Desulfurizer Stations, Mould Treatment Building, Fuel Department, Oil House (non-REC), Tar Tanks, Thickener Tanks, Mould Yards, Water Treatment Area, No. 3 Open Hearth, and Additional PCB Investigation (sampling target; not delineation samples).

A subset of the drip legs within Parcel B4 were selected for inclusion in the sampling plan. In total, five drip legs were targeted (each with two soil borings) from the 13 locations indicated on the historical drip legs drawings. Every drip leg which was not explicitly targeted was located within 100 feet of at least one other soil boring. ARM also received a list of former PCB-containing transformer equipment from Tradepoint Atlantic personnel. These possible PCB-containing equipment areas were already covered by borings targeting the former Substations/Transformers.

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 then added 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, refusal, and/or utility conflicts. **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. The density requirements for the Site were based on preliminary future development plans for Parcel B4. The Site contained a total of 1.6 acres without proposed engineered barriers. Of the 70.5 acres containing proposed engineered barriers, 20.1 acres are now covered by the paved RO-RO Distribution Center (as indicated in the Parcel B4: Sub-Parcel B4-1 Response and Development Work Plan dated August 10, 2016) including the 0.13 acre Maintenance Repair Shop (sampling covered by sub-slab soil gas). In accordance with the relevant sampling density requirements, a minimum of 3 soil borings were required to cover the

area without proposed engineered barriers, and a minimum of 35 soil borings were required to cover areas with proposed barriers. A total of 38 borings were required to meet the density specification; however, 56 soil boring locations were completed during the Phase II Investigation. (Additional PCB-delineation samples were collected following the completion of the sampling plan specified in the Phase II Investigation Work Plan, with separate approval by the agencies.)

A sub-slab soil gas survey of the Maintenance Repair Shop was completed as part of the Phase II Investigation. The purpose of the investigation was to verify that conditions within, below, and around the building would not pose a potentially unacceptable risk to current and future commercial workers occupying the buildings. The Maintenance Repair Shop has an area of approximately 5,750 $ft^2$. According to the density requirement given in QAPP Worksheet 17 – Sampling Design and Rationale, three sampling locations were required in the structure.

### 3.2. SOIL INVESTIGATION

Continuous core soil borings were advanced at 56 locations across the Site to assess the presence or absence of soil contamination, and to assess the vertical distribution of any encountered contamination (**Figure 3**). The continuous core soil borings were advanced to depths between 1.5 and 15 feet bgs using the Geoprobe® MC-7 Macrocore soil sampler (surface to 10 feet bgs) and the Geoprobe® D-22 Dual-Tube Sampler (depths >10 feet bgs). At each location, each soil core was visually inspected and screened with a hand-held Photo Ionization 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. One additional set of samples was also collected from the 9 to 10 foot depth interval if groundwater had not been encountered; however, these samples were held by the laboratory pending the analysis of the 0 to 1 and 4 to 5 foot depth interval samples, and were only analyzed for parameters that were detected in the 5 foot depth samples at concentrations above the Project Action Limits (PALs). If the PID or other field observations indicated contamination to exist at a depth greater than 5 feet bgs but less than 9 feet bgs, and was above the water table, the sample from the deeper 4 to 5 foot interval was shifted to the alternate depth interval. It should be noted that soil samples were not collected from a depth that was below the water table. Soil sampling activities were conducted in accordance with the procedures and methods referenced in **Field SOP Numbers 008, 009, 012, and 013** provided in Appendix A of the QAPP.

Down-hole soil sampling equipment was decontaminated after soil sampling had been concluded at a location, according to the procedures and methods referenced in **Field SOP Number 016** provided in Appendix A of the QAPP.

Soil samples were submitted to Pace Analytical Services, Inc. (PACE), and analyzed for Target Compound List (TCL) volatile organic compounds (VOCs) via USEPA Method 8260B, TCL semi-volatile organic compounds (SVOCs) via USEPA Methods 8270D and 8270D SIM, total petroleum hydrocarbon (TPH) diesel range organics (DRO) and gasoline range organics (GRO) via USEPA Methods 8015B and 8015D, Target Analyte List (TAL) Metals via 6010C and 7471C, hexavalent chromium via USEPA Method 7196A, and cyanide via USEPA Method 9012. Additionally, the shallow soil samples collected across the Site from the 0 to 1 foot bgs interval were also analyzed for polychlorinated biphenyls (PCBs) via USEPA Method 8082. Sample containers, preservatives, and holding times for the sample analyses are listed in the QAPP Worksheet 19 & 30 – Sample Containers, Preservation, and Holding Times.

### 3.3. SUB-SLAB SOIL GAS INVESTIGATION

A total of three temporary vapor monitoring probes were installed at the locations provided on **Figure 4** to collect sub-slab soil gas samples. The sub-slab soil gas samples were collected according to procedures and methods referenced in **Field SOP Number 002** provided in Appendix A of the QAPP.

A core-drill was used to create a pilot-hole approximately three-inches in diameter that extended through the concrete floor to facilitate the collection of each sub-slab soil gas sample. A hand auger and/or hammer drill was then used to create a borehole that extended through the subgrade and into the soil to a depth of at least eight inches below the bottom of the floor slab. A six inch soil gas implant, constructed of double woven stainless steel wire screen, was then attached to an appropriate length of polyethylene tubing and lowered to the bottom of the borehole. Once the implant and tubing were installed, the tubing was capped with a three-way valve, and clean sand was added around the implant to create a permeable layer that extended at least two inches above the implant. Bentonite was then added and hydrated to create a seal above the sand pack that extended to the surface. Once installed, each sub-slab soil gas monitoring probe was allowed to equilibrate for at least 24 hours.

Leak tests were performed prior to sample collection to ensure that valid soil gas samples were collected, and to provide quantitative proof of the integrity of the surface seal. The testing involved the introduction of a gaseous tracer compound (helium) into a shroud which covered the sampling point, and then monitoring with a hand held meter for the presence of helium in the air withdrawn from the subsurface.

While the shroud was inflated, air was purged from the monitoring point using a three-way valve and a syringe. Using the same three-way valve and a syringe, a Tedlar bag was then filled with at least 500 mL of air that was withdrawn from the monitoring point. The air inside of the Tedlar bag was then screened in the field with the meter.

As stated in **Field SOP Number 002**, if less than 10% of the starting concentration of the tracer gas within the shroud was observed in the Tedlar bag sample, the seal could be considered competent and sampling would continue. During fieldwork, the concentration of helium measured in the Tedlar bag was always significantly less than 10%, and each seal was deemed adequate to proceed.

Prior to sampling, a syringe was attached to the three-way valve and three purge volumes of air were removed. After the probe had been purged of any ambient air, an evacuated stainless steel canister (summa canisters) with a flow restrictor set for an 8-hour intake time was attached to the tubing. The soil gas sample was then collected over a period of eight hours. At the completion of the sampling period, the valve of the summa canister was closed, and an identification tag was attached to the canister. The probes were then removed, the borehole filled, and the surface repaired. Sub-slab soil gas samples were submitted to PACE, and analyzed for VOCs via USEPA Method TO-15.

### 3.4. SUPPLEMENTAL PCB DELINEATION

Additional PCB delineation activities were completed to further characterize a detection of PCBs in excess of 50 mg/kg (the limit at which mandatory excavation and removal of PCB-impacted material is required by the agencies) at one boring location (B4-037-SB). An initial delineation grid was established surrounding the elevated detection location with a grid spacing of 25 feet, and supplemental samples were collected for PCB analysis. The initial delineation grid (with expansion possible) was approved by the agencies for fieldwork on October 11, 2016. The delineation grid was adjusted and revisited based on the receipt of data from the PCB delineation, and several resampling events were completed. The PCB delineation activities occurred between October 12, 2016 and December 13, 2016.

For each delineation sample location, continuous soil cores were completed using the Geoprobe® D-22 Dual-Tube Sampler to depths of up to 5 feet bgs. Each delineation location was sampled at every 1-foot interval from 0 to 5 feet bgs (unless refusal was encountered). Additional soil samples were also collected at the initial Phase II Investigation boring location B4-037-SB from each 1-foot interval to be analyzed for PCBs. The surface (0 to 1 foot bgs) and intermediate (4 to 5 feet bgs) samples were analyzed first, and the intermediate depth samples recovered from 2 to 4 feet bgs in depth were analyzed if exceedances of 50 mg/kg were identified in the preceding samples. Areas of concrete in the vicinity of the proposed locations were inspected for evidence of staining, and if possible, concrete samples were collected from the 0 to 0.5 foot bgs interval. If the Geoprobe® was able to penetrate the layer of concrete to the underlying soils, samples were collected from below the concrete at the specified 1 to 5 foot depth intervals. The samples were analyzed for PCBs (consecutively as described above) via USEPA Method 8082.

### 3.5. MANAGEMENT OF INVESTIGATION-DERIVED WASTE (IDW)

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

- soil cuttings generated from soil borings;
- decontamination fluids; and
- used personal protective equipment

Following the completion of field activities, two composite samples were gathered from the Parcel B4 Phase II IDW soil drums for TCLP analysis. Following this analysis, the waste soil was characterized as non-hazardous. A list of all results from the soil TCLP procedure can be found in **Table 4**, which indicates no exceedances of TCLP criteria.

IDW drums containing aqueous materials were characterized by preparing composite samples from randomly selected drums. Each composite sample included aliquots from individual drums being staged on-site at the date of collection. A total of 10 composite samples were collected for TCLP analysis from relevant aqueous drums, including decontamination fluids and purge water generated during the implementation of the separate Area B Groundwater Investigation within Parcel B4. A list of all results from the aqueous TCLP procedure can be found in **Table 5**, which indicates no exceedances of TCLP criteria.

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 Project Action Limits (PALs) established in the site-wide Quality Assurance Project Plan (QAPP) dated April 5, 2016 (or other direct guidance from the agencies; i.e. TPH/Oil & Grease) to determine PAL exceedances. PALs are generally based on the USEPA's Regional Screening Levels (RSLs) for the Composite Worker exposure to soil. 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 the attached **Table 5** (Organics) and **Table 6** (Inorganics). The laboratory Certificates of Analysis (including Chains of Custody) and Data Validation Reports have been included as electronic attachments. The data validation reports 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 were identified above the laboratory's method detection limits (MDLs) in the soil boring samples collected from across the Site. There were no VOCs detected above their respective PALs.

**Table 5** provides a summary of SVOCs detected above the laboratory's MDLs in the soil samples collected from across the Site. Six SVOCs, all polynuclear aromatic hydrocarbons (PAHs), were detected above their respective PALs. These SVOCs were benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, dibenz[a,h]anthracene, indeno[1,2,3-c,d]pyrene, and naphthalene. Of the SVOC exceedances, benzo[a]pyrene exceeded the PAL in the largest number of samples (34). Exceedances of SVOCs were noted at approximately 50% of the boring locations distributed throughout the parcel. A summary of the PAL exceedance locations and results has been provided on **Figure S-1**. The exceedances indicated for these SVOCs are based on the PALs specified in the approved QAPP, and these PAL values have not been adjusted upward based on revised toxicity data for benzo[a]pyrene published in the USEPA Integrated Risk Information System (IRIS) Recent Additions dated January 19, 2017. The number of PAL exceedances would not be as great using the new toxicity data, and therefore, the PAL exceedances shown overstate the significance of the SVOC detections. IRIS adjustments were made for PAH compounds when evaluated in the human health screening level risk analysis (Section 6.0).

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. Aroclor 1254, Aroclor 1260, and total PCBs exceeded their respective PALs in multiple locations (eight total) collected across the Site. These PAL exceedance locations have been provided on **Figure S-2**. One sample (B4-037-SB-1) associated with a former Substation/Transformers had a detection which exceeded 50 mg/kg of total PCBs (due to Aroclor 1254 and Aroclor 1260).

**Table 5** provides a summary of the TPH-DRO and TPH-GRO detections in the parcel. GRO was detected above the laboratory's MDL in multiple locations; however, no detections exceeded the PAL. Only DRO was detected above its PAL, in two subsurface soil samples (B4-037-SB-6 and B4-042-SB-5) with detections of 6,760 mg/kg and 6,270 mg/kg, respectively. No evidence of possible non-aqueous phase liquid (NAPL) was noted in the associated soil cores. A summary of the DRO PAL exceedance locations and results has been provided on **Figure S-3**.

### 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. Six inorganic compounds (arsenic, manganese, lead, thallium, vanadium, and hexavalent chromium) were detected above their respective PALs. Arsenic was by far the most common inorganic exceedance (detected above the PAL in 83 soil samples), followed by manganese (detected above the PAL in 17 soil samples). In comparison, lead and hexavalent chromium each exceeded their respective PALs in four samples, while thallium and vanadium (co-located) accounted for only two PAL exceedances each. A summary of the inorganic PAL exceedance locations and results has been provided on **Figure S-4**.

### 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 **Figures S-1** through **S-4** 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 detection frequencies and maximum results. **Table 8** indicates which soil impacts (PAL exceedances) are associated with the specific targets listed in the Parcel B4 Work Plan. There were no detections of VOCs above the applicable PALs. Exceedances in soil within Parcel B4 consisted of six inorganics (arsenic, manganese, lead, thallium, vanadium, and hexavalent chromium), six SVOCs (benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, dibenz[a,h]anthracene, indeno[1,2,3-c,d]pyrene, and naphthalene), three PCB groups (Aroclor 1254, Aroclor 1260, and total PCBs), and DRO.

Arsenic was detected above the PAL in approximately 74% of the Phase II samples analyzed for this compound, with a maximum detection of 85.7 mg/kg. Manganese was the next most common exceedance (15% of samples), with a maximum detection of 49,400 mg/kg. Lead and hexavalent chromium were detected above their PALs in four samples each, while thallium and vanadium were only detected above their PALs in two soil samples. The maximum detections of

manganese, lead, thallium, vanadium, and hexavalent chromium were relatively low, and each detection was less than 4 times the PAL. Benzo[a]pyrene was the most common SVOC exceedance, and was detected above its PAL in approximately 30% of relevant Phase II samples. Naphthalene was only detected above the PAL in a single isolated sample (B4-016-SB-5). The maximum detections for all five remaining SVOCs were identified in a single sample location (B4-056-SB), which targeted the former Water Treatment Area. PCBs (total) were detected above the PAL in eight samples collected during the initial Phase II Investigation with the highest detection of 123.7 mg/kg (B4-037-SB-1). Additional delineation was later completed in the vicinity of this elevated PCB detection, as described below. Aroclor 1254 and Aroclor 1260 were detected above their individual PALs in three locations and five locations, respectively. There were two DRO soil PAL exceedances, both slightly above the PAL (6,200 mg/kg). The maximum detection of DRO was 6,760 mg/kg in sample B4-037-SB-6, and neither of the DRO exceedance locations exhibited evidence of possible NAPL during soil core screening.

#### 4.1.4. Supplemental PCB Delineation

Supplemental delineation activities were completed in the vicinity of B4-037-SB to identify the extent of soils impacted by total PCBs above 50 mg/kg following the completion of the initial sampling plan outlined in the approved Phase II Investigation Work Plan. Boring B4-037-SB targeted a former Substation/Transformer complex which was identified on a map of former PCB-containing transformer equipment which historically contained PCBs at levels greater than 50 ppm but less than 500 ppm. Surface soil sample B4-037-SB-1 had detections of total PCBs and Aroclor 1254 exceeding the specified excavation criterion (123.7 mg/kg and 84 mg/kg, respectively), which warranted additional delineation.

Vertical and horizontal delineation activities were completed on the northern portion of the Substation/Transformer sampling target, and this investigation identified a total of six surface delineation soil borings (including B4-037-SB) which exceeded 50 mg/kg of total PCBs. Several of the delineation samples exceeded the total PCB concentrations identified in the initial sample B4-037-SB-1 (including a re-sample at this location and depth). The locations with PCB detections above 50 mg/kg are presented on **Figure 5**. A summary of the analytical results for total PCBs is presented in **Table 9**, which demonstrates that the vertical distribution of exceedances was limited to the surface. The PCB-impacted soil exceeding 50 mg/kg will be excavated and removed in accordance with all applicable regulations and disposal requirements.

#### 4.1.5. Summary of NAPL Observations in Soil Cores

Soil cores were screened for evidence of possible NAPL contamination during the completion of the Phase II soil borings in Parcel B4. During the soil core screening, one sample location had physical evidence of possible product which was noted on the soil boring log (B4-018-SB). The observations of possible NAPL (as indicated on the boring log) included the presence of a sheen

in the soil core from 6 to 7.5 feet bgs, which was accompanied by a petroleum odor. A soil sample was collected from the intermediate depth interval (4 to 5 feet bgs), above the observed sheen and associated odors. Due to encountered groundwater a deeper sample was not collected from within or below the impacted interval. The intermediate sample interval had a detection of DRO at 4,990 mg/kg.

Based on these observations and available analytical data, a temporary screening piezometer is warranted in boring B4-018-SB. The installation of a piezometer at this location would allow for the assessment of the potential mobility of free-phase product to groundwater.

### 4.2. SUB-SLAB SOIL GAS CONDITIONS

The detected VOC parameters for sub-slab soil gas samples collected from below the Maintenance Repair Shop are summarized and compared to the site-specific PALs in attached **Table 10**. While there were several VOCs detected in the sub-slab samples, none of the detections exceeded the applicable PALs in any of the soil gas samples submitted for analysis. The laboratory's Certificates of Analysis (including Chains of Custody) and the Data Validation Report have been included as electronic attachments. The validation reports contain a glossary of qualifiers for the final flags assigned to individual results in the attached summary tables.

# 5.0 DATA USABILITY ASSESSMENT

The approved site-wide QAPP specified a process for evaluating data usability in the context of meeting project goals. Specifically, the goal of the Phase II Investigation is to determine if potentially hazardous substances or petroleum products (VOCs, SVOCs, PCBs, TAL-Metals, cyanide, or TPH-DRO/GRO) are present in Site media (soil and sub-slab soil gas) at concentrations that could pose an unacceptable risk to Site receptors. Individual results are compared to the Project Action Limits established in the QAPP (i.e., the most current USEPA RSLs) or 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 E**. The following QC samples were submitted for analysis to support the data validation:

- Trip Blank – at a rate of one per day
  - Soil – VOCs only
- Blind Field Duplicate – at a rate of one per twenty samples
  - Soil – VOCs, SVOCs, Metals, TPH-DRO, TPH-GRO, PCBs, Hexavalent Chromium, and Cyanide
  - Air – VOCs
- Matrix Spike/Matrix Spike Duplicate – at a rate of one per twenty samples
  - Soil – VOCs, SVOCs, Metals, TPH-DRO, TPH-GRO, PCBs, and Hexavalent Chromium
- Field Blank and Equipment Blank – at a rate of one per twenty samples
  - Soil – VOCs, SVOCs, Metals, TPH-DRO, TPH-GRO, Hexavalent Chromium, and Cyanide
  - Air – VOCs

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 (COC) 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 and/or checked once per day. 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 COCs to verify that results were provided for all collected samples. The data package case narratives were reviewed to ensure that all exceptions (if any) are described.

### 5.2. DATA VALIDATION

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

Sample analyses have undergone an analytical quality assurance review to ensure adherence to the required protocols. The Stage 2B review was performed as outlined in "Guide for Labeling Externally Validated Laboratory Analytical Data for Superfund Use", EPA-540-R-08-005. Results have been validated or qualified according to general guidance provided in "USEPA National Functional Guidelines for Inorganic Superfund Data Review (ISM02.1)", USEPA October 2013. Region III references this guidance for validation requirements. This document specifies procedures for validating data generated for Contract Laboratory Program (CLP) analyses. The approved QAPP dated October 2, 2015 (updated April 5, 2016) and the quality control requirements specified in the methods and associated acceptance criteria were also used to evaluate the non-CLP data.

Data validation has been completed for a representative 50% of all sample results, and the Data Validation Reports (DVRs) provided by EDQI have been included as electronic attachments.

### 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 Data Validation Reports 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 data validation report 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. There were no rejected results for sub-slab soil gas. A summary of the results that were rejected during data validation has been provided on **Table 11** (soil). A discussion of data completeness (the proportion of valid data) is included below.

Representativeness is a measure of how accurately and precisely the data describe the Site conditions. Representativeness of the samples submitted for analysis was ensured by adherence to standard sampling techniques and protocols, as well as appropriate sample preservation prior to analysis. Sampling was conducted in accordance with the QAPP Worksheet 21 – Field SOPs and Appendix A of the QAPP. Specific Field SOPs applicable to the assessment of representativeness include **Field SOP Numbers 002, 008, 009, 010, 011, 017, and 024**. Review of the field notes and laboratory sample receipt records indicated that collection of soil and sub-slab soil gas 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 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 F**. This evaluation of completeness includes only the representative 50% of sample results which were randomly selected for validation.

A total of 14 analytes did not meet the completeness goal of 90% for soils in Parcel B4. Of these 14 compounds, 11 acid extractable SVOCs (2,3,4,6-tetrachlorophenol, 2,4,5-trichlorophenol, 2,4,6-trichlorophenol, 2,4-dichlorophenol, 2,4-dimethylphenol, 2-dinitrophenol, 2-chlorophenol, 2-methylphenol, 3&4-methylphenol (m&p Cresol), pentachlorophenol, and phenol) had soil

completeness values of 77.8% (or 74.8% in the case of 2,4-dinitrophenol). 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 are generally not expected to be site-related contaminants, and have not been detected above the PALs on any portion of the Tradepoint Atlantic property completed to date. Each of these SVOCs had a very low number of detections at the Site, and none remotely approaching the PAL. Since each of these compounds are unlikely to be site-related contaminants and were detected only at very low levels across the Site, these are not considered to be significant data gaps.

Of the remaining three compounds with reduced completeness percentages in soil (benzaldehyde, 1,4-dioxane, and bromomethane), only benzaldehyde had any detections in soil, and the maximum benzaldehyde detection (0.15 mg/kg) was well below the established PAL (120,000 mg/kg). Based on the infrequency and low magnitude of detections for these compounds, these are not considered to be significant data gaps.

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 ANALYSIS (SLRA)

## 6.1. ANALYSIS PROCESS

A human health Screening Level Risk Analysis (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 Constituents of Potential Concern (COPCs):** Compounds that are present at concentrations at or above the EPA Regional Screening Levels (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. Although the PALs (discussed in preceding sections) remain unchanged, the COPC screening levels for PAHs were modified for the SLRA based on the USEPA IRIS Recent Additions for benzo[a]pyrene dated January 19, 2017 with adjustments for PAH relative potency factors. A COPC screening analysis is provided in **Table 12** to identify compounds above the relevant screening levels in Parcel B4. Compounds with at least one detection are included.

**Identification of Exposure Units (EUs):** Two EUs were identified for Parcel B4 based on development plans which have been implemented at the Site. These EUs are comprised of the 21.0 acres which have previously been capped during development and the remaining 51.1 acres which have not yet been developed. The two EUs are designated in this SLRA as Sub-Parcel B4-1 and Parcel B4, respectively. The boundaries of these EUs correspond to areas identified in the Phase II Investigation Work Plan, and are indicated on the PAL exceedance figures discussed in preceding sections.

**Exposure Point Concentrations (EPCs):** The COPC soil data for the exposure units were divided into surface (0-1 ft) and subsurface (>1 ft) depths for estimation of potential exposure point concentrations. An evaluation of pooled surface and subsurface soil data was also performed. Thus, for Parcel B4 there are three soil datasets associated with each EU. A statistical analysis was performed for each COPC data set 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 category was calculated for comparison to the Adult Lead Model-based values, and any individual results exceeding 10,000 would be delineated for possible excavation and removal (if applicable). For PCBs, all results equaling or exceeding 50 mg/kg have been delineated for excavation and removal. All PCB results less than 50 mg/kg are included in the EPCs and risk ratio calculations.

**Risk Ratios:** The surface soil EPCs, subsurface soil EPCs, and pooled soil EPCs were compared to the USEPA RSLs for the Composite Industrial Worker and to site-specific Soil Screening Levels (SSLs) for the Construction Worker based on equation derived in the USEPA Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites (OSWER 9355.4-24, December 2002). For the Construction Worker scenario, a baseline scenario was evaluated using the default exposure frequency of 250 work days (1 year construction period) for future potential risk. The risk ratios were calculated with a cancer risk of 1E-6 and a non-cancer Hazard Quotient (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). In the event that future construction/excavation leads to a potential Construction Worker exposure to groundwater, health and safety plans and procedures shall be followed to limit exposure risk.

**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 Adult Lead Model values (ALM Version dated 6/21/2009 updated with the August 2, 2016 OLEM Directive) with inputs of 1.7 for the geometric standard deviation and a blood baseline lead level of 0.7 ug/dL. The ALM calculation generates a soil lead concentration of 2,737 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 2,737 mg/kg, the EU was identified as requiring no further action for lead. The lead averages and screening levels are presented for surface, subsurface, and pooled soils in **Table 13**. 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:** EPCs were not calculated for TPH-DRO/GRO. Instead, the individual results were compared to the PAL set to a HQ of 1 (6,200 mg/kg). Two subsurface samples (B4-037-SB-6 and B4-042-SB-5) exceeded the DRO limit with the highest detection of 6,760 mg/kg at location B4-037-SB-6. There were no detections of GRO that exceeded the PAL. In addition, one location had physical evidence of

possible product which was noted on the soil boring log (B4-018-SB). The observation of possible NAPL included the presence of a sheen in the soil core from 6 to 7.5 feet bgs, which is assumed to represent an additional exceedance of the TPH-DRO/GRO PAL. An evaluation of the potential for product mobility based on these detections and response actions is presented following the SLRA in Section 7.2.

**Risk Characterization Approach:** For each EU, if the baseline risk ratio for each non-carcinogenic COPC or cumulative target organ does not exceed 1 (with the exception of lead), and the sum of the risk ratios for the carcinogenic COPCs does not exceed a cumulative cancer risk of 1E-5, then a no further action determination will be recommended. The primary EPC comparisons to determine the need for possible remedial action will be the Construction Worker scenario comparisons to the surface and subsurface soil EPCs, as well as the Composite Worker comparison to the surface soil EPCs. However, no further action will only be approvable if subsurface soil EPCs are compared to the Composite Worker RSLs in addition to the Construction Worker SSLs, and the cancer and non-cancer risk estimates are equal to or less than 1E-5 and 1, respectively. Pooled soil data has 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. For the Construction Worker, cumulative cancer risks exceeding 1E-5, but less than or equal to 1E-4, will be mitigated via site-specific health and safety requirements. 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 2,737 mg/kg, and 3,417 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 an evaluation of selective removal (excavation) to reduce site-wide cancer and/or non-cancer risks to acceptable levels.

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

toxicity reduction will be completed such that the probability would be reduced to less than 10% after toxicity reduction, but before capping.

### 6.2. PARCEL B4 SLRA RESULTS AND RISK CHARACTERIZATION

The soil data were divided into three datasets (surface, subsurface, and pooled) for each EU in Parcel B4 to evaluate potential current and future exposure scenarios. The pooled data may be applicable for future development plans that involve disturbances of the surface soil, since workers would likely not be exposed solely to the subsurface soil.

The results for thallium were eliminated from the list of soil COPCs for risk assessment because this compound was very infrequently detected in Parcel B4 (evaluated based on frequency of detection for the entire Parcel B4 soil dataset). Thallium was only detected in 3.6% of the samples analyzed for this compound (4 samples out of 111). 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 analysis assuming the detections are not extremely high (based on agency discretion). A single detection that is extremely high could require delineation rather than elimination. In this case it is reasonable to remove thallium from the risk assessment based on the relatively low magnitude of the detections. Total PCBs have been included in the risk ratio analysis, but Aroclor 1254 and Aroclor 1260 were omitted to avoid double-counting the risk associated with PCBs. The total PCB values include the sum of both mixtures, and the screening level for total PCBs is as conservative as either of the PCB mixtures. All remaining COPCs have been retained for the risk assessment based on the frequency of detections (>5%) in the overall soil dataset.

EPCs were calculated for each soil dataset (i.e., surface, subsurface, and pooled surface/subsurface) for each EU. As indicated above, the EPCs for lead are the average (i.e., arithmetic mean) values for each dataset. The average lead concentrations are presented for each dataset in **Table 13**. 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 three datasets (surface, subsurface, and pooled) for each EU. 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 are shown in **Table 14** (surface soils) and **Table 15** (subsurface soils). **Table 16** presents the supplemental EPCs generated from the pooled surface and subsurface soils for the each EU.

As indicated on **Table 13**, neither surface, subsurface, nor pooled soils exceeded an average lead value of 800 mg/kg. The screening criterion for lead was set at an exposure unit arithmetic mean of 800 mg/kg based on the RSL, with a secondary limit of 2,737 mg/kg based on the Adult Lead Model 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.

Total PCBs exceeded the mandatory excavation criterion of 50 mg/kg at soil sample B4-037-SB which targeted a historical Substation/Transformer. This sampling target was identified on a map of former PCB-containing transformer equipment which historically contained PCBs at levels greater than 50 ppm but less than 500 ppm. Surface soil sample B4-037-SB-1 had detections of total PCBs and Aroclor 1254 exceeding the specified excavation criterion (123.7 mg/kg and 84 mg/kg, respectively). Due to the elevated detections of PCBs, vertical and horizontal delineation activities were completed on the northern portion of the Substation/Transformer sampling target, and this investigation identified a total of six surface delineation soil borings (including B4-037-SB) that exceeded 50 mg/kg of total PCBs. The locations with PCB detections above 50 mg/kg are presented on **Figure 5**. The impacted soil exceeding 50 mg/kg will be excavated and removed in accordance with all applicable regulations and disposal requirements.

**Composite Worker Assessment:**

Risk ratios for the estimates of potential EPCs for the Composite Worker scenario are shown in **Table 17** (surface), **Table 18** (subsurface), and **Table 19** (pooled surface and subsurface soils). The results are summarized as follows:

| Worker Scenario | Exposure Unit | Medium | Hazard Index (>1) | Total Cancer Risk |
|---|---|---|---|---|
| Composite Worker | Parcel B4 (51.1 acres) | Surface Soil | none | 1E-05 |
| | | Subsurface Soil | none | 1E-05 |
| | | Surface & Subsurface Soil | none | 1E-05 |
| | Sub-Parcel B4-1 (21.0 acres) | Surface Soil | none | 1E-05 |
| | | Subsurface Soil | none | 2E-05 |
| | | Surface & Subsurface Soil | none | 1E-05 |

The Sub-Parcel B4-1 EU has been capped by pavement as described in the Response and Development Work Plan for Area B: Sub-Parcel B4-1 (Automotive and RO-RO Distribution Center). The current Composite Worker will be exposed only to surface soils in the remaining Parcel B4 EU. The risk ratios indicated that the cumulative cancer risks for potential Composite Worker exposures to surface soil in both EUs were equal to the acceptable risk criterion identified in the Risk Characterization Approach for no further action (1E-5). When the non-cancer risks were segregated and summed by target organ for cumulative Hazard Index (HI), no target organ exceeded a cumulative HI of 1 in surface soils.

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 the Composite Worker exposures to subsurface soil were equal to 1E-5 and 2E-5 for the Parcel B4 and Sub-Parcel B4-1 EUs, respectively. The main contributor to cumulative cancer risk in subsurface soils in Sub-Parcel B4-1 was arsenic. The carcinogenic risks for the pooled Composite Worker scenario were less than or equal to the regulatory risk of 1E-5. When the non-cancer risks were segregated and summed by target organ for cumulative Hazard Index (HI), no target organ exceeded a cumulative HI of 1 in subsurface or pooled soils.

Based on the risk ratios for both EUs, potentially unacceptable risks to a future Composite Worker could be encountered in the Sub-Parcel B4-1 EU if intrusive activities which relocate subsurface soils to the surface were to occur. Institutional controls to ensure proper oversight and management of any future construction activity that includes disturbances of the existing subsurface soil below 1-foot bgs would adequately protect future Composite Workers by limiting potential exposures to subsurface soil which may be impacted above the acceptable risk criteria. However, environmental capping has already been installed in Sub-Parcel B4-1 (100%) and is even more protective of future Composite Workers for the subsurface exposure scenario. None of the carcinogenic risk estimates for the Composite Worker were greater than 1E-4, indicating that the capping remedy will provide adequate protection from carcinogens in the soil. None of the non-carcinogenic hazards exceeded the regulatory standards identified in the Risk Characterization Approach. Institutional controls (to ensure proper oversight and management of any future construction activity that would disturb the existing subsurface soil) are suitable measures for the protection of the future Composite Worker for both cancer risks and non-cancer hazards.

**Construction Worker Assessment:**

Risk ratios for the estimates of potential EPCs for the Construction Worker scenario (250-day baseline exposure frequency) are shown in **Table 20** (surface), **Table 21** (subsurface), and **Table 22** (pooled surface and subsurface soils). The variables entered for calculation of site-specific SSLs (EU area, input assumptions, and exposure frequency) are indicated as notes on the tables. The spreadsheets used for computation of the baseline 250-day Construction Worker SSLs are included as **Appendix G**. The results are summarized as follows:

| Worker Scenario | Exposure Unit | Medium | Hazard Index (>1) | Total Cancer Risk |
|---|---|---|---|---|
| Construction Worker (250 work day schedule) | Parcel B4 (51.1 acres) | Surface Soil | Nervous System = 5<br>Unspecified Target Organ = 2 | 2E-06 |
| | | Subsurface Soil | Nervous System = 2 | 2E-06 |
| | | Surface & Subsurface Soil | Nervous System = 3 | 2E-06 |
| | Sub-Parcel B4-1 (21.0 acres) | Surface Soil | Nervous System = 6 | 2E-06 |
| | | Subsurface Soil | Nervous System = 5<br>Dermal System = 2 | 5E-06 |
| | | Surface & Subsurface Soil | Nervous System = 7 | 2E-06 |

The Construction Worker may be exposed to only surface soils or a combination of surface and subsurface soils (i.e. pooled) during future excavation or other earth moving activities. There were no elevated screening level estimates of Construction Worker cancer risk above the acceptable risk criterion of 1E-5 for the baseline 250-day exposure frequency. Using the baseline 250-day exposure, elevated non-cancer hazards in surface soils were identified above the HI of 1 for the nervous system (HI=5 and HI=6 for the Parcel B4 and Sub-Parcel B4-1 EUs, respectively) and the unspecified system (HI=2 for the Parcel B4 EU). These impacts to the nervous system were caused primarily by elevated manganese. The impacts for the unspecified organ system were caused primarily by the additive effects of cyanide (HQ=1) and iron (HQ=0.6).

For subsurface soils evaluated for the baseline 250-day exposure, non-cancer hazards were noted for the nervous system in both EUs (HI=2 and HI=5 for the Parcel B4 and Sub-Parcel B4-1 EUs, respectively) due to manganese. An additional elevated hazard for subsurface soils was noted in the Sub-Parcel B4-1 EU for the dermal system (HI=2) due to the additive effects of elevated vanadium (HQ=1) and arsenic (HQ=0.7). Supplemental analysis evaluating the non-cancer hazards in pooled soils (which may be applicable depending on future proposed development) resulted in similar values for non-carcinogenic hazard, although some exposures were mitigated after pooling.

The risks may be re-evaluated based on the proposed schedule for any potential future intrusive construction work, which may be less than the 250 work day exposure presented herein.

# 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 investigation, a total of 112 Phase II Investigation soil samples, 117 additional PCB delineation soil samples, and 3 sub-slab soil gas samples were collected and analyzed to define the nature and extent of contamination in Parcel B4. The sampling and analysis plan for the parcel was developed to target specific features which represented a potential release of hazardous substances and/or petroleum products to the environment. Soil samples were analyzed for TCL-VOCs, TCL-SVOCs, TPH-DRO/GRO, TAL-Metals, hexavalent chromium, and cyanide. Shallow soil samples (0-1 foot bgs) were analyzed for PCBs. Sub-slab soil gas samples were analyzed for VOCs.

## 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 concentrations are well below the levels that would warrant evaluation of a removal remedy. None of the individual lead detections exceeded the mandatory delineation threshold of 10,000 mg/kg. The average lead concentrations in the surface, subsurface, and pooled (surface and subsurface) soils were below the 800 mg/kg RSL in both EUs, indicating that no further action is needed with respect to lead.

Aroclor 1254, Aroclor 1260, and total PCBs exceeded their respective PALs in multiple locations (eight total) collected from across the Site. Only one soil sample (B4-037-SB-1) exceeded the level that would warrant mandatory delineation and excavation of PCBs (50 mg/kg), with a detection of 123.7 mg/kg. At this time, delineation activities have been completed on the northern portion of the Substation/Transformer sampling target where elevated PCBs were identified. A total of six surface delineation soil borings (including B4-037-SB) exceeded the mandatory excavation criterion of 50 mg/kg. Material exceeding the threshold of 50 mg/kg will be excavated and disposed of at a permitted off-site commercial landfill approved to accept Toxic Substances Control Act (TSCA) regulated waste.

There were two PAL exceedances of DRO with the highest detection of 6,760 mg/kg in sample B4-037-SB-6, which targeted a former Substation/Transformer. Locations impacted by elevated TPH represent areas where free product (NAPL) could potentially mobilize, particularly along utility corridors. In addition, one location had physical evidence of possible free product which was noted on the soil boring log (B4-018-SB). Locations which warrant consideration for further action based on TPH detections and/or evidence of possible NAPL are discussed in the following section.

There were no soil PAL exceedances or concerns related to VOCs at the Site. The remaining PAL exceedances in soil consisted of six inorganics (arsenic, manganese, lead, thallium, vanadium, and hexavalent chromium) and six SVOCs (benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, dibenz[a,h]anthracene, indeno[1,2,3-c,d]pyrene, and naphthalene). Arsenic was the most common inorganic exceedance, and was detected above the PAL in the majority of soil samples analyzed at the Site (83 total). The maximum detection of arsenic was 85.7 mg/kg at sample location B4-003-SB-5. Benzo[a]pyrene exceeded the PAL in the largest number of samples (34) of any SVOC. The maximum detections for all SVOCs, with the exception of naphthalene, were identified in a single sample location (B4-056-SB) which targeted the former Water Treatment Area.

### 7.2. NON-AQUEOUS PHASE LIQUID

Elevated DRO was identified above the PAL (6,200 mg/kg) in two soil samples (B4-037-SB-6 and B4-042-SB-5) with detections of 6,760 mg/kg and 6,270 mg/kg, respectively. Elevated TPH-DRO/GRO concentrations could be indicative of the potential presence of free-phase NAPL. TPH-DRO/GRO detections in excess of 6,200 mg/kg should be 1) delineated for excavation; or 2) assessed in a detailed manner relative to any future development plans (plotted in comparison to all proposed utilities and water conveyance systems); and 3) evaluated for potential NAPL mobility. In addition, the agencies have stated that locations with concentrations in the low percent range are best considered for excavation.

Soil cores were screened for evidence of possible NAPL contamination during the completion of the Phase II soil borings in Parcel B4. The field observations were noted on the boring logs, and one sample location had physical evidence of NAPL noted in the soil core (B4-018-SB). The observations of possible NAPL included the presence of a sheen in the soil core from 6 to 7.5 feet bgs, which was accompanied by a petroleum odor. A soil sample was collected from the intermediate depth interval (4 to 5 feet bgs), above the observed sheen, due to encountered groundwater. The intermediate sample interval had a detection of DRO at 4,990 mg/kg.

Soils potentially impacted by NAPL have been present for many years and migration pathways associated with existing utilities that may cause off-site migration or surface discharges should be apparent by now. None of the permanent monitoring groundwater wells installed in Parcel B4 for groundwater sampling (as indicated in the Area B Groundwater Phase II Investigation Report dated September 30, 2016) showed any evidence of NAPL. However, the proximity of potential future utilities to B4-018-SB, B4-037-SB, and B4-042-SB should be evaluated in any future development planning for Parcel B4. 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.

Based on the specific observations documented on the soil boring logs (**Appendix B**) and available analytical data, a temporary screening piezometer is warranted in boring B4-018-SB to

assess potential mobility of NAPL. This piezometer should be gauged at standard intervals (0-hours, 48-hours, 30-days) to document any accumulation of NAPL in the casing. No piezometers or additional investigations are warranted at borings B4-037-SB and B4-042-SB based the low level of the DRO exceedances and lack of evidence of NAPL in the soil cores.

### 7.3. HUMAN HEALTH SCREENING ANALYSIS

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 to groundwater for a Composite Worker. In the event that future construction/excavation leads to a potential Construction Worker exposure to groundwater, health and safety plans should be implemented to limit exposure risk. Findings from the Area B Groundwater Phase II Investigation which include the groundwater data obtained within Parcel B4 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. The separate groundwater report included a screening level analysis for vapor intrusion (VI) risks to determine whether any cumulative (or individual) sample results exceeded the USEPA VI TCR (carcinogen) or THQ (non-carcinogen) Screening Levels. The Area B Groundwater Phase II Investigation Report did identify the presence of elevated total cyanide concentrations which could be indicative of potential VI risks within Parcel B4. The report provided recommendations to 1) complete supplemental sampling in select areas to determine the speciation of cyanide; and 2) address locations which may be impacted by elevated cyanide in the Response and Development Work Plans produced to facilitate improvements on the property.

The current Composite Worker will be exposed to surface soils. The risk ratios indicated that the cumulative cancer risks for the Composite Worker exposure to surface soils were equal to the regulatory benchmark for no further action of 1E-5. The cumulative carcinogenic risks for the potential Composite Worker exposures to subsurface soil were equal to 1E-5 (EU for undeveloped Parcel B4) and 2E-5 (Sub-Parcel B4-1). The main contributor to carcinogenic risk in subsurface soils in Sub-Parcel B4-1 was arsenic. The cumulative non-cancer HI of 1 was not exceeded for any organ system evaluated for Composite Worker exposure to surface or surface soils. Since no cumulative HI exceeded 1 for any target organ system and the estimates of cumulative cancer risk for exposure to surface soil were equal to 1E-5, neither of the EUs in Parcel B4 pose an unacceptable risk to the current Composite Worker, and no additional actions are required to support occupancy of the Site. Furthermore, paved capping of Sub-Parcel B4-1 has been completed, and is protective of exposures to impacted subsurface soil. Institutional controls should be implemented for the protection of Composite Workers to ensure proper oversight and management of any future intrusive construction activity that would include disturbance of soil from below the cap in Sub-Parcel B4-1. Beyond the removal of PCB-impacted material (accounted for in the SLRA), no further action is necessary for protection of the current or future Composite Worker for the remaining area of Parcel B4.

The Construction Worker risk analysis for a potential baseline exposure (250 work days) indicated that the cumulative cancer risks were less than or equal to 1E-5 for both surface and subsurface soils in both EUs. Elevated surface hazards above the HI of 1 were calculated for the nervous system (both EUs) primarily due to manganese, as well as the unspecified system (Parcel B4 EU) due to the additive effects of cyanide and iron. Elevated non-cancer hazards were also noted in subsurface soils for the nervous system in both EUs due to elevated manganese, and for the dermal system (Sub-Parcel B4-1) due to the additive effects of vanadium and arsenic. While not quantified, the mineralized manganese in the Parcel B4 soils is likely less bioavailable than the source materials from which the manganese toxicity criteria (and basis of the SSLs) were derived. Therefore, the non-cancer manganese hazard is likely overstated. The total HI values for the future Construction Worker (both EUs) may indicate the need for protective controls (dust mask, etc.) if a long term construction project is proposed for the property in the future. The risks may be re-evaluated based on the proposed schedule of construction, which may be less than the baseline 250 work day exposure presented herein. Unacceptable risks due to elevated metals can be addressed by the implementation of worker health and safety protocols. A supplemental Response and Development Work Plan would specify appropriate measures to protect future Construction Workers in the event of any future intrusive construction activity.

### 7.4. SUB-SLAB SOIL GAS

The nature and extent of constituents in sub-slab soil gas below the Maintenance Repair Shop have been adequately characterized by the Phase II Investigation. The sub-slab samples collected during the investigation of the Maintenance Repair Shop did not contain any VOC compounds that exceeded their specified PALs. Further investigation is not recommended based on the documentation of no significant impacts below the building slabs, indicating an insignificant risk for vapor intrusion to workers. The current buildings are suitable for occupancy and use by indoor commercial workers.

### 7.5. RECOMMENDATIONS

Sufficient remedial investigation data has been collected to evaluate the nature and extent of possible constituents of concern in Parcel B4. The presence and absence of soil and sub-slab soil gas impacts within Parcel B4 have been adequately described and further investigation is not warranted. The Sub-Parcel B4-1 is currently suitable for use by commercial/industrial workers. The larger EU for the undeveloped area of Parcel B4 is not currently suitable for use by commercial/industrial workers. Remedial and/or further action is recommended to support use of the entire Site via the following:

- Future use of the parcel should include the following deed restrictions:
    - Deed restriction for commercial/industrial Site use only, no portion of the Site should be used for agricultural, recreational or residential purposes.
    - Deed restriction on groundwater use, no subsurface water or groundwater should be extracted from aquifers for any purpose.
- Soil impacted by elevated PCBs (>50 mg/kg) in the vicinity of the former Substation/Transformer targeted by B4-037-SB are required to be excavated. Pre-delineation has been completed, and material exceeding the threshold of 50 mg/kg will be excavated and disposed of at a permitted off-site commercial landfill approved to accept TSCA regulated waste. An excavation plan will be submitted to the agencies for approval.
- Institutional controls should be implemented for the protection of workers to ensure proper oversight and management of any future intrusive construction activity that would disturb the existing surface soil layer. These institution controls would include a requirement for written notice to the MDE of any future soil disturbance activities, and may require health and safety requirements for any excavations of substantial time periods, and proper management and characterization of any material disturbed at the Site.
- If future development proposes disturbance of the subsurface soil below 1-foot bgs in Sub-Parcel B4-1 (from below the cap), then a detailed risk analysis should be completed and presented in a Response and Development Work Plan to further assess potential exposures to future workers.
- Soil boring locations with physical evidence of possible NAPL and/or elevated TPH detections (B4-018-SB, B4-037-SB, and B4-042-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.
- A piezometer should be installed at soil boring B4-018-SB to assess the potential mobility of NAPL. This piezometer should be gauged at standard intervals (0-hours, 48-hours, 30-days) to document any accumulation of NAPL in the casing. If measurable NAPL accumulates in the piezometer casing, it shall be delineated according to standard methods (as documented in the Parcel B4 Phase II Investigation Work Plan), and further remedial actions will be determined as necessary.

- In accordance with the Area B Groundwater Phase II Investigation Report dated September 30, 2016, supplemental cyanide sampling should be completed within the Area B Groundwater Investigation Area to determine the speciation of cyanide in groundwater. This sampling may or may not include groundwater sample locations within Parcel B4. Based on the results of any supplemental sampling, select locations may need to be addressed for cyanide in a Response and Development Work Plan.

# 8.0 REFERENCES

ARM Group, Inc. (2016). *Phase II Investigation Work Plan: Parcel B4.* Revision 1. July 8, 2016.

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Rust Environmental & Infrastructure (1998). *Description of Current Conditions: Bethlehem Steel Corporation*. Final Draft. January, 1998.

USEPA (2017). *IRIS Toxicological Review of Benzo[a]pyrene (Final Report).* IRIS Recent Additions. January 19, 2017.

USEPA (2002). *Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites.* OSWER 9355.4-24. December, 2002.

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

# FIGURES


ARM Group Inc.
Earth Resource Engineers and Consultants

0 375 750 1,500 Feet

- Site Boundary
- Private Property
- Area A Boundaries
- Area B Boundaries

# Tradepoint Atlantic
# Area A and Area B Parcels

August 1, 2016

| | |
|---|---|
| EnviroAnalytics Group | Tradepoint Atlantic |
| Area A: Project 150298M<br>Area B: Project 150300M | Baltimore County, MD |

**Figure 1**


ARM Group Inc.
Earth Resource Engineers and Consultants

0 375 750 1,500 Feet

Site Boundary
Area A Boundaries
Area B Boundaries
Land
Marsh
Water

# Approximate Shoreline 1916

August 1, 2016

Adapted from Figure 2-5 of the Description of Current Conditions Report prepared by Rust Environmental and Infrastructure, dated January 1998

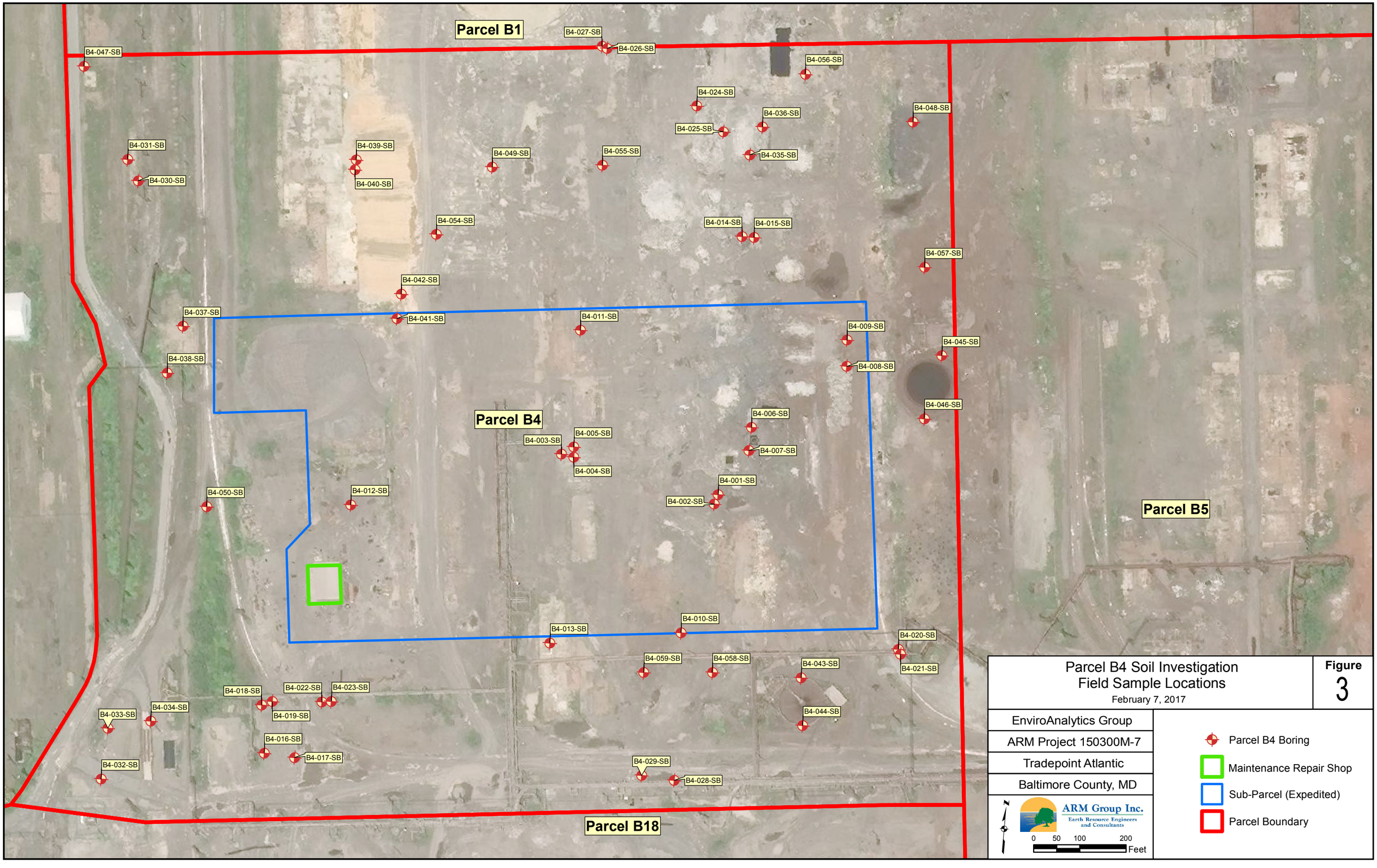
EnviroAnalytics Group

Area A: Project 150298M
Area B: Project 150300M

Tradepoint Atlantic

Baltimore County, MD

**Figure 2**




Parcel B4 Soil Investigation
Field Sample Locations
February 7, 2017

**Figure 3**

EnviroAnalytics Group

ARM Project 150300M-7

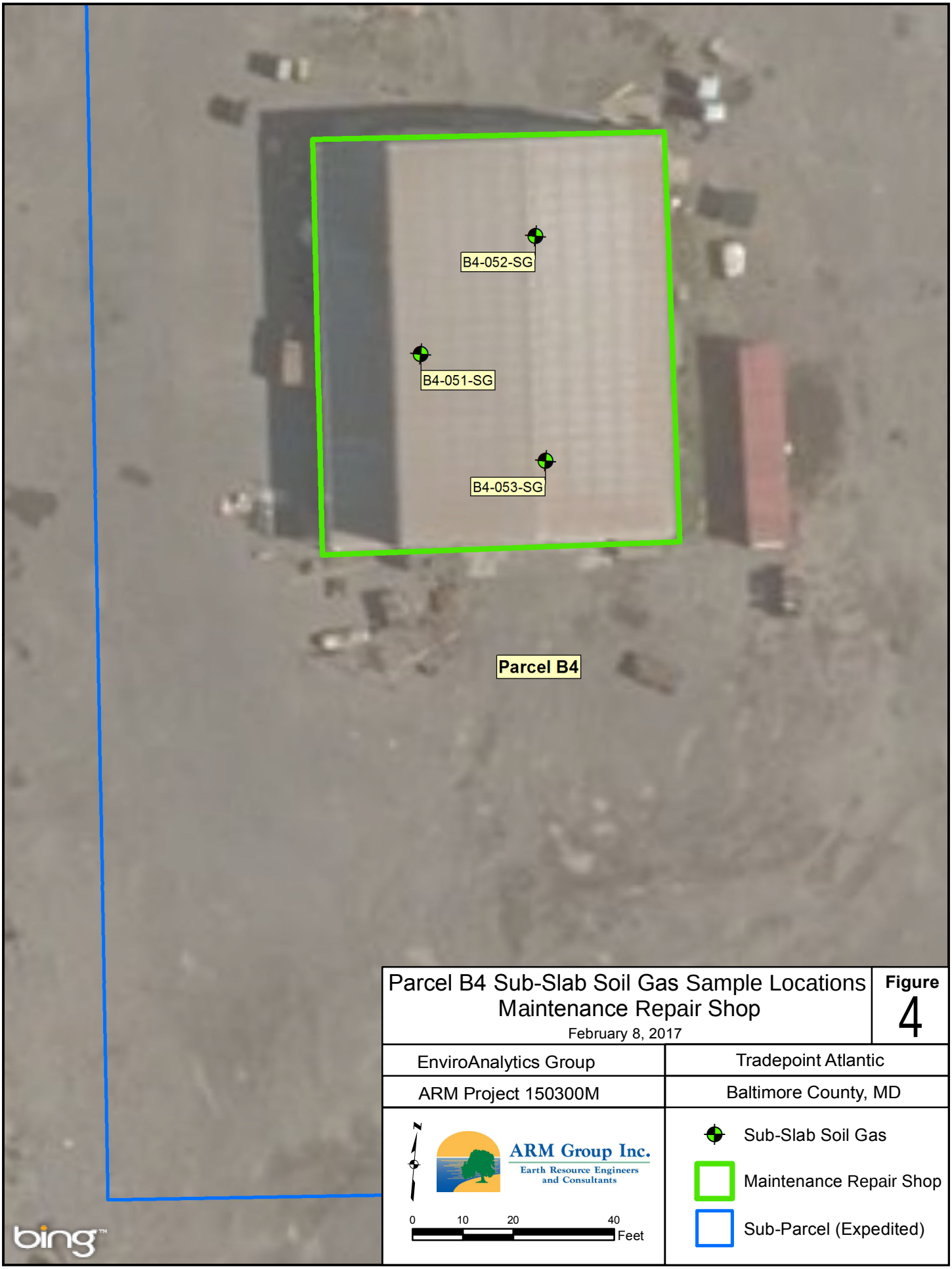
Tradepoint Atlantic

Baltimore County, MD

ARM Group Inc.
Earth Resource Engineers and Consultants

0 50 100 200 Feet

- Parcel B4 Boring
- Maintenance Repair Shop
- Sub-Parcel (Expedited)
- Parcel Boundary




# Parcel B4 Sub-Slab Soil Gas Sample Locations
## Maintenance Repair Shop

February 8, 2017

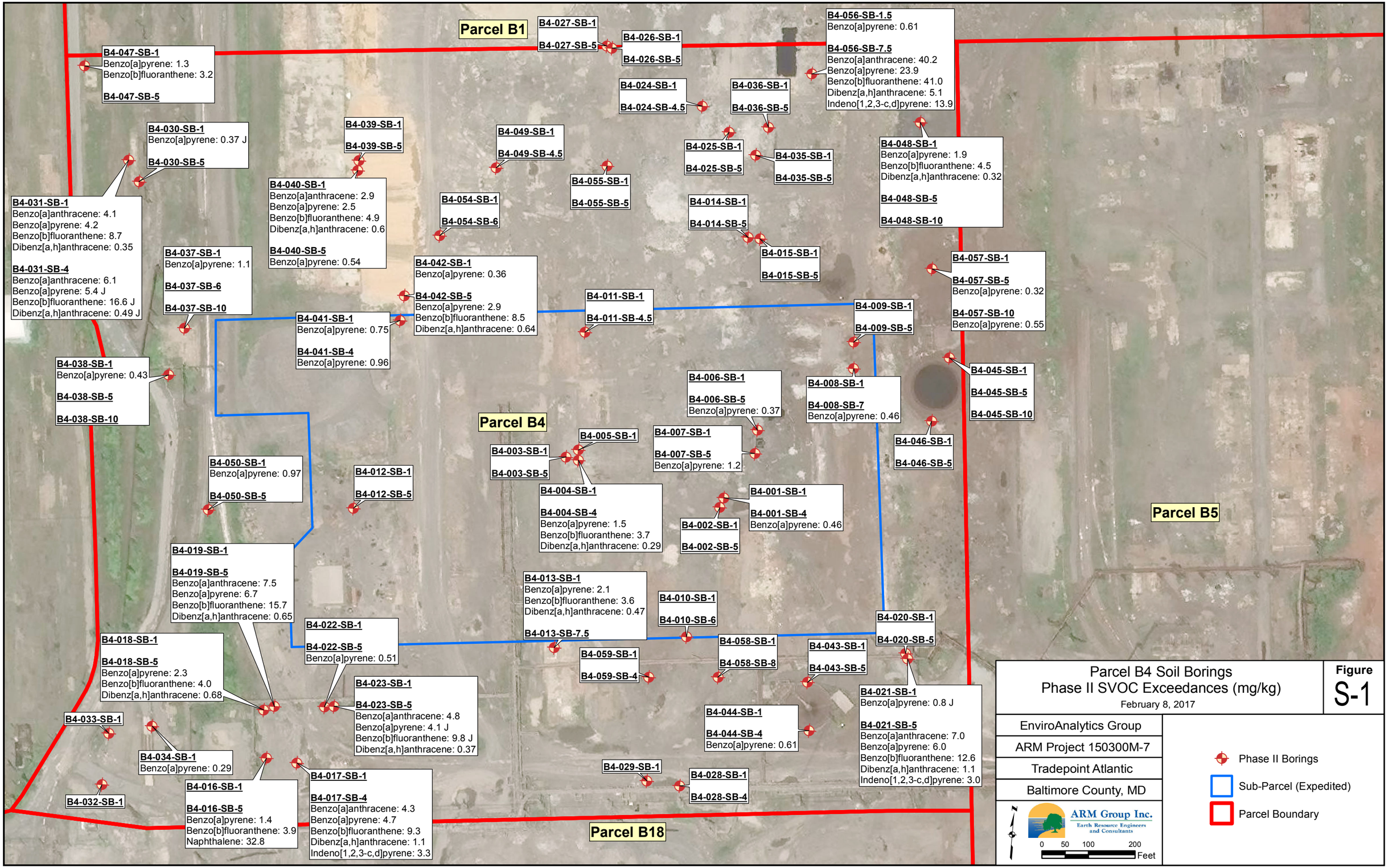
**Figure 4**

| | |
|---|---|
| EnviroAnalytics Group | Tradepoint Atlantic |
| ARM Project 150300M | Baltimore County, MD |

ARM Group Inc.
Earth Resource Engineers and Consultants

0 10 20 40 Feet

- Sub-Slab Soil Gas
- Maintenance Repair Shop
- Sub-Parcel (Expedited)


Parcel B1
B4-047-SB-1
Benzo[a]pyrene: 1.3
Benzo[b]fluoranthene: 3.2
B4-047-SB-5
B4-027-SB-1
B4-027-SB-5
B4-026-SB-1
B4-026-SB-5
B4-056-SB-1.5
Benzo[a]pyrene: 0.61
B4-056-SB-7.5
Benzo[a]anthracene: 40.2
Benzo[a]pyrene: 23.9
Benzo[b]fluoranthene: 41.0
Dibenz[a,h]anthracene: 5.1
Indeno[1,2,3-c,d]pyrene: 13.9
B4-024-SB-1
B4-024-SB-4.5
B4-036-SB-1
B4-036-SB-5
B4-030-SB-1
Benzo[a]pyrene: 0.37 J
B4-030-SB-5
B4-039-SB-1
B4-039-SB-5
B4-049-SB-1
B4-049-SB-4.5
B4-025-SB-1
B4-025-SB-5
B4-035-SB-1
B4-035-SB-5
B4-048-SB-1
Benzo[a]pyrene: 1.9
Benzo[b]fluoranthene: 4.5
Dibenz[a,h]anthracene: 0.32
B4-048-SB-5
B4-048-SB-10
B4-031-SB-1
Benzo[a]anthracene: 4.1
Benzo[a]pyrene: 4.2
Benzo[b]fluoranthene: 8.7
Dibenz[a,h]anthracene: 0.35
B4-031-SB-4
Benzo[a]anthracene: 6.1
Benzo[a]pyrene: 5.4 J
Benzo[b]fluoranthene: 16.6 J
Dibenz[a,h]anthracene: 0.49 J
B4-040-SB-1
Benzo[a]anthracene: 2.9
Benzo[a]pyrene: 2.5
Benzo[b]fluoranthene: 4.9
Dibenz[a,h]anthracene: 0.6
B4-040-SB-5
Benzo[a]pyrene: 0.54
B4-055-SB-1
B4-055-SB-5
B4-054-SB-1
B4-054-SB-6
B4-014-SB-1
B4-014-SB-5
B4-015-SB-1
B4-015-SB-5
B4-037-SB-1
Benzo[a]pyrene: 1.1
B4-037-SB-6
B4-037-SB-10
B4-042-SB-1
Benzo[a]pyrene: 0.36
B4-042-SB-5
Benzo[a]pyrene: 2.9
Benzo[b]fluoranthene: 8.5
Dibenz[a,h]anthracene: 0.64
B4-011-SB-1
B4-011-SB-4.5
B4-057-SB-1
B4-057-SB-5
Benzo[a]pyrene: 0.32
B4-057-SB-10
Benzo[a]pyrene: 0.55
B4-009-SB-1
B4-009-SB-5
B4-041-SB-1
Benzo[a]pyrene: 0.75
B4-041-SB-4
Benzo[a]pyrene: 0.96
B4-038-SB-1
Benzo[a]pyrene: 0.43
B4-038-SB-5
B4-038-SB-10
B4-045-SB-1
B4-045-SB-5
B4-045-SB-10
Parcel B4
B4-006-SB-1
B4-006-SB-5
Benzo[a]pyrene: 0.37
B4-008-SB-1
B4-008-SB-7
Benzo[a]pyrene: 0.46
B4-005-SB-1
B4-007-SB-1
B4-007-SB-5
Benzo[a]pyrene: 1.2
B4-046-SB-1
B4-046-SB-5
B4-003-SB-1
B4-003-SB-5
B4-050-SB-1
Benzo[a]pyrene: 0.97
B4-050-SB-5
B4-012-SB-1
B4-012-SB-5
B4-004-SB-1
B4-004-SB-4
Benzo[a]pyrene: 1.5
Benzo[b]fluoranthene: 3.7
Dibenz[a,h]anthracene: 0.29
B4-001-SB-1
B4-001-SB-4
Benzo[a]pyrene: 0.46
B4-002-SB-1
B4-002-SB-5
Parcel B5
B4-019-SB-1
B4-019-SB-5
Benzo[a]anthracene: 7.5
Benzo[a]pyrene: 6.7
Benzo[b]fluoranthene: 15.7
Dibenz[a,h]anthracene: 0.65
B4-013-SB-1
Benzo[a]pyrene: 2.1
Benzo[b]fluoranthene: 3.6
Dibenz[a,h]anthracene: 0.47
B4-013-SB-7.5
B4-010-SB-1
B4-010-SB-6
B4-020-SB-1
B4-020-SB-5
B4-018-SB-1
B4-018-SB-5
Benzo[a]pyrene: 2.3
Benzo[b]fluoranthene: 4.0
Dibenz[a,h]anthracene: 0.68
B4-022-SB-1
B4-022-SB-5
Benzo[a]pyrene: 0.51
B4-058-SB-1
B4-058-SB-8
B4-059-SB-1
B4-059-SB-4
B4-043-SB-1
B4-043-SB-5
B4-023-SB-1
B4-023-SB-5
Benzo[a]anthracene: 4.8
Benzo[a]pyrene: 4.1 J
Benzo[b]fluoranthene: 9.8 J
Dibenz[a,h]anthracene: 0.37
B4-021-SB-1
Benzo[a]pyrene: 0.8 J
B4-021-SB-5
Benzo[a]anthracene: 7.0
Benzo[a]pyrene: 6.0
Benzo[b]fluoranthene: 12.6
Dibenz[a,h]anthracene: 1.1
Indeno[1,2,3-c,d]pyrene: 3.0
B4-033-SB-1
B4-044-SB-1
B4-044-SB-4
Benzo[a]pyrene: 0.61
B4-034-SB-1
Benzo[a]pyrene: 0.29
B4-029-SB-1
B4-028-SB-1
B4-028-SB-4
B4-016-SB-1
B4-016-SB-5
Benzo[a]pyrene: 1.4
Benzo[b]fluoranthene: 3.9
Naphthalene: 32.8
B4-017-SB-1
B4-017-SB-4
Benzo[a]anthracene: 4.3
Benzo[a]pyrene: 4.7
Benzo[b]fluoranthene: 9.3
Dibenz[a,h]anthracene: 1.1
Indeno[1,2,3-c,d]pyrene: 3.3
B4-032-SB-1
Parcel B18
Parcel B4 Soil Borings
Phase II SVOC Exceedances (mg/kg)
February 8, 2017
Figure
S-1
EnviroAnalytics Group
ARM Project 150300M-7
Tradepoint Atlantic
Baltimore County, MD
ARM Group Inc.
Earth Resource Engineers and Consultants
0 50 100 200
Feet
Phase II Borings
Sub-Parcel (Expedited)
Parcel Boundary

Parcel B1

B4-047-SB-1

B4-027-SB-1

B4-026-SB-1

B4-056-SB-1.5

B4-024-SB-1

B4-036-SB-1

B4-048-SB-1

B4-025-SB-1

B4-035-SB-1

B4-031-SB-1

B4-039-SB-1

B4-049-SB-1

B4-030-SB-1

B4-040-SB-1

**B4-055-SB-1**
Aroclor 1260: 1.05
PCBs (total): 1.49

**B4-014-SB-1**
Aroclor 1260: 4.68
PCBs (total): 4.68

B4-054-SB-1

B4-015-SB-1

B4-057-SB-1

**B4-037-SB-1**
Aroclor 1254: 84.0
Aroclor 1260: 39.7
PCBs (total): 123

B4-042-SB-1

B4-041-SB-1

B4-011-SB-1

**B4-009-SB-1**
Aroclor 1260: 1.78
PCBs (total): 2.191

B4-045-SB-1

B4-008-SB-1

**B4-038-SB-1**
Aroclor 1254: 11.0
Aroclor 1260: 6.01
PCBs (total): 17.01

B4-046-SB-1

Parcel B4

B4-006-SB-1

B4-003-SB-1

B4-005-SB-1

B4-007-SB-1

B4-004-SB-1
PCBs (total): 1.046

B4-001-SB-1

B4-050-SB-1

B4-012-SB-1

B4-002-SB-1
PCBs (total): 1.214

Parcel B5

**B4-010-SB-1**
Aroclor 1254: 9.53
PCBs (total): 9.53

B4-013-SB-1

B4-020-SB-1

B4-059-SB-1

B4-058-SB-1

B4-058-SB-8

B4-021-SB-1

B4-019-SB-1

B4-023-SB-1

B4-034-SB-1

B4-044-SB-1

B4-018-SB-1

B4-022-SB-1

B4-033-SB-1

B4-016-SB-1

B4-032-SB-1

Parcel B18

# Parcel B4 Soil Borings
# Phase II PCB Exceedances (mg/kg)

February 8, 2017

**Figure S-2**

EnviroAnalytics Group

ARM Project 150300M-7

Tradepoint Atlantic

Baltimore County, MD

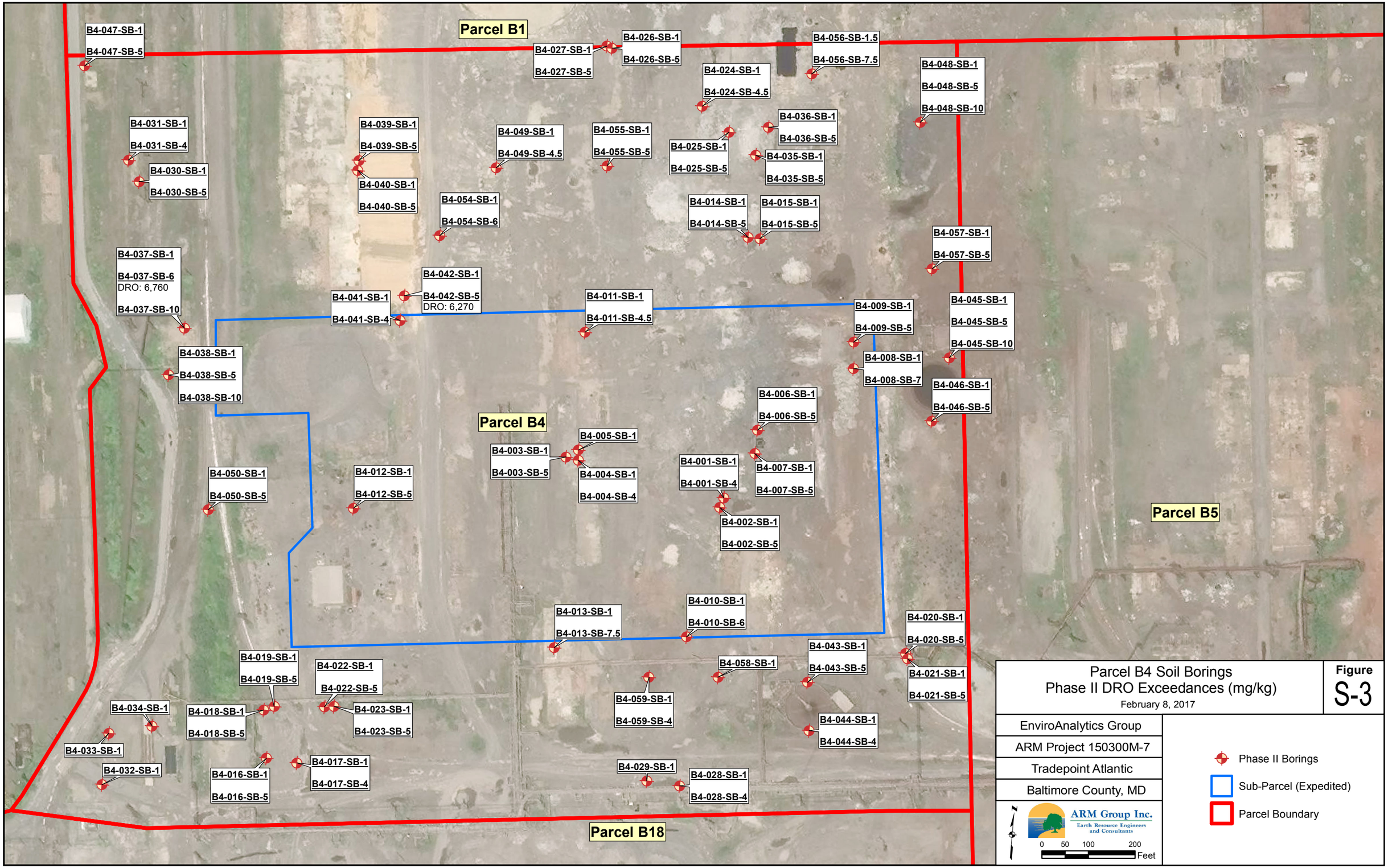
ARM Group Inc.
Earth Resource Engineers and Consultants

0 50 100 200 Feet

Phase II Borings

Sub-Parcel (Expedited)

Parcel Boundary




Parcel B4 Soil Borings
Phase II DRO Exceedances (mg/kg)
February 8, 2017

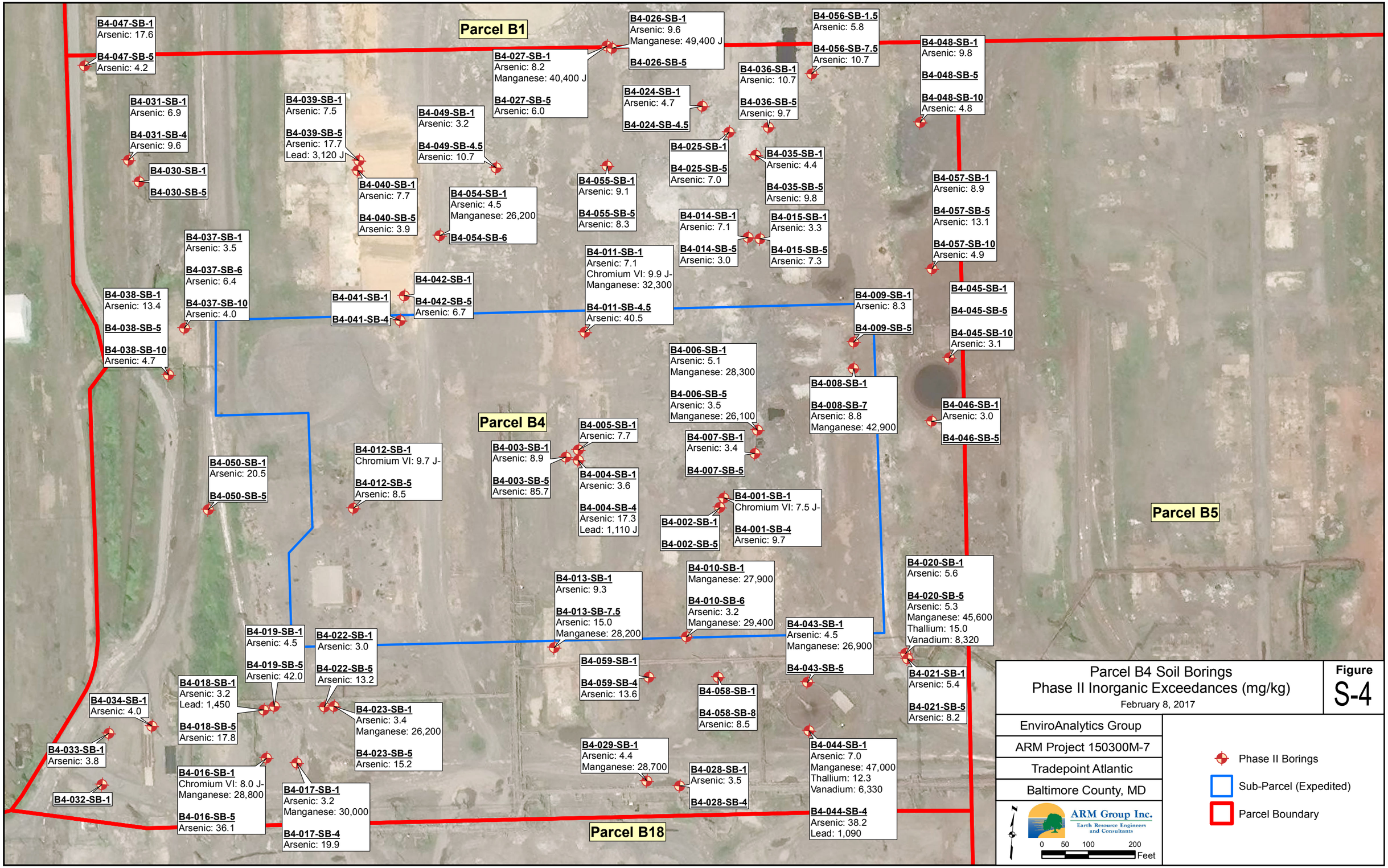
Figure
S-3

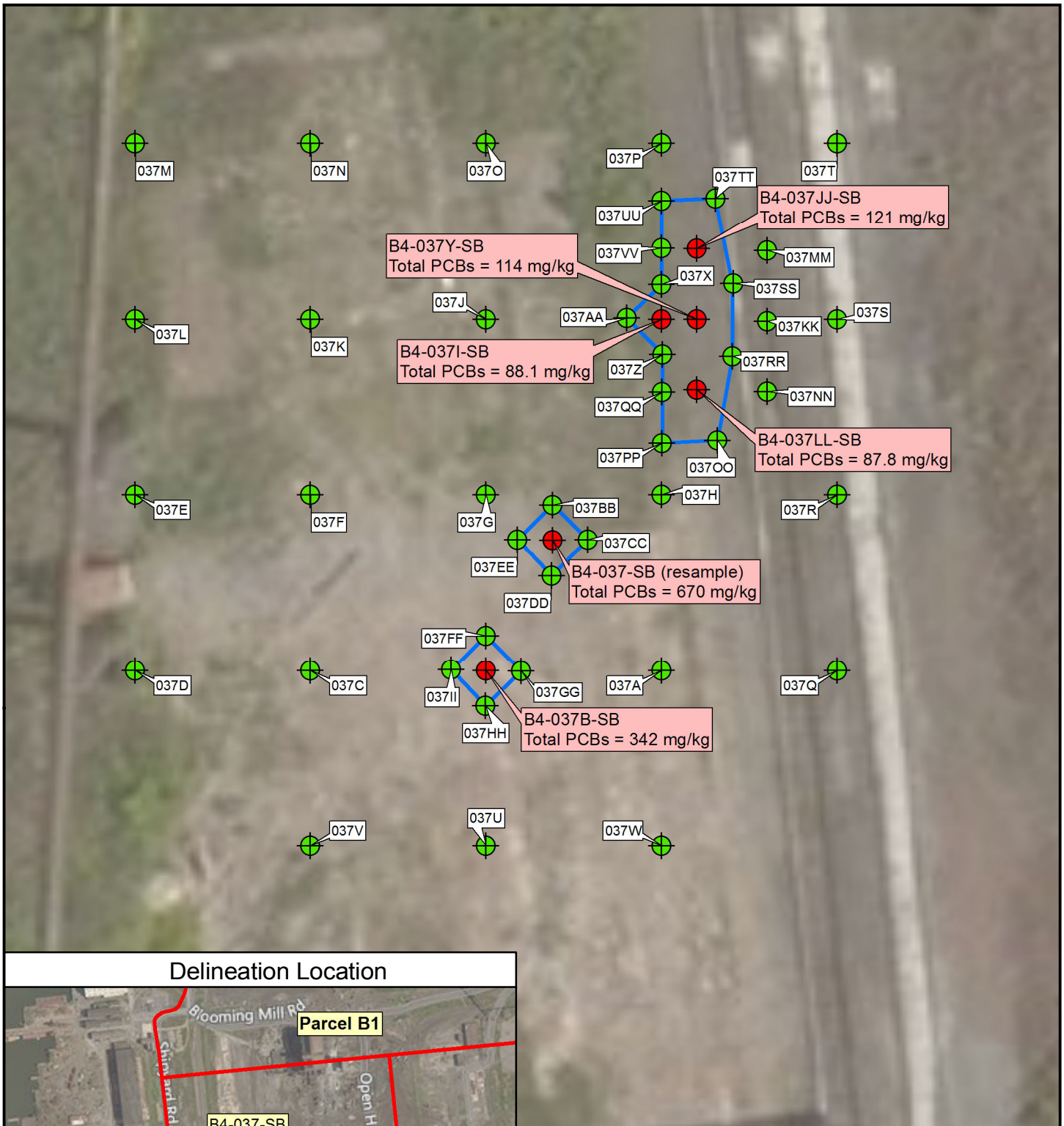
EnviroAnalytics Group
ARM Project 150300M-7
Tradepoint Atlantic
Baltimore County, MD

ARM Group Inc.
Earth Resource Engineers and Consultants

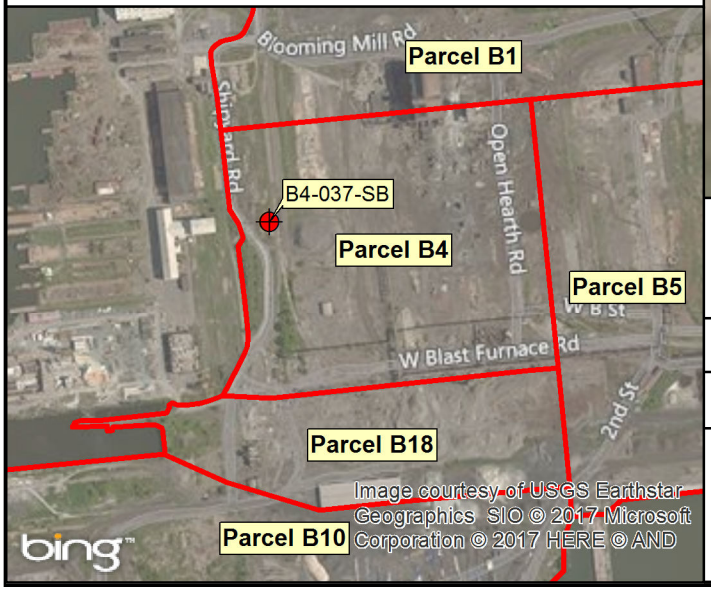
0 50 100 200
Feet

Phase II Borings
Sub-Parcel (Expedited)
Parcel Boundary


Parcel B1
B4-047-SB-1
Arsenic: 17.6
B4-047-SB-5
Arsenic: 4.2
B4-026-SB-1
Arsenic: 9.6
Manganese: 49,400 J
B4-026-SB-5
B4-056-SB-1.5
Arsenic: 5.8
B4-056-SB-7.5
Arsenic: 10.7
B4-048-SB-1
Arsenic: 9.8
B4-048-SB-5
B4-048-SB-10
Arsenic: 4.8
B4-027-SB-1
Arsenic: 8.2
Manganese: 40,400 J
B4-027-SB-5
Arsenic: 6.0
B4-024-SB-1
Arsenic: 4.7
B4-024-SB-4.5
B4-036-SB-1
Arsenic: 10.7
B4-036-SB-5
Arsenic: 9.7
B4-031-SB-1
Arsenic: 6.9
B4-031-SB-4
Arsenic: 9.6
B4-039-SB-1
Arsenic: 7.5
B4-039-SB-5
Arsenic: 17.7
Lead: 3,120 J
B4-049-SB-1
Arsenic: 3.2
B4-049-SB-4.5
Arsenic: 10.7
B4-025-SB-1
B4-025-SB-5
Arsenic: 7.0
B4-035-SB-1
Arsenic: 4.4
B4-035-SB-5
Arsenic: 9.8
B4-030-SB-1
B4-030-SB-5
B4-040-SB-1
Arsenic: 7.7
B4-040-SB-5
Arsenic: 3.9
B4-054-SB-1
Arsenic: 4.5
Manganese: 26,200
B4-054-SB-6
B4-055-SB-1
Arsenic: 9.1
B4-055-SB-5
Arsenic: 8.3
B4-057-SB-1
Arsenic: 8.9
B4-057-SB-5
Arsenic: 13.1
B4-057-SB-10
Arsenic: 4.9
B4-014-SB-1
Arsenic: 7.1
B4-014-SB-5
Arsenic: 3.0
B4-015-SB-1
Arsenic: 3.3
B4-015-SB-5
Arsenic: 7.3
B4-037-SB-1
Arsenic: 3.5
B4-037-SB-6
Arsenic: 6.4
B4-037-SB-10
Arsenic: 4.0
B4-011-SB-1
Arsenic: 7.1
Chromium VI: 9.9 J-
Manganese: 32,300
B4-011-SB-4.5
Arsenic: 40.5
B4-038-SB-1
Arsenic: 13.4
B4-038-SB-5
B4-038-SB-10
Arsenic: 4.7
B4-041-SB-1
B4-041-SB-4
B4-042-SB-1
B4-042-SB-5
Arsenic: 6.7
B4-009-SB-1
Arsenic: 8.3
B4-009-SB-5
B4-045-SB-1
B4-045-SB-5
B4-045-SB-10
Arsenic: 3.1
B4-006-SB-1
Arsenic: 5.1
Manganese: 28,300
B4-006-SB-5
Arsenic: 3.5
Manganese: 26,100
B4-008-SB-1
B4-008-SB-7
Arsenic: 8.8
Manganese: 42,900
B4-046-SB-1
Arsenic: 3.0
B4-046-SB-5
Parcel B4
B4-005-SB-1
Arsenic: 7.7
B4-007-SB-1
Arsenic: 3.4
B4-007-SB-5
B4-012-SB-1
Chromium VI: 9.7 J-
B4-012-SB-5
Arsenic: 8.5
B4-003-SB-1
Arsenic: 8.9
B4-003-SB-5
Arsenic: 85.7
B4-004-SB-1
Arsenic: 3.6
B4-004-SB-4
Arsenic: 17.3
Lead: 1,110 J
B4-050-SB-1
Arsenic: 20.5
B4-050-SB-5
B4-001-SB-1
Chromium VI: 7.5 J-
B4-001-SB-4
Arsenic: 9.7
B4-002-SB-1
B4-002-SB-5
Parcel B5
B4-010-SB-1
Manganese: 27,900
B4-010-SB-6
Arsenic: 3.2
Manganese: 29,400
B4-020-SB-1
Arsenic: 5.6
B4-020-SB-5
Arsenic: 5.3
Manganese: 45,600
Thallium: 15.0
Vanadium: 8,320
B4-013-SB-1
Arsenic: 9.3
B4-013-SB-7.5
Arsenic: 15.0
Manganese: 28,200
B4-043-SB-1
Arsenic: 4.5
Manganese: 26,900
B4-043-SB-5
B4-019-SB-1
Arsenic: 4.5
B4-019-SB-5
Arsenic: 42.0
B4-022-SB-1
Arsenic: 3.0
B4-022-SB-5
Arsenic: 13.2
B4-059-SB-1
B4-059-SB-4
Arsenic: 13.6
B4-058-SB-1
B4-058-SB-8
Arsenic: 8.5
B4-021-SB-1
Arsenic: 5.4
B4-021-SB-5
Arsenic: 8.2
B4-018-SB-1
Arsenic: 3.2
Lead: 1,450
B4-018-SB-5
Arsenic: 17.8
B4-023-SB-1
Arsenic: 3.4
Manganese: 26,200
B4-023-SB-5
Arsenic: 15.2
B4-034-SB-1
Arsenic: 4.0
B4-033-SB-1
Arsenic: 3.8
B4-032-SB-1
B4-016-SB-1
Chromium VI: 8.0 J-
Manganese: 28,800
B4-016-SB-5
Arsenic: 36.1
B4-017-SB-1
Arsenic: 3.2
Manganese: 30,000
B4-017-SB-4
Arsenic: 19.9
B4-029-SB-1
Arsenic: 4.4
Manganese: 28,700
B4-028-SB-1
Arsenic: 3.5
B4-028-SB-4
B4-044-SB-1
Arsenic: 7.0
Manganese: 47,000
Thallium: 12.3
Vanadium: 6,330
B4-044-SB-4
Arsenic: 38.2
Lead: 1,090
Parcel B18
Parcel B4 Soil Borings
Phase II Inorganic Exceedances (mg/kg)
February 8, 2017
Figure
S-4
EnviroAnalytics Group
ARM Project 150300M-7
Tradepoint Atlantic
Baltimore County, MD
ARM Group Inc.
Earth Resource Engineers and Consultants
0 50 100 200
Feet
Phase II Borings
Sub-Parcel (Expedited)
Parcel Boundary




## Delineation Location




# Parcel B4 PCB Delineation Sample Locations (B4-037-SB)

February 14, 2017

**Figure 5**

EnviroAnalytics Group
ARM Project 150300M-7

Tradepoint Atlantic
Baltimore County, MD

ARM Group Inc.
Earth Resource Engineers and Consultants

0 5 10 20 Feet

PCB Exceedance

No PCB Exceedance

Delineation Boundary

Excavation Criteria
Total PCBs: 50 mg/kg

# TABLES

**TABLE 1**
**HISTORICAL SITE DRAWING DETAILS**

| Set Name | Typical Features Shown | Drawing Number | Original Date Drawn | Latest Revision Date |
|---|---|---|---|---|
| Plant Arrangement | Roads, water bodies, building/structure footprints, electric lines, above-ground pipelines (e.g.: steam, nitrogen, etc.) | 5014 | 10/1/1959 | 3/12/1982 |
| | | 5015 | 6/14/1957 | 3/12/1982 |
| | | 5020 | *Unknown* | 3/9/1982 |
| | | 5021 | 10/1/1958 | 3/11/1982 |
| | | 5026 | 6/24/1958 | 3/11/1982 |
| | | 5027 | 6/24/1959 | 3/11/1982 |
| Plant Index | Roads, water bodies, demolished buildings/structures, electric lines, above-ground pipelines | 5114 | *Unknown* | 8/14/2008 |
| | | 5115 | *Unknown* | 9/4/2008 |
| | | 5120 | *Unknown* | 6/26/2008 |
| | | 5121 | *Unknown* | 11/7/2008 |
| | | 5126 | *Unknown* | 9/27/2010 |
| | | 5127 | *Unknown* | 8/14/2008 |
| | | 5120-A | *Unknown* | 3/28/2008 |
| | | 5120-B | *Unknown* | 9/28/2010 |
| | | 5120-C | *Unknown* | 9/28/2010 |
| | | 5120-D | *Unknown* | 8/13/2008 |
| Plant Sewer Lines | Same as above plus trenches, sumps, underground piping (includes pipe materials) | 5514 | *Unknown* | 1/22/1982 |
| | | 5515 | 10/1/1958 | 9/11/2008 |
| | | 5520 | *Unknown* | 3/19/1992 |
| | | 5521 | 9/30/1959 | 9/10/2008 |
| | | 5526 | 8/24/1959 | 3/19/1992 |
| | | 5527 | *Unknown* | 9/10/2008 |
| Drip Legs | Coke Oven Gas Drip Legs Locations | 5885B | *Unknown* | Sept. 1988 |

**TABLE 2**
**FIELD SHIFTED BORING LOCATIONS**

| Location ID | Sample Target | Proposed Location[¥] | | Final Location[¥] | | Relocation Distance & Direction | |
|---|---|---|---|---|---|---|---|
| | | Northing | Easting | Northing | Easting | | |
| B4-001-SB | Drip Legs | 564544.64 | 1457529.62 | 564546.48 | 1457554.39 | 25 | E |
| B4-002-SB | Drip Legs | 564525.46 | 1457532.02 | 564524.34 | 1457547.76 | 16 | E |
| B4-003-SB | Oil House: REC 8C, Finding 203 | 564606.49 | 1457222.44 | 564603.84 | 1457209.41 | 13 | W |
| B4-005-SB | Oil House: REC 8C, Finding 203 | 564615.05 | 1457235.22 | 564621.30 | 1457234.51 | 6 | N |
| B4-006-SB | Emergency Plating Pit | 564682.64 | 1457612.63 | 564696.78 | 1457613.43 | 14 | N |
| B4-007-SB | Emergency Plating Pit | 564655.84 | 1457615.38 | 564646.67 | 1457612.09 | 9 | SW |
| B4-008-SB | Substation/Transformers | 564826.02 | 1457790.15 | 564846.49 | 1457807.58 | 27 | NE |
| B4-009-SB | Substation/Transformers | 564885.50 | 1457776.96 | 564902.98 | 1457802.79 | 31 | NE |
| B4-011-SB | Parcel Coverage | 564855.86 | 1457230.48 | 564873.96 | 1457226.52 | 19 | N |
| B4-015-SB | Desulfurizer Stations | 565109.48 | 1457581.40 | 565106.95 | 1457583.04 | 3 | SW |
| B4-016-SB | Desulfurizer Stations | 563899.83 | 1456620.08 | 563903.91 | 1456625.04 | 7 | NE |
| B4-017-SB | Desulfurizer Stations | 563880.47 | 1456713.05 | 563899.64 | 1456691.25 | 29 | NW |
| B4-018-SB | Drip Legs | 564013.98 | 1456612.79 | 564006.63 | 1456610.57 | 8 | SW |
| B4-020-SB | Drip Legs | 564235.64 | 1457967.29 | 564247.04 | 1457971.91 | 12 | NE |
| B4-024-SB | Drip Legs | 565354.38 | 1457461.33 | 565379.10 | 1457435.17 | 36 | NW |
| B4-025-SB | Drip Legs | 565343.09 | 1457462.29 | 565328.96 | 1457497.08 | 38 | SE |
| B4-027-SB | Mould Treatment Building | 565485.32 | 1457220.67 | 565490.08 | 1457219.70 | 5 | N |
| B4-028-SB | Fuel Department | 563882.57 | 1457505.31 | 563922.23 | 1457513.72 | 40 | NE |
| B4-029-SB | Fuel Department | 563874.24 | 1457451.83 | 563926.63 | 1457442.75 | 53 | N |
| B4-032-SB | Gas Pump Station: REC 8D, Finding 204 | 563807.15 | 1456280.71 | 563816.76 | 1456278.75 | 10 | N |
| B4-033-SB | Gas Pump Station: REC 8D, Finding 204 | 563922.38 | 1456277.23 | 563927.76 | 1456283.80 | 9 | NE |
| B4-034-SB | Gas Pump Station: REC 8D, Finding 204 | 563946.09 | 1456378.93 | 563951.07 | 1456374.77 | 7 | NW |
| B4-038-SB | Substation/Transformers | 564706.65 | 1456341.47 | 564704.65 | 1456344.52 | 4 | SE |
| B4-042-SB | Tar Tanks | 564908.73 | 1456823.95 | 564918.51 | 1456833.65 | 14 | NE |
| B4-043-SB | Thickener Tanks | 564168.50 | 1457768.79 | 564167.61 | 1457767.73 | 1 | SW |
| B4-049-SB | Parcel Coverage | 565218.38 | 1457013.08 | 565208.99 | 1457005.89 | 12 | SW |

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

TABLE 3
TCLP RESULTS FOR SOLID IDW

| Sample ID | Parameter | Result (mg/L) | Laboratory Flag | TCLP Limit (mg/L) | TCLP Exceedance | Laboratory LOQ (mg/L) |
|---|---|---|---|---|---|---|
| B4 MDE Waste Chara. (10/7/16) | 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 | 0.0041 | J | 5 | no | 0.05 |
| | Barium | 0.39 | J | 100 | no | 1 |
| | Benzene | 0.05 | U | 0.5 | no | 0.05 |
| | Cadmium | 0.0036 | J | 1 | no | 0.05 |
| | Carbon tetrachloride | 0.05 | U | 0.5 | no | 0.05 |
| | Chlorobenzene | 1 | U | 100 | no | 1 |
| | Chloroform | 0.5 | U | 6 | no | 0.5 |
| | Chromium | 0.0013 | JB | 5 | no | 0.05 |
| | Hexachlorobenzene | 0.1 | U | 0.13 | no | 0.1 |
| | Hexachloroethane | 0.5 | U | 3 | no | 0.5 |
| | Lead | 0.0047 | 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 | 0.1 | 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 |
| B4 Waste Disposal (3/22/16) | 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) | 0.0657 | J | 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 | 0.11 | J | 100 | no | 1 |
| | Benzene | 0.05 | U | 0.5 | no | 0.05 |
| | Cadmium | 0.0009 | J | 1 | no | 0.05 |
| | Carbon tetrachloride | 0.05 | U | 0.5 | no | 0.05 |
| | Chlorobenzene | 1 | U | 100 | no | 1 |
| | Chloroform | 0.5 | U | 6 | no | 0.5 |
| | Chromium | 0.012 | J | 5 | no | 0.05 |
| | Hexachlorobenzene | 0.1 | U | 0.13 | no | 0.1 |
| | Hexachloroethane | 0.5 | U | 3 | no | 0.5 |
| | Lead | 0.25 | U | 5 | no | 0.25 |
| | 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 |

U: The analyte was not detected in the sample. The numeric value represents the sample LOQ.
J: The positive result for this analyte is a quantitative estimate below the laboratory LOQ.
B: The compound/analyte was not detected substantially above the level of the associated method blank/preparation or field blank.
TCLP = Toxicity characteristic leaching procedure
LOQ = Limit of Quantitation

**TABLE 4**
**TCLP RESULTS FOR LIQUID IDW**

| Location ID | Parameter | Result (mg/L) | TCLP Limit (mg/L) | TCLP Exceedance | Laboratory Flag | Laboratory LOQ (mg/L) |
|---|---|---|---|---|---|---|
| Water Disposal (2/2/17) | 1,1-Dichloroethene | 0.001 | 0.7 | no | U | 0.001 |
| | 1,2-Dichloroethane | 0.001 | 0.5 | no | U | 0.001 |
| | 1,4-Dichlorobenzene | 0.001 | 7.5 | no | U | 0.001 |
| | 2-Butanone (MEK) | 0.01 | 200 | no | U | 0.01 |
| | Arsenic | 0.005 | 5 | no | U | 0.005 |
| | Barium | 0.0564 | 100 | no | | 0.01 |
| | Benzene | 0.0019 | 0.5 | no | | 0.001 |
| | Cadmium | 0.003 | 1 | no | U | 0.003 |
| | Carbon tetrachloride | 0.001 | 0.5 | no | U | 0.001 |
| | Chlorobenzene | 0.001 | 100 | no | U | 0.001 |
| | Chloroform | 0.0009 | 6 | no | J | 0.001 |
| | Chromium | 0.0021 | 5 | no | J | 0.005 |
| | Lead | 0.005 | 5 | no | U | 0.005 |
| | Mercury | 0.0002 | 0.2 | no | U | 0.0002 |
| | Selenium | 0.008 | 1 | no | U | 0.008 |
| | Silver | 0.006 | 5 | no | U | 0.006 |
| | Tetrachloroethene | 0.001 | 0.7 | no | U | 0.001 |
| | Trichloroethene | 0.001 | 0.5 | no | U | 0.001 |
| | Vinyl chloride | 0.001 | 0.2 | no | U | 0.001 |
| Water Disposal (7/22/16) | 1,1-Dichloroethene | 0.001 | 0.7 | no | U | 0.001 |
| | 1,2-Dichloroethane | 0.001 | 0.5 | no | U | 0.001 |
| | 1,4-Dichlorobenzene | 0.001 | 7.5 | no | U | 0.001 |
| | 2-Butanone (MEK) | 0.01 | 200 | no | U | 0.01 |
| | Arsenic | 0.005 | 5 | no | U | 0.005 |
| | Barium | 0.0466 | 100 | no | | 0.01 |
| | Benzene | 0.001 | 0.5 | no | U | 0.001 |
| | Cadmium | 0.003 | 1 | no | U | 0.003 |
| | Carbon tetrachloride | 0.001 | 0.5 | no | U | 0.001 |
| | Chlorobenzene | 0.001 | 100 | no | U | 0.001 |
| | Chloroform | 0.001 | 6 | no | U | 0.001 |
| | Chromium | 0.0011 | 5 | no | J | 0.005 |
| | Lead | 0.005 | 5 | no | U | 0.005 |
| | Mercury | 0.0002 | 0.2 | no | U | 0.0002 |
| | Selenium | 0.008 | 1 | no | U | 0.008 |
| | Silver | 0.006 | 5 | no | U | 0.006 |
| | Tetrachloroethene | 0.0035 | 0.7 | no | | 0.001 |
| | Trichloroethene | 0.003 | 0.5 | no | | 0.001 |
| | Vinyl chloride | 0.001 | 0.2 | no | U | 0.001 |

**TABLE 4**
**TCLP RESULTS FOR LIQUID IDW**

| Location ID | Parameter | Result (mg/L) | TCLP Limit (mg/L) | TCLP Exceedance | Laboratory Flag | Laboratory LOQ (mg/L) |
|---|---|---|---|---|---|---|
| Water Disposal 1 (3/22/16) | 1,1-Dichloroethene | 0.001 | 0.7 | no | U | 0.001 |
| | 1,2-Dichloroethane | 0.001 | 0.5 | no | U | 0.001 |
| | 1,4-Dichlorobenzene | 0.001 | 7.5 | no | U | 0.001 |
| | 2-Butanone (MEK) | 0.01 | 200 | no | U | 0.01 |
| | Arsenic | 0.005 | 5 | no | U | 0.005 |
| | Barium | 0.0338 | 100 | no | | 0.01 |
| | Benzene | 0.001 | 0.5 | no | U | 0.001 |
| | Cadmium | 0.0006 | 1 | no | J | 0.003 |
| | Carbon tetrachloride | 0.001 | 0.5 | no | U | 0.001 |
| | Chlorobenzene | 0.001 | 100 | no | U | 0.001 |
| | Chloroform | 0.001 | 6 | no | U | 0.001 |
| | Chromium | 0.0016 | 5 | no | J | 0.005 |
| | Lead | 0.005 | 5 | no | U | 0.005 |
| | Mercury | 0.0002 | 0.2 | no | U | 0.0002 |
| | Selenium | 0.008 | 1 | no | U | 0.008 |
| | Silver | 0.006 | 5 | no | U | 0.006 |
| | Tetrachloroethene | 0.001 | 0.7 | no | U | 0.001 |
| | Trichloroethene | 0.001 | 0.5 | no | U | 0.001 |
| | Vinyl chloride | 0.001 | 0.2 | no | U | 0.001 |
| Water Disposal 2 (3/22/16) | 1,1-Dichloroethene | 0.001 | 0.7 | no | U | 0.001 |
| | 1,2-Dichloroethane | 0.001 | 0.5 | no | U | 0.001 |
| | 1,4-Dichlorobenzene | 0.001 | 7.5 | no | U | 0.001 |
| | 2-Butanone (MEK) | 0.01 | 200 | no | U | 0.01 |
| | Arsenic | 0.005 | 5 | no | U | 0.005 |
| | Barium | 0.0811 | 100 | no | | 0.01 |
| | Benzene | 0.001 | 0.5 | no | U | 0.001 |
| | Cadmium | 0.003 | 1 | no | U | 0.003 |
| | Carbon tetrachloride | 0.001 | 0.5 | no | U | 0.001 |
| | Chlorobenzene | 0.001 | 100 | no | U | 0.001 |
| | Chloroform | 0.0029 | 6 | no | | 0.001 |
| | Chromium | 0.0012 | 5 | no | J | 0.005 |
| | Lead | 0.005 | 5 | no | U | 0.005 |
| | Mercury | 0.0002 | 0.2 | no | U | 0.0002 |
| | Selenium | 0.008 | 1 | no | U | 0.008 |
| | Silver | 0.006 | 5 | no | U | 0.006 |
| | Tetrachloroethene | 0.001 | 0.7 | no | U | 0.001 |
| | Trichloroethene | 0.001 | 0.5 | no | U | 0.001 |
| | Vinyl chloride | 0.001 | 0.2 | no | U | 0.001 |

**TABLE 4**
**TCLP RESULTS FOR LIQUID IDW**

| Location ID | Parameter | Result (mg/L) | TCLP Limit (mg/L) | TCLP Exceedance | Laboratory Flag | Laboratory LOQ (mg/L) |
|---|---|---|---|---|---|---|
| Water Disposal 3 (3/22/16) | 1,1-Dichloroethene | 0.001 | 0.7 | no | U | 0.001 |
| | 1,2-Dichloroethane | 0.001 | 0.5 | no | U | 0.001 |
| | 1,4-Dichlorobenzene | 0.001 | 7.5 | no | U | 0.001 |
| | 2-Butanone (MEK) | 0.01 | 200 | no | U | 0.01 |
| | Arsenic | 0.005 | 5 | no | U | 0.005 |
| | Barium | 0.0051 | 100 | no | J | 0.01 |
| | Benzene | 0.001 | 0.5 | no | U | 0.001 |
| | Cadmium | 0.003 | 1 | no | U | 0.003 |
| | Carbon tetrachloride | 0.001 | 0.5 | no | U | 0.001 |
| | Chlorobenzene | 0.001 | 100 | no | U | 0.001 |
| | Chloroform | 0.0016 | 6 | no | | 0.001 |
| | Chromium | 0.0009 | 5 | no | J | 0.005 |
| | Lead | 0.005 | 5 | no | U | 0.005 |
| | Mercury | 0.0002 | 0.2 | no | U | 0.0002 |
| | Selenium | 0.008 | 1 | no | U | 0.008 |
| | Silver | 0.006 | 5 | no | U | 0.006 |
| | Tetrachloroethene | 0.001 | 0.7 | no | U | 0.001 |
| | Trichloroethene | 0.001 | 0.5 | no | U | 0.001 |
| | Vinyl chloride | 0.001 | 0.2 | no | U | 0.001 |
| Water Disposal 4 (3/22/16) | 1,1-Dichloroethene | 0.001 | 0.7 | no | U | 0.001 |
| | 1,2-Dichloroethane | 0.001 | 0.5 | no | U | 0.001 |
| | 1,4-Dichlorobenzene | 0.001 | 7.5 | no | U | 0.001 |
| | 2-Butanone (MEK) | 0.01 | 200 | no | U | 0.01 |
| | Arsenic | 0.0094 | 5 | no | | 0.005 |
| | Barium | 0.101 | 100 | no | | 0.01 |
| | Benzene | 0.001 | 0.5 | no | U | 0.001 |
| | Cadmium | 0.003 | 1 | no | U | 0.003 |
| | Carbon tetrachloride | 0.001 | 0.5 | no | U | 0.001 |
| | Chlorobenzene | 0.001 | 100 | no | U | 0.001 |
| | Chloroform | 0.0024 | 6 | no | | 0.001 |
| | Chromium | 0.0012 | 5 | no | J | 0.005 |
| | Lead | 0.005 | 5 | no | U | 0.005 |
| | Mercury | 0.0002 | 0.2 | no | U | 0.0002 |
| | Selenium | 0.008 | 1 | no | U | 0.008 |
| | Silver | 0.006 | 5 | no | U | 0.006 |
| | Tetrachloroethene | 0.001 | 0.7 | no | U | 0.001 |
| | Trichloroethene | 0.001 | 0.5 | no | U | 0.001 |
| | Vinyl chloride | 0.001 | 0.2 | no | U | 0.001 |

**TABLE 4**
**TCLP RESULTS FOR LIQUID IDW**

| Location ID | Parameter | Result (mg/L) | TCLP Limit (mg/L) | TCLP Exceedance | Laboratory Flag | Laboratory LOQ (mg/L) |
|---|---|---|---|---|---|---|
| Water Disposal 5 (3/22/16) | 1,1-Dichloroethene | 0.001 | 0.7 | no | U | 0.001 |
| | 1,2-Dichloroethane | 0.001 | 0.5 | no | U | 0.001 |
| | 1,4-Dichlorobenzene | 0.001 | 7.5 | no | U | 0.001 |
| | 2-Butanone (MEK) | 0.01 | 200 | no | U | 0.01 |
| | Arsenic | 0.005 | 5 | no | U | 0.005 |
| | Barium | 0.398 | 100 | no | | 0.01 |
| | Benzene | 0.001 | 0.5 | no | U | 0.001 |
| | Cadmium | 0.0006 | 1 | no | J | 0.003 |
| | Carbon tetrachloride | 0.001 | 0.5 | no | U | 0.001 |
| | Chlorobenzene | 0.001 | 100 | no | U | 0.001 |
| | Chloroform | 0.0039 | 6 | no | | 0.001 |
| | Chromium | 0.0012 | 5 | no | J | 0.005 |
| | Lead | 0.005 | 5 | no | U | 0.005 |
| | Mercury | 0.0002 | 0.2 | no | U | 0.0002 |
| | Selenium | 0.008 | 1 | no | U | 0.008 |
| | Silver | 0.006 | 5 | no | U | 0.006 |
| | Tetrachloroethene | 0.001 | 0.7 | no | U | 0.001 |
| | Trichloroethene | 0.001 | 0.5 | no | U | 0.001 |
| | Vinyl chloride | 0.001 | 0.2 | no | U | 0.001 |
| Water Disposal 6 (3/22/16) | 1,1-Dichloroethene | 0.001 | 0.7 | no | U | 0.001 |
| | 1,2-Dichloroethane | 0.001 | 0.5 | no | U | 0.001 |
| | 1,4-Dichlorobenzene | 0.001 | 7.5 | no | U | 0.001 |
| | 2-Butanone (MEK) | 0.01 | 200 | no | U | 0.01 |
| | Arsenic | 0.005 | 5 | no | U | 0.005 |
| | Barium | 2.14 | 100 | no | | 0.01 |
| | Benzene | 0.001 | 0.5 | no | U | 0.001 |
| | Cadmium | 0.001 | 1 | no | J | 0.003 |
| | Carbon tetrachloride | 0.001 | 0.5 | no | U | 0.001 |
| | Chlorobenzene | 0.001 | 100 | no | U | 0.001 |
| | Chloroform | 0.0006 | 6 | no | J | 0.001 |
| | Chromium | 0.005 | 5 | no | U | 0.005 |
| | Lead | 0.005 | 5 | no | U | 0.005 |
| | Mercury | 0.0002 | 0.2 | no | U | 0.0002 |
| | Selenium | 0.008 | 1 | no | U | 0.008 |
| | Silver | 0.006 | 5 | no | U | 0.006 |
| | Tetrachloroethene | 0.001 | 0.7 | no | U | 0.001 |
| | Trichloroethene | 0.001 | 0.5 | no | U | 0.001 |
| | Vinyl chloride | 0.001 | 0.2 | no | U | 0.001 |

**TABLE 4**
**TCLP RESULTS FOR LIQUID IDW**

| Location ID | Parameter | Result (mg/L) | TCLP Limit (mg/L) | TCLP Exceedance | Laboratory Flag | Laboratory LOQ (mg/L) |
|---|---|---|---|---|---|---|
| Water Disposal 7 (3/22/16) | 1,1-Dichloroethene | 0.001 | 0.7 | no | U | 0.001 |
| | 1,2-Dichloroethane | 0.001 | 0.5 | no | U | 0.001 |
| | 1,4-Dichlorobenzene | 0.001 | 7.5 | no | U | 0.001 |
| | 2-Butanone (MEK) | 0.01 | 200 | no | U | 0.01 |
| | Arsenic | 0.005 | 5 | no | U | 0.005 |
| | Barium | 0.0889 | 100 | no | | 0.01 |
| | Benzene | 0.001 | 0.5 | no | U | 0.001 |
| | Cadmium | 0.0007 | 1 | no | J | 0.003 |
| | Carbon tetrachloride | 0.001 | 0.5 | no | U | 0.001 |
| | Chlorobenzene | 0.001 | 100 | no | U | 0.001 |
| | Chloroform | 0.0008 | 6 | no | J | 0.001 |
| | Chromium | 0.005 | 5 | no | U | 0.005 |
| | Lead | 0.005 | 5 | no | U | 0.005 |
| | Mercury | 0.0002 | 0.2 | no | U | 0.0002 |
| | Selenium | 0.008 | 1 | no | U | 0.008 |
| | Silver | 0.006 | 5 | no | U | 0.006 |
| | Tetrachloroethene | 0.001 | 0.7 | no | U | 0.001 |
| | Trichloroethene | 0.0007 | 0.5 | no | J | 0.001 |
| | Vinyl chloride | 0.001 | 0.2 | no | U | 0.001 |
| Water Disposal 8 (3/22/16) | 1,1-Dichloroethene | 0.001 | 0.7 | no | U | 0.001 |
| | 1,2-Dichloroethane | 0.001 | 0.5 | no | U | 0.001 |
| | 1,4-Dichlorobenzene | 0.001 | 7.5 | no | U | 0.001 |
| | 2-Butanone (MEK) | 0.01 | 200 | no | U | 0.01 |
| | Arsenic | 0.005 | 5 | no | U | 0.005 |
| | Barium | 0.01 | 100 | no | J | 0.01 |
| | Benzene | 0.001 | 0.5 | no | U | 0.001 |
| | Cadmium | 0.003 | 1 | no | U | 0.003 |
| | Carbon tetrachloride | 0.001 | 0.5 | no | U | 0.001 |
| | Chlorobenzene | 0.001 | 100 | no | U | 0.001 |
| | Chloroform | 0.001 | 6 | no | U | 0.001 |
| | Chromium | 0.005 | 5 | no | U | 0.005 |
| | Lead | 0.005 | 5 | no | U | 0.005 |
| | Mercury | 0.0002 | 0.2 | no | U | 0.0002 |
| | Selenium | 0.008 | 1 | no | U | 0.008 |
| | Silver | 0.006 | 5 | no | U | 0.006 |
| | Tetrachloroethene | 0.001 | 0.7 | no | U | 0.001 |
| | Trichloroethene | 0.001 | 0.5 | no | U | 0.001 |
| | Vinyl chloride | 0.001 | 0.2 | no | U | 0.001 |

J: The positive result reported for this analyte is a quantitative estimate below the laboratory PQL
U: The analyte was not detected in the sample. The numeric value represents the sample LOQ
TCLP: Toxicity Characterization Leaching Procedure
LOQ: Limit of Quantitation

**Table 5**
**Summary of Organics Detected in Soil**
**Parcel B4**
**Tradepoint Atlantic**
**Sparrows Point, Maryland**

| Parameter | Units | PAL | B4-001-SB-1 | B4-001-SB-4 | B4-002-SB-1 | B4-002-SB-5 | B4-003-SB-1 | B4-003-SB-5 | B4-004-SB-1 | B4-004-SB-4 | B4-005-SB-1 | B4-006-SB-1 | B4-006-SB-5 | B4-007-SB-1 | B4-007-SB-5 | B4-008-SB-1 | B4-008-SB-7 | B4-009-SB-1 | B4-009-SB-5 | B4-010-SB-1 | B4-010-SB-6 | B4-011-SB-1 | B4-011-SB-4.5 | B4-012-SB-1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Volatile Organic Compound** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,2,3-Trichlorobenzene | mg/kg | 930 | 0.0051 U | 0.007 U | 0.0043 U | 0.013 U | 0.0066 U | 0.0054 U | 0.0059 U | 0.0057 U | 0.006 U | 0.004 U | 0.0048 UJ | 0.0066 U | 0.0041 U | **0.0022 J** | 0.006 U | 0.0058 U | 0.0055 U | 0.0052 U | 0.0051 U | 0.0056 U | 0.0056 U | 0.0051 U |
| 1,2,4-Trichlorobenzene | mg/kg | 110 | 0.0051 U | 0.007 U | 0.0043 U | 0.013 U | 0.0066 U | 0.0054 U | 0.0059 U | 0.0057 U | 0.006 U | 0.004 U | 0.0048 UJ | 0.0066 U | 0.0041 U | **0.0022 J** | 0.006 U | 0.0058 U | 0.0055 U | 0.0052 U | 0.0051 U | 0.0056 U | 0.0056 U | 0.0051 U |
| 1,4-Dichlorobenzene | mg/kg | 11 | 0.0051 U | 0.007 U | 0.0043 U | 0.013 U | 0.0066 U | 0.0054 U | 0.0059 U | 0.0057 U | 0.006 U | 0.004 U | 0.0048 UJ | 0.0066 U | 0.0041 U | 0.0051 U | 0.006 U | 0.0058 U | 0.0055 U | 0.0052 U | 0.0051 U | 0.0056 U | 0.0056 U | 0.0051 U |
| 2-Butanone (MEK) | mg/kg | 190,000 | 0.01 U | 0.014 U | **0.0026 J** | 0.026 U | 0.013 U | 0.011 U | 0.012 U | 0.011 U | 0.012 U | 0.0081 U | 0.0096 UJ | **0.0081 J** | 0.0082 U | 0.01 U | 0.012 U | 0.012 U | 0.011 U | **0.0027 J** | **0.0042 J** | 0.011 U | 0.011 U | **0.0042 J** |
| 2-Hexanone | mg/kg | 1,300 | 0.01 U | 0.014 U | 0.0086 U | 0.026 U | 0.013 U | 0.011 U | 0.012 U | 0.011 U | 0.012 U | 0.0081 U | 0.0096 UJ | **0.002 J** | 0.0082 U | 0.01 U | 0.012 U | 0.012 U | 0.011 U | 0.01 U | 0.01 U | 0.011 U | 0.011 U | 0.01 U |
| 4-Methyl-2-pentanone (MIBK) | mg/kg | 56,000 | 0.01 U | 0.014 U | 0.0086 U | 0.026 U | 0.013 U | 0.011 U | 0.012 U | 0.011 U | 0.012 U | 0.0081 U | 0.0096 UJ | 0.013 U | 0.0082 U | 0.01 U | 0.012 U | 0.012 U | 0.011 U | 0.01 U | **0.0021 J** | 0.011 U | 0.011 U | 0.01 U |
| Acetone | mg/kg | 670,000 | **0.02** | **0.13** | **0.03** | **0.04** | 0.013 UJ | **0.13 J** | **0.015 J** | **0.031 J** | **0.039 J** | **0.02** | **0.038 J** | **0.11** | **0.01** | **0.017 J** | **0.028 J** | **0.06** | **0.03** | **0.097 J** | **0.091 J** | 0.011 UJ | **0.025 J** | **0.05** |
| Benzene | mg/kg | 5.1 | 0.0051 U | 0.007 U | 0.0043 U | 0.013 U | 0.0066 U | **0.01** | 0.0059 U | 0.0057 U | 0.006 U | **0.0038 J** | **0.0043 J** | 0.0066 U | **0.0018 J** | 0.0051 U | 0.006 U | 0.0058 U | 0.0055 U | 0.0052 U | 0.0051 U | 0.0056 U | **0.01** | 0.0051 U |
| Chloroform | mg/kg | 1.4 | 0.0051 U | **0.01** | 0.0043 U | 0.013 U | 0.0066 U | 0.0054 U | 0.0059 U | 0.0057 U | 0.006 U | 0.004 U | 0.0048 UJ | 0.0066 U | 0.0041 U | 0.0051 U | 0.006 U | 0.0058 U | 0.0055 U | 0.0052 U | 0.0051 U | 0.0056 U | 0.0056 U | 0.0051 U |
| Cyclohexane | mg/kg | 27,000 | 0.01 U | 0.014 U | 0.0086 U | 0.026 U | 0.013 U | 0.011 U | 0.012 U | 0.011 U | 0.012 U | 0.0081 U | 0.0096 UJ | 0.013 U | 0.0082 U | 0.01 U | 0.012 U | 0.012 U | 0.011 U | 0.01 U | 0.01 U | 0.011 U | 0.011 U | 0.01 U |
| Ethylbenzene | mg/kg | 25 | 0.0051 U | 0.007 U | 0.0043 U | 0.013 U | 0.0066 U | **0.01** | 0.0059 U | 0.0057 U | 0.006 U | **0.0016 J** | 0.0048 UJ | 0.0066 U | **0.0013 J** | 0.0051 U | 0.006 U | 0.0058 U | 0.0055 U | 0.0052 U | 0.0051 U | 0.0056 U | **0.01** | 0.0051 U |
| Isopropylbenzene | mg/kg | 9,900 | 0.0051 U | 0.007 U | 0.0043 U | 0.013 U | 0.0066 U | 0.0054 U | 0.0059 U | 0.0057 U | 0.006 U | 0.004 U | 0.0048 UJ | 0.0066 U | 0.0041 U | 0.0051 U | 0.006 U | 0.0058 U | 0.0055 U | 0.0052 U | 0.0051 U | 0.0056 U | 0.0056 U | 0.0051 U |
| Methyl Acetate | mg/kg | 1,200,000 | 0.051 U | 0.07 U | 0.043 U | 0.13 U | 0.066 U | 0.054 U | 0.059 U | 0.057 U | 0.06 U | 0.04 U | 0.048 UJ | 0.066 U | 0.041 U | 0.051 R | 0.06 U | 0.058 U | 0.055 U | 0.052 U | 0.051 U | 0.056 U | 0.056 U | 0.051 U |
| Styrene | mg/kg | 35,000 | 0.0051 U | 0.007 U | 0.0043 U | 0.013 U | 0.0066 U | 0.0054 U | 0.0059 U | 0.0057 U | 0.006 U | 0.004 U | 0.0048 UJ | 0.0066 U | 0.0041 U | 0.0051 U | 0.006 U | 0.0058 U | 0.0055 U | 0.0052 U | 0.0051 U | 0.0056 U | 0.0056 U | 0.0051 U |
| Toluene | mg/kg | 47,000 | **0.01** | **0.0047 J** | **0.01** | **0.02** | **0.0059 J** | **0.02** | **0.0053 J** | **0.01** | **0.0049 J** | **0.01** | **0.0091 J** | **0.01** | **0.01** | **0.01** | **0.0025 J** | **0.01** | **0.01** | **0.01** | **0.0035 J** | **0.005 J** | **0.03** | **0.0043 J** |
| Xylenes | mg/kg | 2,800 | 0.015 U | 0.021 U | 0.013 U | 0.038 U | 0.02 U | **0.0062 J** | 0.018 U | 0.017 U | 0.018 U | 0.012 U | 0.014 UJ | 0.02 U | 0.012 U | 0.015 U | 0.018 U | 0.018 U | 0.017 U | 0.016 U | 0.015 U | 0.017 U | **0.01 J** | 0.015 U |
| **Semi-Volatile Organic Compounds**** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1-Biphenyl | mg/kg | 200 | 0.072 U | **0.026 J** | 0.072 U | 0.094 U | **0.017 J** | **0.02 J** | 0.075 U | **0.073 J** | 0.074 U | 0.071 U | 0.071 U | 0.073 U | 0.07 U | 0.072 U | **0.018 J** | 0.073 U | 0.072 U | **0.02 J** | **0.028 J** | 0.073 U | 0.072 U | **0.036 J** |
| 2,4-Dimethylphenol | mg/kg | 16,000 | 0.072 R | 0.078 U | 0.072 R | 0.094 U | 0.075 U | 0.073 U | 0.075 U | **0.024 J** | 0.074 U | 0.071 R | 0.071 R | 0.073 UJ | 0.07 U | 0.072 U | 0.073 U | 0.073 U | 0.072 U | 0.072 R | 0.071 R | 0.073 R | 0.072 U | 0.074 R |
| 2,4-Dinitrophenol | mg/kg | 1,600 | 0.18 R | 0.2 UJ | 0.18 R | 0.23 UJ | 0.19 U | 0.18 U | 0.19 U | 0.19 U | 0.19 U | 0.18 R | 0.18 R | 0.18 UJ | 0.18 UJ | 0.18 R | 0.18 U | 0.18 UJ | 0.18 R | 0.18 R | 0.18 R | 0.18 R | 0.18 U | 0.18 R |
| 2,6-Dinitrotoluene | mg/kg | 1.5 | 0.072 U | 0.078 U | 0.072 U | 0.094 U | 0.075 U | 0.073 U | 0.075 U | 0.077 U | 0.074 U | 0.071 U | 0.071 U | 0.073 U | 0.07 U | 0.072 U | 0.073 U | 0.073 U | 0.072 U | 0.072 U | 0.071 U | 0.073 U | 0.072 U | 0.074 U |
| 2-Chloronaphthalene | mg/kg | 60,000 | 0.072 U | 0.078 U | 0.072 U | 0.094 U | 0.075 U | 0.073 U | 0.075 U | 0.077 U | 0.074 U | 0.071 U | 0.071 U | 0.073 U | 0.07 U | 0.072 U | 0.073 U | 0.073 U | 0.072 U | 0.072 U | 0.071 U | 0.073 U | 0.072 U | 0.074 U |
| 2-Methylnaphthalene | mg/kg | 3,000 | **0.02** | **0.11** | **0.02** | **0.0075 J** | **0.051 J** | **0.14** | **0.014 J** | **0.26** | **0.032 J** | **0.02** | **0.03** | **0.0048 J** | **0.03** | **0.02** | **0.06** | **0.023 J** | **0.04** | **0.10** | **0.11** | **0.02** | **0.03** | **0.09** |
| 2-Methylphenol | mg/kg | 41,000 | 0.072 R | 0.078 U | 0.072 R | 0.094 U | 0.075 U | 0.073 U | 0.075 U | 0.077 U | 0.074 U | 0.071 R | 0.071 R | 0.073 UJ | 0.07 U | 0.072 U | 0.073 U | 0.073 U | 0.072 U | 0.072 R | 0.071 R | 0.073 R | 0.072 U | 0.074 R |
| 3&4-Methylphenol(m&p Cresol) | mg/kg | 41,000 | 0.14 R | **0.045 J** | 0.14 R | 0.19 U | 0.15 U | 0.15 U | 0.15 U | **0.038 J** | 0.15 U | 0.14 R | 0.14 R | 0.15 UJ | 0.14 U | 0.14 U | 0.14 U | 0.14 U | 0.14 U | 0.14 R | 0.14 R | 0.15 R | 0.14 U | 0.15 R |
| 4-Chloroaniline | mg/kg | 11 | 0.072 U | 0.078 U | 0.072 U | 0.094 U | 0.075 U | 0.073 U | 0.075 U | 0.077 U | 0.074 U | 0.071 U | 0.071 U | 0.073 U | 0.07 U | 0.072 UJ | 0.073 U | 0.073 U | 0.072 U | 0.072 U | 0.071 U | 0.073 U | 0.072 U | 0.074 U |
| Acenaphthene | mg/kg | 45,000 | **0.001 J** | **0.03** | **0.0037 J** | 0.0094 U | 0.077 U | **0.01** | 0.076 U | **0.029 J** | 0.074 U | **0.04** | **0.08** | **0.0012 J** | **0.28** | **0.0047 J** | **0.01** | **0.011 J** | **0.02** | **0.01** | **0.03** | **0.0011 J** | **0.04** | **0.0062 J** |
| Acenaphthylene | mg/kg | 45,000 | **0.0022 J** | **0.06** | **0.02** | **0.0022 J** | **0.041 J** | **0.01** | **0.023 J** | **0.13** | **0.026 J** | **0.01** | **0.0049 J** | **0.0009 J** | **0.0069 J** | 0.0072 U | **0.07** | **0.0064 J** | **0.0019 J** | **0.07** | **0.31** | **0.0035 J** | **0.0015 J** | **0.0033 J** |
| Acetophenone | mg/kg | 120,000 | 0.072 U | 0.078 U | 0.072 U | 0.094 U | 0.075 U | 0.073 U | 0.075 U | **0.034 J** | 0.074 U | 0.071 U | 0.071 U | 0.073 U | 0.07 U | 0.072 U | 0.073 U | 0.073 U | 0.072 U | **0.046 J** | **0.026 J** | **0.024 J** | **0.024 J** | 0.074 U |
| Anthracene | mg/kg | 230,000 | **0.0067 B** | **0.11** | **0.03** | **0.0047 B** | **0.067 J** | **0.02** | **0.039 J** | **0.23** | **0.052 J** | **0.02** | **0.02** | **0.0048 B** | **0.06** | **0.015 J** | **0.11** | **0.034 J** | **0.0045 B** | **0.05** | **0.18** | **0.0071 J** | **0.0015 J** | **0.01** |
| Benzaldehyde | mg/kg | 120,000 | 0.072 R | 0.078 R | 0.072 R | 0.094 R | **0.033 J** | **0.031 J** | **0.023 J** | **0.056 J** | 0.074 U | 0.071 R | 0.071 R | 0.073 R | 0.07 R | **0.021 J** | **0.024 J** | 0.073 R | 0.072 R | **0.044 J** | **0.026 J** | **0.023 J** | **0.044 J** | **0.039 J** |
| Benzo[a]anthracene | mg/kg | 2.9 | **0.03** | **0.54** | **0.08** | **0.02** | **0.22** | **0.06** | **0.11** | **1.10** | **0.19** | **0.12** | **0.19** | **0.02** | **0.53** | **0.025 J** | **0.48** | **0.098 J** | **0.03** | **0.06** | **0.17** | **0.03** | **0.0061 J** | **0.04** |
| Benzo[a]pyrene | mg/kg | 0.29 | **0.02** | **0.46** | **0.07** | **0.01** | **0.27** | **0.07** | **0.17** | **1.50** | **0.24** | **0.23** | **0.37** | **0.02** | **1.20** | **0.022 J** | **0.46** | **0.072 J** | **0.04** | **0.05** | **0.16** | **0.03** | **0.0057 J** | **0.03** |
| Benzo[b]fluoranthene | mg/kg | 2.9 | **0.10** | **1.10** | **0.18** | **0.04** | **0.71** | **0.18** | **0.39** | **3.70** | **0.58** | **0.55** | **0.83** | **0.05** | **1.60** | **0.069 J** | **1.20** | **0.28 J** | **0.06** | **0.15** | **0.35** | **0.10** | **0.02** | **0.15** |
| Benzo[g,h,i]perylene | mg/kg | | **0.01** | **0.12** | **0.02** | **0.0057 B** | **0.10** | **0.02** | **0.09** | **0.79** | **0.10** | **0.12** | **0.17** | **0.0062 B** | **0.49** | **0.0089 J** | **0.10** | **0.04 J** | **0.02** | **0.03** | **0.06** | **0.02** | **0.0031 J** | **0.01** |
| Benzo[k]fluoranthene | mg/kg | 29 | **0.09** | **1.10** | **0.18** | **0.04** | **0.68** | **0.18** | **0.38** | **3.50** | **0.55** | **0.52** | **0.79** | **0.05** | **0.68** | **0.066 J** | **1.10** | **0.27 J** | **0.05** | **0.14** | **0.34** | **0.09** | **0.02** | **0.14** |
| bis(2-Ethylhexyl)phthalate | mg/kg | 160 | 0.072 U | 0.078 U | **0.018 B** | 0.094 U | **0.64 J** | **0.016 B** | **0.18 B** | **0.11 B** | **0.1 J** | 0.071 U | 0.071 U | 0.073 U | 0.07 U | **0.13 J** | 0.073 UJ | **0.085 B** | 0.072 U | **0.019 B** | **0.052 B** | 0.073 U | 0.072 U | 0.074 U |
| Caprolactam | mg/kg | 400,000 | 0.18 U | 0.2 U | 0.18 U | 0.23 U | 0.19 U | 0.18 U | 0.19 U | 0.19 U | 0.19 U | 0.18 U | 0.18 U | 0.18 U | 0.18 U | 0.18 U | 0.18 U | 0.18 U | 0.18 U | 0.18 U | 0.18 U | 0.18 U | 0.18 U | 0.18 U |
| Carbazole | mg/kg | | 0.072 U | **0.052 J** | 0.072 U | 0.094 U | **0.038 J** | 0.073 U | **0.024 J** | **0.15 J** | **0.021 J** | 0.071 U | 0.071 U | 0.073 U | **0.052 J** | 0.072 U | **0.12 J** | **0.02 J** | 0.072 U | **0.051 J** | **0.10** | 0.073 U | 0.072 U | 0.074 U |
| Chrysene | mg/kg | 290 | **0.05** | **0.58** | **0.09** | **0.03** | **0.26** | **0.09** | **0.17** | **1.20** | **0.23** | **0.19** | **0.24** | **0.03** | **0.57** | **0.042 J** | **0.46** | **0.19 J** | **0.05** | **0.08** | **0.18** | **0.04** | **0.01** | **0.06** |
| Dibenz[a,h]anthracene | mg/kg | 0.29 | **0.0045 J** | **0.06** | **0.01** | **0.0022 J** | **0.033 J** | **0.01** | **0.031 J** | **0.29** | **0.035 J** | **0.05** | **0.07** | **0.0025 J** | **0.22** | **0.0024 J** | **0.06** | **0.013 J** | **0.0068 J** | **0.01** | **0.02** | **0.0054 J** | 0.0073 U | **0.0052 J** |
| Di-n-butylphthalate | mg/kg | 82,000 | 0.072 U | 0.078 U | 0.072 U | 0.094 U | 0.075 U | 0.073 U | 0.075 U | 0.077 U | 0.074 U | 0.071 U | 0.071 U | 0.073 U | 0.07 U | 0.072 U | 0.073 U | 0.073 U | 0.072 U | 0.072 U | **0.035 J** | 0.073 U | 0.072 U | 0.074 U |
| Di-n-ocytlphthalate | mg/kg | 8,200 | 0.072 U | 0.078 U | 0.072 U | 0.094 U | **0.026 J** | 0.073 UJ | 0.075 UJ | 0.077 UJ | 0.074 UJ | 0.071 U | 0.071 U | 0.073 U | 0.07 U | 0.072 U | 0.073 UJ | 0.073 U | 0.072 U | 0.072 U | 0.071 U | 0.073 U | 0.072 U | 0.074 U |
| Fluoranthene | mg/kg | 30,000 | **0.12** | **0.95** | **0.19** | **0.03** | **0.44** | **0.12** | **0.26** | **1.90** | **0.33** | **0.28** | **0.32** | **0.05** | **0.57** | **0.082 J** | **0.97** | **0.28 J** | **0.03** | **0.24** | **0.64** | **0.07** | **0.03** | **0.11** |
| Fluorene | mg/kg | 30,000 | 0.0074 U | **0.03** | **0.03** | **0.001 J** | **0.014 J** | **0.0072 J** | **0.0068 J** | **0.034 J** | **0.0074 J** | **0.0059 J** | **0.01** | **0.0019 J** | **0.02** | **0.0045 J** | **0.02** | **0.011 J** | **0.0027 J** | **0.06** | **0.18** | **0.0018 J** | **0.03** | **0.0022 J** |
| Hexachlorobenzene | mg/kg | 0.96 | 0.072 U | 0.078 U | 0.072 U | 0.094 U | 0.075 U | 0.073 U | 0.075 U | 0.077 U | 0.074 U | 0.071 U | 0.071 U | 0.073 U | 0.07 U | 0.072 U | 0.073 U | 0.073 U | 0.072 U | 0.072 U | 0.071 U | 0.073 U | 0.072 U | 0.074 U |
| Hexachloroethane | mg/kg | 8 | 0.072 U | 0.078 U | 0.072 U | 0.094 U | 0.075 U | 0.073 U | 0.075 U | 0.077 U | 0.074 U | 0.071 U | 0.071 U | 0.073 U | 0.07 U | 0.072 UJ | 0.073 U | 0.073 U | 0.072 U | 0.072 U | 0.071 U | 0.073 U | **0.066 J** | 0.074 U |
| Indeno[1,2,3-c,d]pyrene | mg/kg | 2.9 | **0.01** | **0.13** | **0.02** | **0.0056 J** | **0.10** | **0.02** | **0.064 J** | **0.61** | **0.10** | **0.12** | **0.19** | **0.0056 J** | **0.59** | **0.0061 J** | **0.13** | **0.034 J** | **0.01** | **0.03** | **0.06** | **0.02** | **0.0027 J** | **0.01** |
| Naphthalene | mg/kg | 17 | **0.03** | **0.10** | **0.11** | **0.01** | **0.061 J** | **0.09** | **0.14** | **0.21** | **0.10** | **0.06** | **0.03** | **0.0052 J** | **0.05** | **0.02** | **0.08** | **0.037 J** | **0.09** | **1.20** | **0.82** | **0.03** | **0.06** | **0.04** |
| Nitrobenzene | mg/kg | 22 | 0.072 U | 0.078 U | 0.072 U | 0.094 U | 0.075 U | 0.073 U | 0.075 U | 0.077 U | 0.074 U | 0.071 U | 0.071 U | 0.073 U | 0.07 U | 0.072 U | 0.073 U | 0.073 U | 0.072 U | 0.072 U | 0.071 U | 0.073 U | 0.072 U | 0.074 U |
| N-Nitrosodiphenylamine | mg/kg | 470 | 0.072 U | 0.078 U | 0.072 U | 0.094 U | 0.075 U | 0.073 U | 0.075 U | 0.077 U | 0.074 U | 0.071 U | 0.071 U | 0.073 U | 0.07 U | 0.072 U | 0.073 U | 0.073 U | 0.072 U | 0.072 U | 0.071 U | 0.073 U | 0.072 U | 0.074 U |
| Phenanthrene | mg/kg | | **0.10** | **0.33** | **0.15** | **0.02** | **0.19** | **0.16** | **0.12** | **0.71** | **0.16** | **0.19** | **0.15** | **0.02** | **0.27** | **0.066 J** | **0.37** | **0.14 J** | **0.02** | **0.29** | **0.80** | **0.04** | **0.03** | **0.07** |
| Phenol | mg/kg | 250,000 | 0.072 R | **0.11** | 0.072 R | 0.094 U | 0.075 U | 0.073 U | 0.075 U | **0.019 J** | 0.074 U | 0.071 R | 0.071 R | 0.073 UJ | 0.07 U | 0.072 U | 0.073 U | 0.073 U | 0.072 U | 0.072 R | 0.071 R | 0.073 R | 0.072 U | 0.074 R |
| Pyrene | mg/kg | 23,000 | **0.10** | **0.92** | **0.16** | **0.02** | **0.41** | **0.12** | **0.27** | **2.00** | **0.30** | **0.21** | **0.26** | **0.04** | **0.50** | **0.075 J** | **0.92** | **0.22 J** | **0.05** | **0.19** | **0.51** | **0.06** | **0.02** | **0.10** |
| **PCBs** | | | | | | | | | | | | | | | | | | | | | | | | |
| Aroclor 1221 | mg/kg | 0.72 | 0.0529 U | N/A | 0.0557 U | N/A | 0.0549 U | N/A | 0.0555 U | N/A | 0.0556 U | 0.0545 U | N/A | 0.0548 U | N/A | 0.0545 U | N/A | 0.0555 U | N/A | 0.538 U | N/A | 0.0546 U | N/A | 0.0549 U |
| Aroclor 1242 | mg/kg | 0.97 | 0.0529 U | N/A | 0.0557 U | N/A | 0.0549 U | N/A | 0.0555 U | N/A | 0.0556 U | 0.0545 U | N/A | 0.0548 U | N/A | 0.0545 U | N/A | 0.0555 U | N/A | 0.538 U | N/A | 0.0546 U | N/A | 0.0549 U |
| Aroclor 1248 | mg/kg | 0.94 | 0.0529 U | N/A | **0.18** | N/A | 0.0549 U | N/A | **0.46** | N/A | **0.0351 J** | 0.0545 U | N/A | 0.0548 U | N/A | 0.0545 U | N/A | **0.11** | N/A | 0.538 U | N/A | 0.0546 U | N/A | 0.0549 U |
| Aroclor 1254 | mg/kg | 0.97 | 0.0529 U | N/A | **0.19** | N/A | **0.0342 J** | N/A | **0.34** | N/A | **0.0428 J** | 0.0545 U | N/A | 0.0548 U | N/A | 0.0545 U | N/A | **0.30** | N/A | **9.53** | N/A | 0.0546 U | N/A | 0.0549 U |
| Aroclor 1260 | mg/kg | 0.99 | **0.22** | N/A | **0.84** | N/A | **0.045 J** | N/A | **0.24** | N/A | **0.0298 J** | 0.0545 U | N/A | 0.0548 U | N/A | **0.766 J** | N/A | **1.78** | N/A | 0.538 U | N/A | 0.0546 U | N/A | 0.0549 U |
| Aroclor 1262 | mg/kg | | 0.0529 U | N/A | 0.0557 U | N/A | 0.0549 U | N/A | 0.0555 U | N/A | 0.0556 U | 0.0545 U | N/A | 0.0548 U | N/A | 0.0545 U | N/A | 0.0555 U | N/A | 0.538 U | N/A | 0.0546 U | N/A | 0.0549 U |
| Aroclor 1268 | mg/kg | | 0.0529 U | N/A | 0.0557 U | N/A | 0.0549 U | N/A | 0.0555 U | N/A | 0.0556 U | 0.0545 U | N/A | 0.0548 U | N/A | 0.0545 U | N/A | 0.0555 U | N/A | 0.538 U | N/A | 0.0546 U | N/A | 0.0549 U |
| PCBs (total) | mg/kg | 0.97 | **0.22** | N/A | **1.21** | N/A | **0.08** | N/A | **1.05** | N/A | **0.11** | 0.0545 U | N/A | 0.0548 U | N/A | **0.77** | N/A | **2.19** | N/A | **9.53** | N/A | 0.0546 U | N/A | 0.0549 U |
| **TPH/Oil and Grease** | | | | | | | | | | | | | | | | | | | | | | | | |
| Diesel Range Organics | mg/kg | 6,200 | **75.8** | **137** | **53.1** | **31.2** | **157** | **77.2** | **196** | **434** | **89.7** | **66.4** | **39.0** | **24.1** | **46.9** | **584** | **64.1** | **159** | **17.4** | **246** | **424** | **53.0** | **168** | **264** |
| Gasoline Range Organics | mg/kg | 6,200 | 10.6 U | 12.8 U | 10.2 U | 27.5 U | 13.8 U | **13.8** | 12.2 U | 14.3 U | 16.7 U | 9.5 U | 9.5 U | 13.2 U | 11.7 U | 12.1 U | **6.5 J** | 11.5 U | 13.6 U | 10.2 U | 10.3 U | 11.8 U | **26.7** | 11.1 U |

**Bold indicates detection**

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

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

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

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

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

N/A: This parameter was not analyzed for this sample.

*Indicates nonvalidated

**PAH compounds were analyzed via SIM

**Red indicates a detection exceedance of the Project Action Limit**

**Table 5**
**Summary of Organics Detected in Soil**
**Parcel B4**
**Tradepoint Atlantic**
**Sparrows Point, Maryland**

| Parameter | Units | PAL | B4-012-SB-5 | B4-013-SB-1 | B4-013-SB-7.5 | B4-014-SB-1 | B4-014-SB-5 | B4-015-SB-1 | B4-015-SB-5 | B4-016-SB-1 | B4-016-SB-5 | B4-017-SB-1 | B4-017-SB-4 | B4-018-SB-1 | B4-018-SB-5 | B4-019-SB-1 | B4-019-SB-5 | B4-020-SB-1 | B4-020-SB-5 | B4-021-SB-1 | B4-021-SB-5 | B4-022-SB-1 | B4-022-SB-5 | B4-023-SB-1 | B4-023-SB-5 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Volatile Organic Compound** | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,2,3-Trichlorobenzene | mg/kg | 930 | 0.0051 U | 0.0073 U | 0.004 U | **0.0046 J** | 0.0049 U | **0.0017 J** | 0.0052 U | 0.0049 U | 0.0056 U | 0.0049 U | 0.0078 U | 0.005 U | 0.0068 UJ | 0.0049 U | 0.0065 UJ | 0.0051 U | 0.0069 U | 0.0057 U | 0.0062 U | 0.006 UJ | 0.0061 UJ | 0.0062 UJ | 0.0059 UJ |
| 1,2,4-Trichlorobenzene | mg/kg | 110 | 0.0051 U | 0.0073 U | 0.004 U | **0.01** | 0.0049 U | **0.0037 J** | 0.0052 U | 0.0049 U | 0.0056 U | 0.0049 U | 0.0078 U | 0.005 U | 0.0068 U | 0.0049 U | 0.0065 UJ | 0.0051 U | 0.0069 U | 0.0057 U | 0.0062 U | 0.006 UJ | 0.0061 UJ | 0.0062 UJ | 0.0059 UJ |
| 1,4-Dichlorobenzene | mg/kg | 11 | 0.0051 U | 0.0073 U | 0.004 U | 0.005 U | 0.0049 U | 0.005 U | 0.0052 U | 0.0049 U | 0.0056 U | 0.0049 U | 0.0078 U | 0.005 U | 0.0068 UJ | 0.0049 U | 0.0065 UJ | 0.0051 U | 0.0069 U | 0.0057 U | 0.0062 U | 0.006 U | 0.0061 U | 0.0062 U | 0.0059 U |
| 2-Butanone (MEK) | mg/kg | 190,000 | 0.01 U | 0.015 U | 0.0079 U | 0.0099 U | **0.0025 J** | 0.0099 U | **0.0026 J** | 0.0098 UJ | **0.014 J** | 0.0098 U | 0.016 U | 0.01 UJ | **0.021 J** | 0.0097 UJ | 0.013 UJ | 0.01 UJ | 0.014 UJ | 0.011 UJ | **0.017 J** | 0.012 U | 0.012 U | 0.012 U | 0.012 U |
| 2-Hexanone | mg/kg | 1,300 | 0.01 U | 0.015 U | 0.0079 U | 0.0099 U | 0.0098 U | 0.0099 U | 0.01 U | 0.0098 U | 0.011 U | 0.0098 U | 0.016 U | 0.01 U | 0.014 U | 0.0097 U | 0.013 U | 0.01 U | 0.014 U | 0.011 U | 0.012 U | 0.012 U | 0.012 U | 0.012 U | 0.012 U |
| 4-Methyl-2-pentanone (MIBK) | mg/kg | 56,000 | 0.01 U | 0.015 U | 0.0079 U | 0.0099 U | **0.0024 J** | 0.0099 U | 0.01 U | 0.0098 U | 0.011 U | 0.0098 U | 0.016 U | **0.0083 J** | 0.014 U | 0.0097 U | 0.013 U | 0.01 U | 0.014 U | 0.011 U | 0.012 U | 0.012 U | 0.012 U | 0.012 U | 0.012 U |
| Acetone | mg/kg | 670,000 | **0.12** | **0.023 J** | **0.033 J** | 0.0099 U | **0.04** | **0.05** | **0.05** | **0.029 J** | **0.071 J** | **0.031 J** | **0.089 B** | **0.01 J** | **0.1 J** | **0.051 J** | **0.043 J** | **0.022 J** | **0.047 J** | **0.028 J** | **0.04 J** | **0.0093 B** | **0.016 B** | **0.042 J** | 0.012 UJ |
| Benzene | mg/kg | 5.1 | **0.02** | 0.0073 U | **0.0021 J** | 0.005 U | 0.0049 U | 0.005 U | 0.0052 U | 0.0049 U | **0.0016 J** | 0.0049 U | 0.0078 U | 0.005 U | **0.0035 J** | **0.0014 J** | 0.0065 U | 0.0051 U | **0.01** | 0.0057 U | **0.04** | 0.006 U | **0.005 J** | 0.0062 U | 0.0059 U |
| Chloroform | mg/kg | 1.4 | 0.0051 U | 0.0073 U | 0.004 U | 0.005 U | 0.0049 U | 0.005 U | 0.0052 U | 0.0049 U | 0.0056 U | 0.0049 U | 0.0078 U | 0.005 U | 0.0068 U | 0.0049 U | 0.0065 U | 0.0051 U | 0.0069 U | 0.0057 U | 0.0062 U | 0.006 U | 0.0061 U | 0.0062 U | 0.0059 U |
| Cyclohexane | mg/kg | 27,000 | **0.03** | 0.015 U | 0.0079 U | 0.0099 U | 0.0098 U | 0.0099 U | 0.01 U | 0.0098 U | 0.011 U | 0.0098 U | 0.016 U | 0.01 U | 0.014 U | 0.0097 U | 0.013 U | 0.01 U | 0.014 U | 0.011 U | 0.012 U | 0.012 U | 0.012 U | 0.012 U | 0.012 U |
| Ethylbenzene | mg/kg | 25 | **0.01** | 0.0073 U | 0.004 U | 0.005 U | 0.0049 U | 0.005 U | 0.0052 U | 0.0049 U | **0.0023 J** | 0.0049 U | 0.0078 U | 0.005 U | **0.0026 J** | 0.0049 U | 0.0065 U | 0.0051 U | **0.02** | 0.0057 U | **0.01** | 0.006 U | **0.0014 J** | 0.0062 U | 0.0059 U |
| Isopropylbenzene | mg/kg | 9,900 | 0.0051 U | 0.0073 U | 0.004 U | 0.005 U | 0.0049 U | 0.005 U | 0.0052 U | 0.0049 U | 0.0056 U | 0.0049 U | 0.0078 U | 0.005 U | **0.011 J** | 0.0049 U | 0.0065 UJ | 0.0051 U | 0.0069 U | 0.0057 U | 0.0062 U | 0.006 U | 0.0061 U | 0.0062 U | 0.0059 U |
| Methyl Acetate | mg/kg | 1,200,000 | 0.051 U | 0.073 U | 0.04 U | 0.05 U | 0.049 U | 0.05 U | 0.052 U | 0.049 U | 0.056 U | 0.049 U | 0.078 U | 0.05 U | 0.068 U | **0.0021 J** | 0.065 U | 0.051 U | 0.069 U | 0.057 U | 0.062 U | 0.06 U | 0.061 U | 0.062 U | 0.059 U |
| Styrene | mg/kg | 35,000 | 0.0051 U | 0.0073 U | 0.004 U | 0.005 U | 0.0049 U | 0.005 U | 0.0052 U | 0.0049 U | 0.0056 U | 0.0049 U | **0.0031 J** | 0.005 U | 0.0068 U | 0.0049 U | 0.0065 U | 0.0051 U | 0.0069 U | 0.0057 U | 0.0062 U | 0.006 U | 0.0061 U | 0.0062 U | 0.0059 U |
| Toluene | mg/kg | 47,000 | **0.02** | **0.0059 J** | **0.00** | 0.013 U | 0.012 U | 0.018 U | 0.015 U | **0.01** | **0.01** | **0.01** | **0.01** | **0.01** | **0.01** | **0.01** | **0.0039 J** | **0.01** | **0.04** | **0.01** | **0.04** | 0.006 U | **0.0042 J** | 0.0062 U | 0.0059 U |
| Xylenes | mg/kg | 2,800 | **0.0054 J** | 0.022 U | 0.012 U | 0.015 U | 0.015 U | 0.015 U | 0.016 U | 0.015 U | **0.0038 J** | 0.015 U | 0.023 U | **0.0038 J** | **0.011 J** | 0.015 U | 0.019 U | 0.015 U | **0.018 J** | 0.017 U | **0.0077 J** | 0.018 U | 0.018 U | 0.019 U | 0.018 U |
| **Semi-Volatile Organic Compounds**** | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1-Biphenyl | mg/kg | 200 | 0.07 U | **0.076 J** | 0.074 U | **0.038 J** | 0.08 U | 0.073 U | 0.081 U | 0.073 U | **0.15 J** | 0.073 U | **0.025 J** | **0.097 J** | **0.4 J** | 0.075 U | **0.66 J** | 0.071 U | 0.073 U | **0.15 J** | **0.033 J** | 0.078 U | **0.037 J** | 0.077 U | **0.039 J** |
| 2,4-Dimethylphenol | mg/kg | 16,000 | 0.07 U | 0.081 UJ | 0.074 U | **0.055 J** | 0.08 U | 0.073 R | 0.081 U | 0.073 R | 0.077 U | 0.073 R | 0.09 R | 0.074 U | 0.46 U | 0.075 U | 0.079 U | 0.071 U | 0.073 U | 0.074 UJ | 0.078 UJ | 0.078 R | 0.078 U | 0.077 R | 0.079 U |
| 2,4-Dinitrophenol | mg/kg | 1,600 | 0.18 UJ | 0.2 UJ | 0.19 U | 0.19 U | 0.2 U | 0.18 R | 0.2 U | 0.18 R | 0.19 U | 0.18 R | 0.23 R | **0.066 J** | 1.1 U | 0.19 U | 0.2 U | 0.18 U | 0.18 U | 0.19 UJ | 0.2 UJ | 0.2 R | 0.2 U | 0.19 R | 0.2 UJ |
| 2,6-Dinitrotoluene | mg/kg | 1.5 | 0.07 U | 0.081 U | 0.074 U | 0.077 U | 0.08 U | 0.073 U | **0.039 J** | 0.073 U | 0.077 U | 0.073 U | 0.09 U | 0.074 U | 0.46 U | 0.075 U | 0.079 U | 0.071 U | 0.073 U | 0.074 U | 0.078 U | 0.078 U | 0.078 U | 0.077 U | 0.079 U |
| 2-Chloronaphthalene | mg/kg | 60,000 | 0.07 U | 0.081 U | 0.074 U | 0.077 U | 0.08 U | 0.073 U | 0.081 U | 0.073 U | 0.077 U | 0.073 U | 0.09 U | 0.074 U | 0.46 U | 0.075 U | 0.079 U | 0.071 U | 0.073 U | 0.074 U | 0.078 U | 0.078 U | 0.078 U | 0.077 U | 0.079 U |
| 2-Methylnaphthalene | mg/kg | 3,000 | **0.01** | **0.72** | **0.06** | **0.01** | 0.0081 U | **0.01** | **0.14** | **0.01** | **0.62** | **0.01** | **0.26 J** | **0.068 J** | **0.61** | **0.11** | **2.20** | **0.02** | **0.02** | **0.41 J** | **0.20** | **0.01** | **0.12** | **0.0058 J** | **0.65** |
| 2-Methylphenol | mg/kg | 41,000 | 0.07 U | 0.081 UJ | 0.074 U | **0.064 J** | 0.08 U | 0.073 R | 0.081 U | 0.073 R | 0.077 U | 0.073 R | 0.09 R | 0.074 U | 0.46 U | 0.075 U | 0.079 U | 0.071 U | 0.073 U | 0.074 UJ | 0.078 UJ | 0.078 R | **0.031 J** | 0.077 R | 0.079 U |
| 3&4-Methylphenol(m&p Cresol) | mg/kg | 41,000 | 0.14 U | 0.16 UJ | 0.15 U | **0.042 J** | 0.16 U | 0.15 R | 0.16 U | 0.15 R | 0.15 U | 0.15 R | 0.18 R | 0.15 U | 0.91 U | 0.15 U | **0.028 J** | 0.14 U | 0.14 U | 0.15 UJ | 0.16 UJ | 0.16 R | **0.099 J** | 0.15 R | 0.16 U |
| 4-Chloroaniline | mg/kg | 11 | 0.07 U | 0.081 U | 0.074 U | 0.077 U | 0.08 U | 0.073 U | 0.081 U | 0.073 U | 0.077 U | 0.073 U | 0.09 U | 0.074 U | 0.46 U | 0.075 U | 0.079 U | 0.071 U | 0.073 U | 0.074 U | 0.078 U | 0.078 U | 0.078 U | 0.077 U | 0.079 U |
| Acenaphthene | mg/kg | 45,000 | **0.0053 J** | **0.06** | **0.0045 J** | **0.004 B** | 0.0081 U | **0.0015 B** | **0.01** | **0.0026 J** | **0.014 J** | **0.00094 J** | **0.03** | **0.021 J** | **1.00** | **0.019 J** | **0.57** | **0.0028 J** | **0.0073 J** | **0.056 J** | **0.2 J** | **0.0012 J** | **0.02** | 0.008 U | **0.18** |
| Acenaphthylene | mg/kg | 45,000 | **0.00073 J** | **0.11** | **0.02** | **0.0051 J** | **0.0026 J** | **0.0019 J** | **0.02** | **0.04** | **0.31** | **0.0019 J** | **0.81** | **0.15** | **0.92** | **0.34** | **2.00** | **0.03** | **0.0052 J** | **0.59 J** | **0.35** | **0.0042 J** | **0.13** | **0.0024 J** | **1.10** |
| Acetophenone | mg/kg | 120,000 | **0.018 J** | **0.11** | 0.074 U | 0.077 U | 0.08 U | 0.073 U | 0.081 U | 0.073 U | **0.061 J** | 0.073 U | **0.026 J** | **0.038 J** | 0.46 U | 0.075 U | **0.046 J** | 0.071 U | 0.073 U | 0.074 U | 0.078 U | 0.078 U | **0.035 J** | 0.077 U | 0.079 U |
| Anthracene | mg/kg | 230,000 | 0.0071 U | **0.37** | **0.04** | **0.01** | 0.0081 U | 0.0074 U | **0.04** | **0.03** | **0.19** | **0.0053 J** | **0.53 J** | **0.046 J** | **0.73** | **0.05** | **6.30** | **0.03** | **0.0073 J** | **0.56 J** | **2.10** | **0.0074 J** | **0.07** | **0.0026 J** | **2.60** |
| Benzaldehyde | mg/kg | 120,000 | 0.07 R | **0.072 J** | 0.074 U | **0.15 J** | 0.08 R | 0.073 R | 0.081 R | 0.073 R | 0.064 R | 0.073 U | 0.09 R | 0.074 R | 0.46 R | 0.075 R | 0.071 R | 0.071 R | 0.073 R | 0.074 R | 0.078 R | 0.078 R | **0.042 J** | 0.077 R | 0.079 R |
| Benzo[a]anthracene | mg/kg | 2.9 | 0.0071 U | **2.10** | **0.18** | **0.05** | 0.0081 U | **0.02** | **0.09** | **0.14** | **1.10** | **0.02** | **4.30** | **0.08** | **1.30** | **0.15** | **7.50** | **0.06** | **0.03** | **0.88 J** | **7.00** | **0.03** | **0.53** | **0.007 J** | **4.80** |
| Benzo[a]pyrene | mg/kg | 0.29 | 0.0071 U | **2.10** | **0.19** | **0.06** | **0.001 B** | **0.02** | **0.13** | **0.10** | **1.40** | **0.01** | **4.70** | **0.065 J** | **2.30** | **0.22** | **6.70** | **0.06** | **0.03** | **0.8 J** | **6.00** | **0.03** | **0.51** | **0.0067 J** | **4.1 J** |
| Benzo[b]fluoranthene | mg/kg | 2.9 | 0.0071 U | **3.60** | **0.47** | **0.17** | **0.0022 B** | **0.10** | **0.26** | **0.25** | **3.90** | **0.04** | **9.30** | **0.18** | **4.00** | **0.68** | **15.7** | **0.16** | **0.08** | **1.40** | **12.6** | **0.09** | **1.20** | **0.02** | **9.8 J** |
| Benzo[g,h,i]perylene | mg/kg | | 0.0071 U | **0.66** | **0.09** | **0.02** | 0.0081 U | **0.02** | **0.07** | **0.07** | **0.37** | **0.0064 J** | **3.50** | **0.08** | **2.70** | **0.06** | **1.40** | **0.04** | **0.03** | **0.18 J** | **2.70** | **0.02** | **0.19** | **0.0039 J** | **0.78** |
| Benzo[k]fluoranthene | mg/kg | 29 | 0.0071 U | **1.40** | **0.45** | **0.16** | **0.0021 B** | **0.10** | **0.24** | **0.24** | **3.70** | **0.04** | **8.90** | **0.17** | **3.90** | **0.65** | **15.2** | **0.15** | **0.08** | **1.40** | **12.1** | **0.09** | **1.20** | **0.02** | **10 J** |
| bis(2-Ethylhexyl)phthalate | mg/kg | 160 | 0.07 U | 0.081 U | 0.074 U | 0.077 UJ | 0.08 U | 0.073 U | 0.081 U | 0.073 U | 0.077 UJ | 0.073 U | 0.09 UJ | 0.074 UJ | 0.46 UJ | 0.075 U | 0.079 UJ | 0.071 UJ | 0.073 U | 0.074 UJ | 0.078 UJ | 0.078 U | **0.016 J** | 0.077 U | 0.079 U |
| Caprolactam | mg/kg | 400,000 | 0.18 U | 0.2 U | 0.19 U | 0.19 U | 0.2 U | 0.18 U | 0.2 U | 0.18 U | 0.19 U | 0.18 U | 0.23 U | 0.19 U | 1.1 U | 0.19 U | 0.2 U | 0.18 U | 0.18 U | 0.19 U | 0.2 U | 0.2 U | 0.2 U | 0.19 U | 0.2 U |
| Carbazole | mg/kg | | 0.07 U | **0.30** | 0.074 U | 0.077 U | 0.08 U | 0.073 U | **0.026 J** | 0.073 U | **0.065 J** | 0.073 U | **0.024 J** | **0.029 J** | **0.22 J** | **0.019 J** | **2.5 J** | **0.022 J** | 0.073 U | **0.68 J** | **0.65 J** | 0.078 U | **0.076 J** | 0.077 U | **0.27** |
| Chrysene | mg/kg | 290 | 0.0071 U | **2.40** | **0.21** | **0.13** | **0.0011 B** | **0.05** | **0.11** | **0.12** | **1.10** | **0.02** | **3.70** | **0.12** | **1.30** | **0.17** | **6.40** | **0.08** | **0.04** | **0.81 J** | **6.40** | **0.04** | **0.57** | **0.01** | **4.90** |
| Dibenz[a,h]anthracene | mg/kg | 0.29 | 0.0071 U | **0.47** | **0.05** | 0.015 U | 0.0081 U | **0.0056 J** | **0.03** | **0.02** | **0.17** | **0.002 J** | **1.10** | **0.023 J** | **0.68** | **0.02** | **0.65** | **0.01** | **0.0082 J** | **0.079 J** | **1.10** | **0.0059 J** | **0.09** | 0.008 U | **0.37** |
| Di-n-butylphthalate | mg/kg | 82,000 | 0.07 U | 0.081 U | 0.074 U | **0.044 J** | 0.08 U | 0.073 U | 0.081 U | 0.073 U | 0.077 U | 0.073 U | 0.09 U | 0.074 U | **0.88 J** | 0.075 U | 0.079 U | 0.071 U | 0.073 U | 0.074 U | 0.078 U | 0.078 U | 0.078 U | 0.077 U | 0.079 U |
| Di-n-ocytlphthalate | mg/kg | 8,200 | 0.07 U | 0.081 U | 0.074 U | 0.077 UJ | 0.08 U | 0.073 U | 0.081 U | 0.073 U | 0.077 UJ | 0.073 U | 0.09 UJ | 0.074 UJ | 0.46 UJ | 0.075 U | 0.079 UJ | 0.071 UJ | 0.073 U | 0.074 UJ | 0.078 UJ | 0.078 U | 0.078 UJ | 0.077 U | 0.079 U |
| Fluoranthene | mg/kg | 30,000 | **0.00095 J** | **4.60** | **0.39** | **0.27** | **0.002 B** | **0.16** | **0.24** | **0.40** | **1.60** | **0.05** | **7.10** | **0.68** | **1.90** | **0.31** | **28.9** | **0.13** | **0.07** | **2.40** | **15.9** | **0.06** | **0.92** | **0.03** | **13.4** |
| Fluorene | mg/kg | 30,000 | **0.0032 J** | **0.04** | **0.01** | **0.0035 B** | 0.0081 U | **0.0015 B** | **0.02** | **0.01** | **0.019 J** | **0.0014 J** | **0.07** | **0.057 J** | **0.28** | **0.01** | **3.70** | **0.02** | **0.0062 J** | **0.48 J** | **0.57** | **0.0014 J** | **0.02** | **0.00078 J** | **2.20** |
| Hexachlorobenzene | mg/kg | 0.96 | 0.07 U | 0.081 U | 0.074 U | 0.077 U | 0.08 U | 0.073 U | 0.081 U | 0.073 U | 0.077 U | 0.073 U | 0.09 U | 0.074 U | 0.46 U | 0.075 U | 0.079 U | 0.071 U | 0.073 U | 0.074 U | 0.078 U | 0.078 U | 0.078 U | 0.077 U | 0.079 U |
| Hexachloroethane | mg/kg | 8 | 0.07 U | 0.081 U | 0.074 U | 0.077 U | 0.08 U | 0.073 U | 0.081 U | 0.073 U | 0.077 U | 0.073 U | 0.09 U | 0.074 U | 0.46 U | 0.075 U | 0.079 U | 0.071 U | 0.073 U | 0.074 U | 0.078 U | 0.078 U | 0.078 U | 0.077 U | 0.079 U |
| Indeno[1,2,3-c,d]pyrene | mg/kg | 2.9 | 0.0071 U | **0.94** | **0.10** | **0.012 J** | 0.0081 U | **0.02** | **0.07** | **0.07** | **0.38** | **0.0056 J** | **3.30** | **0.056 J** | **1.90** | **0.06** | **1.50** | **0.03** | **0.02** | **0.21 J** | **3.00** | **0.02** | **0.22** | **0.0034 J** | **1.00** |
| Naphthalene | mg/kg | 17 | **0.02** | **0.50** | **0.07** | **0.02** | 0.0081 U | **0.02** | **0.09** | **0.02** | **32.8** | **0.04** | **1 J** | **0.61** | **8.00** | **0.36** | **1.70** | **0.05** | **0.02** | **1.40** | **0.65** | **0.02** | **0.31** | **0.01** | **2.30** |
| Nitrobenzene | mg/kg | 22 | 0.07 U | 0.081 U | 0.074 U | 0.077 U | 0.08 U | 0.073 U | 0.081 U | 0.073 U | 0.077 U | 0.073 U | 0.09 U | 0.074 U | 0.46 U | 0.075 U | 0.079 U | 0.071 U | 0.073 U | 0.074 U | 0.078 U | 0.078 U | 0.078 U | 0.077 U | 0.079 U |
| N-Nitrosodiphenylamine | mg/kg | 470 | 0.07 U | 0.081 U | 0.074 U | **0.065 J** | 0.08 U | 0.073 U | 0.081 U | 0.073 U | 0.077 U | 0.073 U | 0.09 U | 0.074 U | 0.46 U | 0.075 U | 0.079 U | 0.071 U | 0.073 U | 0.074 U | 0.078 U | 0.078 U | 0.078 U | 0.077 U | 0.079 U |
| Phenanthrene | mg/kg | | **0.0023 J** | **1.10** | **0.20** | **0.10** | **0.0028 B** | **0.27** | **0.20** | **0.15** | **0.82** | **0.04** | **1.30** | **0.59** | **0.62** | **0.12** | **27.4** | **0.08** | **0.05** | **1.50** | **6.90** | **0.05** | **0.30** | **0.02** | **12.0** |
| Phenol | mg/kg | 250,000 | 0.07 U | **0.026 J** | 0.074 U | **0.13 J** | 0.08 U | 0.073 R | 0.081 U | 0.073 R | 0.077 U | 0.073 R | 0.09 R | 0.074 U | 0.46 U | 0.075 U | **0.02 J** | 0.071 U | 0.073 U | 0.074 UJ | 0.078 UJ | 0.078 R | **0.13** | 0.077 R | 0.079 U |
| Pyrene | mg/kg | 23,000 | **0.0011 J** | **4.00** | **0.30** | **0.19** | **0.0015 J** | **0.08** | **0.24** | **0.32** | **1.40** | **0.04** | **7.20** | **0.36** | **1.80** | **0.31** | **23.3** | **0.11** | **0.05** | **2.00** | **11.9** | **0.06** | **0.87** | **0.02** | **9.80** |
| **PCBs** | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aroclor 1221 | mg/kg | 0.72 | N/A | 0.0592 U | N/A | 0.164 U | N/A | 0.0538 U | N/A | 0.0544 U | N/A | N/A | N/A | 0.0566 U | N/A | 0.0575 U | N/A | 0.0539 U | N/A | 0.0555 U | N/A | 0.059 U | N/A | 0.0584 U | N/A |
| Aroclor 1242 | mg/kg | 0.97 | N/A | 0.0592 U | N/A | 0.164 U | N/A | 0.0538 U | N/A | 0.0544 U | N/A | N/A | N/A | 0.0566 U | N/A | 0.0575 U | N/A | 0.0539 U | N/A | 0.0555 U | N/A | 0.059 U | N/A | 0.0584 U | N/A |
| Aroclor 1248 | mg/kg | 0.94 | N/A | 0.0592 U | N/A | 0.164 U | N/A | 0.0538 U | N/A | 0.0544 U | N/A | N/A | N/A | 0.0566 U | N/A | 0.0575 U | N/A | 0.0539 U | N/A | 0.0555 U | N/A | 0.059 U | N/A | 0.0584 U | N/A |
| Aroclor 1254 | mg/kg | 0.97 | N/A | 0.0592 U | N/A | 0.164 U | N/A | 0.0538 U | N/A | 0.0544 U | N/A | N/A | N/A | **0.07** | N/A | 0.0575 U | N/A | 0.0539 U | N/A | 0.0555 U | N/A | 0.059 U | N/A | 0.0584 U | N/A |
| Aroclor 1260 | mg/kg | 0.99 | N/A | 0.0592 U | N/A | **4.68** | N/A | **0.84** | N/A | 0.0544 U | N/A | N/A | N/A | 0.0566 U | N/A | **0.0292 J** | N/A | **0.0392 J** | N/A | **0.0296 J** | N/A | 0.059 U | N/A | 0.0584 U | N/A |
| Aroclor 1262 | mg/kg | | N/A | 0.0592 U | N/A | 0.164 U | N/A | 0.0538 U | N/A | 0.0544 U | N/A | N/A | N/A | 0.0566 U | N/A | 0.0575 U | N/A | 0.0539 U | N/A | 0.0555 U | N/A | 0.059 U | N/A | 0.0584 U | N/A |
| Aroclor 1268 | mg/kg | | N/A | 0.0592 U | N/A | 0.164 U | N/A | 0.0538 U | N/A | 0.0544 U | N/A | N/A | N/A | 0.0566 U | N/A | 0.0575 U | N/A | 0.0539 U | N/A | 0.0555 U | N/A | 0.059 U | N/A | 0.0584 U | N/A |
| PCBs (total) | mg/kg | 0.97 | N/A | 0.0592 U | N/A | **4.68** | N/A | **0.84** | N/A | 0.0544 U | N/A | N/A | N/A | **0.07** | N/A | **0.0292 J** | N/A | **0.0392 J** | N/A | **0.0296 J** | N/A | 0.059 U | N/A | 0.0584 U | N/A |
| **TPH/Oil and Grease** | | | | | | | | | | | | | | | | | | | | | | | | | |
| Diesel Range Organics | mg/kg | 6,200 | **100** | **151** | **42.0** | **423** | **7.8 J** | **55.6 J** | **15.9** | **201** | **268** | **29 J** | **208** | **382** | **4,990** | **45.1** | **728** | **25.1** | **50.0** | **74.8** | **188** | **33.2** | **104** | **9.90** | **96.7** |
| Gasoline Range Organics | mg/kg | 6,200 | **26.6** | 14.8 U | 13.2 U | **7.2 J** | 11 U | 9.8 U | 10.4 U | 12.1 U | **22.9** | 11.4 U | 25.4 U | 11.7 U | **10.9 J** | 12.2 U | **11.9 J** | 10.2 U | 15.5 U | 11.9 U | 14.1 U | 14.4 U | 11.5 U | 9.8 U | 16 U |

**Bold indicates detection**

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

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

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

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

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

N/A: The parameter was not analyzed for this sample.

*Indicates nonvalidated

**PAH compounds were analyzed via SIM

**Red indicates a detection exceedance of the Project Action Limit**

**Table 5**
**Summary of Organics Detected in Soil**
**Parcel B4**
**Tradepoint Atlantic**
**Sparrows Point, Maryland**

| Parameter | Units | PAL | B4-024-SB-1 | B4-024-SB-4.5 | B4-025-SB-1 | B4-025-SB-5 | B4-026-SB-1 | B4-026-SB-5 | B4-027-SB-1 | B4-027-SB-5 | B4-028-SB-1 | B4-028-SB-4 | B4-029-SB-1 | B4-030-SB-1 | B4-030-SB-5 | B4-031-SB-1 | B4-031-SB-4 | B4-032-SB-1 | B4-033-SB-1 | B4-034-SB-1 | B4-035-SB-1 | B4-035-SB-5 | B4-036-SB-1 | B4-036-SB-5 | B4-037-SB-1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Volatile Organic Compound** | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,2,3-Trichlorobenzene | mg/kg | 930 | 0.0063 U | 0.0045 U | 0.0053 U | 0.0079 U | 0.005 U | 0.0046 U | 0.005 U | 0.0057 U | 0.005 U | 0.0059 U | 0.0051 U | 0.0058 U | 0.0044 U | 0.0044 U | 0.0051 U | 0.0051 UJ | 0.0046 UJ | 0.0049 UJ | 0.005 U | 0.0063 U | 0.0051 U | 0.0057 U | 0.0053 U |
| 1,2,4-Trichlorobenzene | mg/kg | 110 | 0.0063 U | 0.0045 U | 0.0053 U | 0.0079 U | 0.005 U | 0.0046 U | 0.005 U | 0.0057 U | 0.005 U | 0.0059 U | 0.0051 U | 0.0058 U | 0.0044 U | 0.0044 U | 0.0051 U | 0.0051 UJ | 0.0046 UJ | 0.0049 UJ | 0.005 U | 0.0063 U | 0.0051 U | 0.0057 U | 0.0053 U |
| 1,4-Dichlorobenzene | mg/kg | 11 | 0.0063 U | 0.0045 U | **0.0039 J** | 0.0079 U | 0.005 U | 0.0046 U | 0.005 U | 0.0057 U | 0.005 U | 0.0059 U | 0.0051 U | 0.0058 U | 0.0044 U | 0.0044 U | 0.0051 U | 0.0051 U | 0.0046 U | 0.0049 U | 0.005 U | 0.0063 U | **0.0032 J** | 0.0057 U | 0.0053 U |
| 2-Butanone (MEK) | mg/kg | 190,000 | 0.013 U | 0.009 U | 0.011 U | 0.016 U | **0.0032 J** | 0.0092 U | 0.01 U | 0.011 U | 0.0099 U | 0.012 U | **0.03** | 0.012 U | **0.0024 J** | 0.0087 U | 0.01 U | **0.0049 J** | 0.0091 U | **0.0044 J** | 0.01 U | 0.013 U | 0.01 U | 0.011 U | 0.011 U |
| 2-Hexanone | mg/kg | 1,300 | 0.013 U | 0.009 U | 0.011 U | 0.016 U | 0.0099 U | 0.0092 U | 0.01 U | 0.011 U | 0.0099 U | 0.012 U | **0.0022 J** | 0.012 U | 0.0088 U | 0.0087 U | 0.01 U | 0.01 U | 0.0091 U | 0.0098 U | 0.01 U | 0.013 U | 0.01 U | 0.011 U | 0.011 U |
| 4-Methyl-2-pentanone (MIBK) | mg/kg | 56,000 | 0.013 U | 0.009 U | 0.011 U | 0.016 U | 0.0099 U | 0.0092 U | 0.01 U | 0.011 U | 0.0099 U | 0.012 U | 0.01 U | 0.012 U | 0.0088 U | 0.0087 U | 0.01 U | 0.01 U | 0.0091 U | 0.0098 U | 0.01 U | 0.013 U | 0.01 U | 0.011 U | 0.011 U |
| Acetone | mg/kg | 670,000 | **0.031 J** | **0.01 J** | **0.029 J** | **0.057 J** | **0.035 J** | **0.039 J** | 0.01 U | **0.019 J** | **0.017 B** | **0.097 B** | **0.11 B** | **0.02** | **0.04** | 0.0087 U | **0.03** | **0.031 J** | 0.0091 UJ | **0.028 J** | **0.02** | **0.03** | **0.02** | **0.03** | **0.015 J** |
| Benzene | mg/kg | 5.1 | 0.0063 U | 0.0045 U | 0.0053 U | 0.0079 U | 0.005 U | 0.0046 U | 0.005 U | 0.0057 U | 0.005 U | 0.0059 U | 0.0051 U | 0.0058 U | 0.0044 U | 0.0044 U | **0.02** | **0.02** | 0.0046 U | **0.01** | 0.005 U | 0.0063 U | 0.0051 U | 0.0057 U | 0.0053 U |
| Chloroform | mg/kg | 1.4 | 0.0063 U | 0.0045 U | 0.0053 U | 0.0079 U | 0.005 U | 0.0046 U | 0.005 U | 0.0057 U | 0.005 U | 0.0059 U | 0.0051 U | 0.0058 U | 0.0044 U | 0.0044 U | 0.0051 U | 0.0051 U | 0.0046 U | 0.0049 U | 0.005 U | 0.0063 U | 0.0051 U | 0.0057 U | 0.0053 U |
| Cyclohexane | mg/kg | 27,000 | 0.013 U | 0.009 U | 0.011 U | 0.016 U | 0.0099 U | 0.0092 U | 0.01 U | 0.011 U | 0.0099 U | 0.012 U | 0.01 U | 0.012 U | 0.0088 U | 0.0087 U | 0.01 U | 0.01 U | 0.0091 U | 0.0098 U | 0.01 U | 0.013 U | 0.01 U | 0.011 U | 0.011 U |
| Ethylbenzene | mg/kg | 25 | 0.0063 U | 0.0045 U | 0.0053 U | 0.0079 U | 0.005 U | 0.0046 U | 0.005 U | 0.0057 U | 0.005 U | 0.0059 U | 0.0051 U | 0.0058 U | 0.0044 U | 0.0044 U | **0.001 J** | 0.0051 U | 0.0046 U | 0.0049 U | 0.005 U | 0.0063 U | 0.0051 U | 0.0057 U | 0.0053 U |
| Isopropylbenzene | mg/kg | 9,900 | 0.0063 U | 0.0045 U | 0.0053 U | 0.0079 U | 0.005 U | 0.0046 U | 0.005 U | 0.0057 U | 0.005 U | 0.0059 U | 0.0051 U | 0.0058 U | 0.0044 U | 0.0044 U | 0.0051 U | 0.0051 U | 0.0046 U | 0.0049 U | 0.005 U | 0.0063 U | 0.0051 U | 0.0057 U | 0.0053 U |
| Methyl Acetate | mg/kg | 1,200,000 | 0.063 U | 0.045 U | 0.053 U | 0.079 U | 0.05 U | 0.046 U | 0.05 U | 0.057 U | 0.05 U | 0.059 U | 0.051 U | 0.058 U | 0.044 U | 0.044 U | 0.051 U | 0.051 U | 0.046 U | 0.049 U | **0.0025 J** | 0.063 U | 0.051 U | 0.057 U | 0.053 U |
| Styrene | mg/kg | 35,000 | 0.0063 U | 0.0045 U | 0.0053 U | 0.0079 U | 0.005 U | 0.0046 U | 0.005 U | 0.0057 U | 0.005 U | 0.0059 U | 0.0051 U | 0.0058 U | 0.0044 U | 0.0044 U | 0.0051 U | 0.0051 U | 0.0046 U | 0.0049 U | 0.005 U | 0.0063 U | 0.0051 U | 0.0057 U | 0.0053 U |
| Toluene | mg/kg | 47,000 | **0.02** | **0.01** | **0.01** | **0.02** | **0.01** | **0.01** | **0.0043 J** | **0.01** | **0.0048 J** | **0.0052 J** | **0.01** | 0.013 U | 0.013 U | 0.008 U | 0.016 U | **0.0032 J** | 0.0046 U | **0.002 J** | 0.011 U | 0.015 U | 0.014 U | 0.013 U | **0.0046 J** |
| Xylenes | mg/kg | 2,800 | 0.019 U | 0.014 U | 0.016 U | 0.024 U | 0.015 U | 0.014 U | 0.015 U | 0.017 U | **0.003 J** | 0.018 U | 0.015 U | 0.017 U | 0.013 U | 0.013 U | **0.0088 J** | 0.015 U | 0.014 U | 0.015 U | 0.015 U | 0.019 U | 0.015 U | 0.017 U | 0.016 U |
| **Semi-Volatile Organic Compounds**** | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1-Biphenyl | mg/kg | 200 | 0.076 U | 0.072 U | 0.075 U | 0.086 U | 0.073 U | 0.075 U | 0.073 U | **0.017 J** | 0.078 U | **0.024 J** | **0.051 J** | **0.052 J** | 0.077 U | **0.45** | **0.024 J** | **0.019 J** | 0.073 U | **0.016 J** | 0.083 U | 0.084 U | 0.082 U | 0.085 U | **0.02 J** |
| 2,4-Dimethylphenol | mg/kg | 16,000 | 0.076 U | 0.072 U | 0.075 U | 0.086 U | 0.073 U | 0.075 U | 0.073 U | 0.077 U | 0.078 R | 0.077 R | 0.072 R | 0.074 U | 0.077 U | 0.074 U | 0.078 U | 0.074 R | 0.073 U | 0.076 R | 0.083 U | 0.084 U | 0.082 U | 0.085 U | 0.075 U |
| 2,4-Dinitrophenol | mg/kg | 1,600 | 0.19 U | 0.18 U | 0.19 U | 0.21 U | 0.18 U | 0.19 U | 0.18 UJ | 0.19 U | 0.2 R | 0.19 R | 0.18 R | 0.19 U | 0.19 U | 0.18 U | 0.2 U | 0.19 R | 0.18 UJ | 0.19 R | 0.21 U | 0.21 U | 0.21 U | 0.21 U | 0.19 UJ |
| 2,6-Dinitrotoluene | mg/kg | 1.5 | 0.076 U | 0.072 U | 0.075 U | 0.086 U | 0.073 U | 0.075 U | 0.073 U | 0.077 U | 0.078 U | 0.077 U | 0.072 U | 0.074 U | 0.077 U | 0.074 U | 0.078 U | 0.074 U | 0.073 U | 0.076 U | 0.083 U | 0.084 U | 0.082 U | 0.085 U | 0.075 U |
| 2-Chloronaphthalene | mg/kg | 60,000 | 0.076 U | 0.072 U | 0.075 U | 0.086 U | 0.073 U | 0.075 U | 0.073 U | 0.077 U | 0.078 U | 0.077 U | 0.072 U | 0.074 U | 0.077 U | 0.074 U | 0.078 U | 0.074 U | 0.073 U | 0.076 U | 0.083 U | 0.084 U | 0.082 U | 0.085 U | 0.075 U |
| 2-Methylnaphthalene | mg/kg | 3,000 | **0.012 J** | **0.0011 J** | 0.074 U | **0.02** | **0.02** | **0.0037 J** | 0.074 U | **0.14** | **0.02** | **0.12** | **0.07** | **0.04 J** | **0.0015 J** | **0.36** | **0.21** | **0.15** | **0.02** | **0.05** | **0.04** | **0.0052 J** | **0.05** | **0.01** | **0.06** |
| 2-Methylphenol | mg/kg | 41,000 | 0.076 U | 0.072 U | 0.075 U | 0.086 U | 0.073 U | 0.075 U | 0.073 U | 0.077 U | 0.078 R | 0.077 R | 0.072 R | 0.074 U | 0.077 U | 0.074 U | 0.078 U | 0.074 R | 0.073 U | 0.076 R | 0.083 U | 0.084 U | 0.082 U | 0.085 U | 0.075 U |
| 3&4-Methylphenol(m&p Cresol) | mg/kg | 41,000 | 0.15 U | 0.14 U | 0.15 U | 0.17 U | 0.15 U | 0.15 U | 0.15 U | 0.15 U | 0.16 R | 0.15 R | 0.14 R | 0.15 U | 0.15 U | 0.15 U | 0.16 U | 0.15 R | 0.15 U | 0.15 R | 0.17 U | 0.17 U | 0.16 U | 0.17 U | 0.15 U |
| 4-Chloroaniline | mg/kg | 11 | 0.076 U | 0.072 U | 0.075 U | 0.086 U | 0.073 U | 0.075 U | 0.073 U | 0.077 U | 0.078 U | 0.077 U | 0.072 U | 0.074 U | 0.077 U | 0.074 U | **0.028 J** | 0.074 U | 0.073 U | 0.076 U | 0.083 U | 0.084 U | 0.082 U | 0.085 U | 0.075 U |
| Acenaphthene | mg/kg | 45,000 | 0.077 U | **0.00082 J** | 0.074 U | 0.0087 U | **0.01** | 0.0076 U | 0.074 U | 0.0078 U | **0.0036 J** | **0.02** | **0.02** | **0.03 B** | **0.0046 B** | **0.30** | **0.10** | **0.02** | **0.0029 J** | **0.0071 J** | **0.01** | **0.0023 B** | **0.0055 B** | **0.0021 B** | **0.05** |
| Acenaphthylene | mg/kg | 45,000 | 0.077 U | **0.0011 J** | 0.074 U | **0.0056 J** | **0.0041 J** | **0.0032 J** | 0.074 U | **0.04** | **0.0031 J** | **0.02** | **0.01** | **0.061 J** | 0.0078 U | **0.53** | **1.50** | **0.08** | **0.04** | **0.21** | **0.02** | **0.0013 J** | **0.01** | **0.0056 J** | **0.06** |
| Acetophenone | mg/kg | 120,000 | 0.076 U | 0.072 U | 0.075 U | 0.086 U | 0.073 U | 0.075 U | 0.073 U | 0.077 U | 0.078 U | **0.028 J** | **0.022 J** | 0.074 U | 0.077 U | **0.063 J** | **0.025 J** | **0.027 J** | 0.073 U | **0.042 J** | 0.083 U | 0.084 U | 0.082 U | 0.085 U | 0.075 U |
| Anthracene | mg/kg | 230,000 | **0.015 J** | **0.0061 J** | 0.074 U | **0.0037 J** | **0.02** | **0.0035 J** | 0.074 U | **0.05** | **0.02** | **0.09** | **0.06** | **0.12** | 0.0078 U | **1.20** | **2.60** | **0.07** | **0.01** | **0.02** | **0.05** | **0.0079 B** | **0.02** | **0.01** | **0.29** |
| Benzaldehyde | mg/kg | 120,000 | 0.076 R | 0.072 R | 0.075 R | 0.086 R | 0.073 R | 0.075 R | 0.073 R | 0.077 R | 0.078 U | **0.021 J** | **0.041 J** | 0.074 R | 0.077 R | **0.033 J** | **0.019 J** | **0.018 J** | 0.073 R | **0.029 J** | 0.083 R | 0.084 R | 0.082 R | 0.085 R | 0.075 R |
| Benzo[a]anthracene | mg/kg | 2.9 | **0.049 J** | **0.01** | **0.038 J** | **0.02** | **0.04** | **0.01** | **0.03 J** | **0.26** | **0.04** | **0.14** | **0.09** | **0.33** | 0.0078 U | **4.10** | **6.10** | **0.23** | **0.06** | **0.10** | **0.12** | **0.02** | **0.06** | **0.04** | **1.40** |
| Benzo[a]pyrene | mg/kg | 0.29 | **0.037 J** | **0.0073 J** | 0.074 UJ | **0.09** | **0.037 J** | **0.01** | 0.074 UJ | **0.28** | **0.02** | **0.11** | **0.04** | **0.37 J** | **0.06** | **4.20** | **5.4 J** | **0.24 J** | **0.07** | **0.29** | **0.14** | **0.02** | **0.09** | **0.06** | **1.10** |
| Benzo[b]fluoranthene | mg/kg | 2.9 | **0.11** | **0.02** | 0.074 UJ | **0.12** | **0.10** | **0.04** | 0.074 UJ | **0.74** | **0.08** | **0.33** | **0.22** | **0.96 J** | 0.0078 U | **8.70** | **16.6 J** | **0.74 J** | **0.20** | **0.59** | **0.22** | **0.05** | **0.15** | **0.12** | **1.60** |
| Benzo[g,h,i]perylene | mg/kg | | **0.035 J** | **0.0058 J** | 0.074 UJ | **0.11** | **0.044 J** | **0.01** | 0.074 UJ | **0.17** | **0.02** | **0.05** | **0.02** | **0.15 J** | 0.0078 U | **1.20** | **1.5 J** | **0.15 J** | **0.05** | **0.23** | **0.06** | **0.01** | **0.05** | **0.03** | **0.55** |
| Benzo[k]fluoranthene | mg/kg | 29 | **0.10** | **0.02** | 0.074 UJ | **0.05** | **0.10** | **0.03** | 0.074 UJ | **0.71** | **0.07** | **0.31** | **0.21** | **0.92 J** | 0.0078 U | **8.30** | **16 J** | **0.76 J** | **0.21** | **0.60** | **0.09** | **0.04** | **0.05** | **0.12** | **1.60** |
| bis(2-Ethylhexyl)phthalate | mg/kg | 160 | 0.076 UJ | 0.072 U | 0.075 UJ | 0.086 U | 0.073 UJ | 0.075 U | 0.073 UJ | 0.077 U | 0.078 UJ | 0.077 UJ | 0.072 UJ | 0.074 UJ | 0.077 UJ | 0.074 UJ | 0.078 UJ | **0.023 J** | 0.073 U | **0.034 J** | 0.083 U | 0.084 U | 0.082 UJ | 0.085 UJ | 0.075 UJ |
| Caprolactam | mg/kg | 400,000 | 0.19 U | 0.18 U | 0.19 U | 0.21 U | 0.18 U | 0.19 U | 0.18 U | 0.19 U | 0.2 U | 0.19 U | **0.087 J** | 0.19 U | 0.19 U | 0.18 U | 0.2 U | 0.19 U | 0.18 U | 0.19 U | 0.21 U | 0.21 U | 0.21 U | 0.21 U | 0.19 U |
| Carbazole | mg/kg | | 0.076 U | 0.072 U | 0.075 U | 0.086 U | 0.073 U | 0.075 U | 0.073 UJ | **0.022 J** | 0.078 U | **0.037 J** | **0.024 J** | **0.043 J** | 0.077 U | **0.36** | 0.078 U | 0.074 U | 0.073 U | 0.076 U | 0.083 U | 0.084 U | 0.082 U | **0.16** | **0.13** |
| Chrysene | mg/kg | 290 | **0.043 J** | **0.0065 J** | **0.013 J** | **0.02** | **0.06** | **0.01** | **0.019 J** | **0.30** | **0.06** | **0.18** | **0.17** | **0.36** | **0.0014 B** | **4.20** | **5.80** | **0.30** | **0.07** | **0.14** | **0.12** | **0.02** | **0.07** | **0.05** | **1.40** |
| Dibenz[a,h]anthracene | mg/kg | 0.29 | **0.01 J** | **0.0016 J** | 0.074 UJ | **0.03** | **0.013 J** | 0.0076 U | 0.074 UJ | **0.08** | **0.0048 J** | **0.01** | **0.01** | 0.075 UJ | 0.0078 U | **0.35** | **0.49 J** | **0.05 J** | **0.02** | **0.06** | **0.03** | **0.0034 J** | **0.02** | **0.01** | **0.22** |
| Di-n-butylphthalate | mg/kg | 82,000 | 0.076 U | 0.072 U | 0.075 U | 0.086 U | 0.073 U | 0.075 U | 0.073 UJ | 0.077 U | 0.078 U | 0.077 U | 0.072 U | 0.074 U | 0.077 U | **0.018 J** | 0.078 U | 0.074 U | 0.073 U | 0.076 U | 0.083 U | 0.084 U | 0.082 U | 0.085 U | 0.075 U |
| Di-n-ocytlphthalate | mg/kg | 8,200 | 0.076 UJ | 0.072 U | 0.075 UJ | 0.086 U | 0.073 UJ | 0.075 U | 0.073 UJ | 0.077 U | 0.078 UJ | 0.077 UJ | 0.072 UJ | 0.074 UJ | 0.077 UJ | 0.074 UJ | 0.078 UJ | 0.074 UJ | 0.073 U | 0.076 UJ | 0.083 U | 0.084 U | 0.082 UJ | 0.085 UJ | 0.075 UJ |
| Fluoranthene | mg/kg | 30,000 | **0.08** | **0.02** | **0.013 J** | **0.01** | **0.08** | **0.01** | **0.015 J** | **0.60** | **0.18** | **0.53** | **0.58** | **0.89** | **0.0032 B** | **9.50** | **21.5** | **0.52** | **0.07** | **0.11** | **0.31** | **0.05** | **0.13** | **0.11** | **1.80** |
| Fluorene | mg/kg | 30,000 | 0.077 U | **0.0012 J** | 0.074 U | 0.0087 U | **0.0057 J** | 0.0076 U | 0.074 U | **0.01** | **0.0062 J** | **0.05** | **0.03** | **0.036 B** | 0.0078 U | **0.29** | **0.11** | **0.01** | **0.0021 J** | **0.0075 J** | **0.02** | **0.002 B** | **0.0049 B** | **0.0023 B** | **0.04** |
| Hexachlorobenzene | mg/kg | 0.96 | 0.076 U | 0.072 U | 0.075 U | 0.086 U | 0.073 U | 0.075 U | 0.073 UJ | 0.077 U | 0.078 U | 0.077 U | 0.072 U | 0.074 U | 0.077 U | 0.074 U | 0.078 U | 0.074 U | 0.073 U | 0.076 U | 0.083 U | 0.084 U | 0.082 U | 0.085 U | 0.075 U |
| Hexachloroethane | mg/kg | 8 | 0.076 U | 0.072 U | 0.075 U | 0.086 U | 0.073 U | 0.075 U | 0.073 U | 0.077 U | 0.078 U | 0.077 U | 0.072 U | 0.074 U | 0.077 U | 0.074 U | 0.078 U | 0.074 U | 0.073 U | 0.076 U | 0.083 U | 0.084 U | 0.082 U | 0.085 U | 0.075 U |
| Indeno[1,2,3-c,d]pyrene | mg/kg | 2.9 | **0.028 J** | **0.0048 J** | 0.074 UJ | **0.10** | **0.03 J** | **0.0069 J** | 0.074 UJ | **0.18** | **0.01** | **0.04** | **0.02** | **0.11 J** | 0.0078 U | **1.10** | **1.5 J** | **0.15 J** | **0.05** | **0.19** | **0.07** | **0.01** | **0.05** | **0.03** | **0.47** |
| Naphthalene | mg/kg | 17 | **0.015 J** | **0.0016 J** | 0.074 U | **0.02** | **0.02** | **0.003 J** | 0.074 U | **0.11** | **0.02** | **0.27** | **0.07** | **0.13** | **0.01** | **1.30** | **1.40** | **0.40** | **0.07** | **0.30** | **0.05** | **0.0053 B** | **0.03** | **0.01** | **0.08** |
| Nitrobenzene | mg/kg | 22 | 0.076 U | 0.072 U | 0.075 U | 0.086 U | 0.073 U | 0.075 U | 0.073 U | 0.077 U | 0.078 U | 0.077 U | 0.072 U | 0.074 U | 0.077 U | 0.074 U | 0.078 U | 0.074 U | 0.073 U | 0.076 U | 0.083 U | 0.084 U | 0.082 U | 0.085 U | 0.075 U |
| N-Nitrosodiphenylamine | mg/kg | 470 | 0.076 U | 0.072 U | 0.075 U | 0.086 U | 0.073 U | 0.075 U | 0.073 UJ | 0.077 U | 0.078 U | 0.077 U | 0.072 U | 0.074 U | 0.077 U | 0.074 U | 0.078 U | 0.074 U | 0.073 U | 0.076 U | 0.083 U | 0.084 U | 0.082 U | 0.085 U | 0.075 U |
| Phenanthrene | mg/kg | | **0.038 J** | **0.01** | 0.074 U | **0.02** | **0.06** | **0.0059 J** | **0.015 J** | **0.24** | **0.14** | **0.44** | **0.68** | **0.54** | **0.0027 B** | **5.10** | **13.0** | **0.36** | **0.05** | **0.08** | **0.19** | **0.03** | **0.07** | **0.04** | **1.20** |
| Phenol | mg/kg | 250,000 | 0.076 U | 0.072 U | **1.40** | 0.086 U | 0.073 U | 0.075 U | 0.073 U | 0.077 U | 0.078 R | 0.077 R | 0.072 R | 0.074 U | 0.077 U | **0.021 J** | 0.078 U | 0.074 R | 0.073 U | 0.076 R | 0.083 U | 0.084 U | 0.082 U | 0.085 U | 0.075 U |
| Pyrene | mg/kg | 23,000 | **0.09** | **0.02** | **0.02 J** | **0.01** | **0.09** | **0.01** | **0.028 J** | **0.52** | **0.15** | **0.46** | **0.50** | **0.98** | **0.0034 J** | **10.5** | **15.7** | **0.46** | **0.07** | **0.12** | **0.27** | **0.05** | **0.13** | **0.10** | **3.10** |
| **PCBs** | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aroclor 1221 | mg/kg | 0.72 | 0.057 U | N/A | 0.0555 U | N/A | 0.0563 U | N/A | 0.0505 U | N/A | N/A | N/A | N/A | 0.0574 U | N/A | 0.0575 U | N/A | 0.0536 U | 0.0542 U | 0.057 U | 0.0593 U | N/A | 0.0578 U | N/A | 2.75 U |
| Aroclor 1242 | mg/kg | 0.97 | 0.057 U | N/A | 0.0555 U | N/A | 0.0563 U | N/A | 0.0505 U | N/A | N/A | N/A | N/A | 0.0574 U | N/A | 0.0575 U | N/A | 0.0536 U | 0.0542 U | 0.057 U | 0.0593 U | N/A | 0.0578 U | N/A | 2.75 U |
| Aroclor 1248 | mg/kg | 0.94 | 0.057 U | N/A | 0.0555 U | N/A | 0.0563 U | N/A | 0.0505 U | N/A | N/A | N/A | N/A | **0.14** | N/A | **0.28** | N/A | 0.0536 U | 0.0542 U | 0.057 U | 0.0593 U | N/A | 0.0578 U | N/A | 2.75 U |
| Aroclor 1254 | mg/kg | 0.97 | 0.057 U | N/A | 0.0555 U | N/A | 0.0563 U | N/A | 0.0505 U | N/A | N/A | N/A | N/A | **0.09** | N/A | **0.25** | N/A | **0.17** | **0.46** | **0.38** | 0.0593 U | N/A | 0.0578 U | N/A | **84.0** |
| Aroclor 1260 | mg/kg | 0.99 | 0.057 U | N/A | 0.0555 U | N/A | 0.0563 U | N/A | 0.0505 U | N/A | N/A | N/A | N/A | **0.06** | N/A | **0.31** | N/A | 0.0536 U | 0.0542 U | 0.057 U | 0.0593 U | N/A | 0.0578 U | N/A | **39.7** |
| Aroclor 1262 | mg/kg | | 0.057 U | N/A | 0.0555 U | N/A | 0.0563 U | N/A | 0.0505 U | N/A | N/A | N/A | N/A | 0.0574 U | N/A | 0.0575 U | N/A | 0.0536 U | 0.0542 U | 0.057 U | 0.0593 U | N/A | 0.0578 U | N/A | 2.75 U |
| Aroclor 1268 | mg/kg | | 0.057 U | N/A | 0.0555 U | N/A | 0.0563 U | N/A | 0.0505 U | N/A | N/A | N/A | N/A | 0.0574 U | N/A | 0.0575 U | N/A | 0.0536 U | 0.0542 U | 0.057 U | 0.0593 U | N/A | 0.0578 U | N/A | 2.75 U |
| PCBs (total) | mg/kg | 0.97 | 0.057 U | N/A | 0.0555 U | N/A | 0.0563 U | N/A | 0.0505 U | N/A | N/A | N/A | N/A | **0.29** | N/A | **0.85** | N/A | **0.17** | **0.46** | **0.38** | 0.0593 U | N/A | 0.0578 U | N/A | **124** |
| **TPH/Oil and Grease** | | | | | | | | | | | | | | | | | | | | | | | | | |
| Diesel Range Organics | mg/kg | 6,200 | **84.3** | **5 J** | **219** | **24.9** | **88.3** | **5 J** | **175** | **66.9** | **47.1 J** | **364 J** | **534 J** | **477 J** | **7.3 J** | **379 J** | **610** | **274** | **29.5** | **208** | **110** | **16.8** | **49.5** | **14.9** | **128** |
| Gasoline Range Organics | mg/kg | 6,200 | 15.9 U | 9.8 U | 13.2 U | 14.5 U | 8.4 U | 9.4 U | 12 U | 12.5 U | 10.2 U | 12.7 U | 9.5 U | 13.4 U | 10.9 U | 10.5 U | 10.7 U | 10.3 U | 10.3 U | 11.7 U | 11.6 U | 11.3 U | 11.3 U | 13.2 U | 11.6 U |

**Bold indicates detection**

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

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

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

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

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

N/A: This parameter was not analyzed for this sample.

*Indicates nonvalidated

**PAH compounds were analyzed via SIM

**Red indicates a detection exceedance of the Project Action Limit**

**Table 5**
**Summary of Organics Detected in Soil**
**Parcel B4**
**Tradepoint Atlantic**
**Sparrows Point, Maryland**

| Parameter | Units | PAL | B4-037-SB-6 | B4-037-SB-10 | B4-038-SB-1 | B4-038-SB-5 | B4-038-SB-10 | B4-039-SB-1 | B4-039-SB-5 | B4-040-SB-1 | B4-040-SB-5 | B4-041-SB-1 | B4-041-SB-4 | B4-042-SB-1 | B4-042-SB-5 | B4-043-SB-1 | B4-043-SB-5 | B4-044-SB-1 | B4-044-SB-4 | B4-045-SB-1 | B4-045-SB-5 | B4-045-SB-10 | B4-046-SB-1 | B4-046-SB-5 | B4-047-SB-1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Volatile Organic Compound** | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,2,3-Trichlorobenzene | mg/kg | 930 | **0.01** | 0.0044 U | 0.0054 U | 0.0048 U | 0.0044 U | 0.0047 U | 0.0064 U | 0.0057 U | 0.0048 U | 0.0048 U | 0.0062 U | 0.0071 U | 0.0046 U | 0.0055 U | 0.0054 U | 0.0061 U | 0.008 U | 0.0065 U | 0.0059 U | 0.0053 U | 0.0059 U | 0.0061 U | 0.0066 U |
| 1,2,4-Trichlorobenzene | mg/kg | 110 | 0.0042 U | 0.0044 U | 0.0054 U | 0.0048 U | 0.0044 U | 0.0047 U | 0.0064 U | 0.0057 U | 0.0048 U | 0.0048 U | 0.0062 U | 0.0071 U | 0.0046 U | 0.0055 U | 0.0054 U | 0.0061 U | 0.008 U | 0.0065 U | 0.0059 U | 0.0053 U | 0.0059 U | 0.0061 U | 0.0066 U |
| 1,4-Dichlorobenzene | mg/kg | 11 | 0.0042 U | 0.0044 U | 0.0054 U | 0.0048 U | 0.0044 U | 0.0047 U | 0.0064 U | 0.0057 U | 0.0048 U | 0.0048 U | 0.0062 U | 0.0071 U | 0.0046 U | 0.0055 U | 0.0054 U | 0.0061 U | 0.008 U | 0.0065 U | 0.0059 U | 0.0053 U | 0.0059 U | 0.0061 U | 0.0066 U |
| 2-Butanone (MEK) | mg/kg | 190,000 | **0.0045 J** | **0.005 J** | 0.011 U | 0.0096 U | 0.0088 U | 0.0094 U | 0.013 U | 0.011 U | 0.0095 U | 0.0097 U | 0.012 U | 0.014 U | **0.01** | 0.011 U | 0.011 U | **0.0037 J** | 0.016 UJ | 0.013 U | 0.012 U | 0.011 U | 0.012 UJ | 0.012 UJ | 0.013 U |
| 2-Hexanone | mg/kg | 1,300 | 0.0085 U | 0.0088 U | 0.011 U | 0.0096 U | 0.0088 U | 0.0094 U | 0.013 U | 0.011 U | 0.0095 U | 0.0097 U | 0.012 U | 0.014 U | **0.0036 J** | 0.011 U | 0.011 U | 0.012 U | 0.016 U | 0.013 U | 0.012 U | 0.011 U | 0.012 U | 0.012 U | 0.013 U |
| 4-Methyl-2-pentanone (MIBK) | mg/kg | 56,000 | 0.0085 U | 0.0088 U | 0.011 U | 0.0096 U | 0.0088 U | 0.0094 U | 0.013 U | 0.011 U | 0.0095 U | 0.0097 U | 0.012 U | 0.014 U | **0.0026 J** | 0.011 U | 0.011 U | 0.012 U | 0.016 U | 0.013 U | 0.012 U | 0.011 U | 0.012 U | 0.012 U | 0.013 U |
| Acetone | mg/kg | 670,000 | **0.045 J** | **0.047 J** | **0.028 J** | **0.024 J** | **0.024 J** | **0.059 J** | **0.036 J** | 0.011 U | **0.029 J** | **0.0049 J** | **0.05** | **0.07** | **0.10** | **0.03 B** | **0.029 B** | **0.061 J** | **0.04 J** | **0.024 J** | **0.031 J** | **0.029 J** | **0.022 J** | **0.022 J** | **0.0073 J** |
| Benzene | mg/kg | 5.1 | **0.0013 J** | 0.0044 U | 0.0054 U | 0.0048 U | 0.0044 U | 0.0047 U | 0.0064 U | 0.0057 U | 0.0048 U | 0.0048 U | 0.0062 U | 0.0071 U | **0.0019 J** | 0.0055 U | 0.0054 U | 0.0061 U | 0.008 U | 0.0065 U | 0.0059 U | 0.0053 U | 0.0059 U | 0.0061 U | 0.0066 U |
| Chloroform | mg/kg | 1.4 | 0.0042 U | 0.0044 U | 0.0054 U | 0.0048 U | 0.0044 U | 0.0047 U | 0.0064 U | 0.0057 U | 0.0048 U | 0.0048 U | 0.0062 U | 0.0071 U | 0.0046 U | 0.0055 U | 0.0054 U | 0.0061 U | 0.008 U | 0.0065 U | 0.0059 U | 0.0053 U | 0.0059 U | 0.0061 U | 0.0066 U |
| Cyclohexane | mg/kg | 27,000 | 0.0085 U | 0.0088 U | 0.011 U | 0.0096 U | 0.0088 U | 0.0094 U | 0.013 U | 0.011 U | 0.0095 U | 0.0097 U | 0.012 U | 0.014 U | 0.0092 U | 0.011 U | 0.011 U | 0.012 U | 0.016 U | 0.013 U | 0.012 U | 0.011 U | 0.012 U | 0.012 U | 0.013 U |
| Ethylbenzene | mg/kg | 25 | 0.0042 U | 0.0044 U | 0.0054 U | 0.0048 U | 0.0044 U | 0.0047 U | 0.0064 U | 0.0057 U | 0.0048 U | 0.0048 U | 0.0062 U | 0.0071 U | 0.0046 U | 0.0055 U | 0.0054 U | 0.0061 U | 0.008 U | 0.0065 U | 0.0059 U | 0.0053 U | 0.0059 U | 0.0061 U | 0.0066 U |
| Isopropylbenzene | mg/kg | 9,900 | 0.0042 U | 0.0044 U | 0.0054 U | 0.0048 U | 0.0044 U | 0.0047 U | 0.0064 U | 0.0057 U | 0.0048 U | 0.0048 U | 0.0062 U | 0.0071 U | 0.0046 U | 0.0055 U | 0.0054 U | 0.0061 U | 0.008 U | 0.0065 U | 0.0059 U | 0.0053 U | 0.0059 U | 0.0061 U | 0.0066 U |
| Methyl Acetate | mg/kg | 1,200,000 | 0.042 U | 0.044 U | 0.054 U | 0.048 U | 0.044 U | 0.047 U | 0.064 U | 0.057 U | 0.048 U | 0.048 U | 0.062 U | 0.071 U | 0.046 U | 0.055 U | 0.054 U | 0.061 U | 0.08 U | 0.065 U | 0.059 U | 0.053 U | 0.059 U | 0.061 U | 0.066 U |
| Styrene | mg/kg | 35,000 | 0.0042 U | 0.0044 U | 0.0054 U | 0.0048 U | 0.0044 U | 0.0047 U | 0.0064 U | 0.0057 U | 0.0048 U | 0.0048 U | 0.0062 U | 0.0071 U | 0.0046 U | 0.0055 U | 0.0054 U | 0.0061 U | 0.008 U | 0.0065 U | 0.0059 U | 0.0053 U | 0.0059 U | 0.0061 U | 0.0066 U |
| Toluene | mg/kg | 47,000 | **0.0064 J** | **0.01** | **0.01** | **0.01** | **0.01** | **0.01** | **0.0044 J** | **0.0045 J** | **0.0031 J** | **0.0047 J** | **0.01** | **0.01** | **0.0043 J** | **0.0047 J** | **0.01** | **0.02** | **0.0036 J** | 0.0097 U | 0.012 U | 0.008 U | **0.01** | **0.01** | 0.018 U |
| Xylenes | mg/kg | 2,800 | 0.013 U | 0.013 U | 0.016 U | 0.014 U | 0.013 U | 0.014 U | 0.019 U | 0.017 U | 0.014 U | 0.015 U | 0.019 U | 0.021 U | 0.014 U | 0.017 U | 0.016 U | 0.018 U | 0.024 U | 0.019 U | 0.018 U | 0.016 U | 0.018 U | 0.018 U | 0.02 U |
| **Semi-Volatile Organic Compounds**** | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1-Biphenyl | mg/kg | 200 | 0.15 U | 0.16 U | **0.09** | 0.073 U | 0.078 U | 0.077 U | **0.019 J** | **0.12 J** | **0.022 J** | **0.066 J** | **0.021 J** | 0.073 U | **0.031 J** | **0.19** | 0.077 U | 0.07 U | **0.022 J** | 0.074 U | 0.072 U | 0.073 U | 0.071 U | 0.072 U | **0.024 J** |
| 2,4-Dimethylphenol | mg/kg | 16,000 | 0.15 U | 0.16 U | 0.08 U | 0.073 U | 0.078 U | 0.077 U | 0.083 UJ | 0.079 U | 0.077 R | 0.072 U | 0.077 U | 0.073 U | 0.069 U | 0.079 UJ | 0.077 R | 0.07 U | 0.082 U | 0.074 U | 0.072 U | 0.073 U | 0.071 U | 0.072 U | 0.076 U |
| 2,4-Dinitrophenol | mg/kg | 1,600 | 0.39 R | 0.4 UJ | 0.2 UJ | 0.18 UJ | 0.2 UJ | 0.19 UJ | 0.21 UJ | 0.2 UJ | 0.19 R | 0.18 UJ | 0.19 UJ | 0.18 UJ | 0.17 UJ | 0.2 UJ | 0.19 R | 0.18 U | 0.2 U | 0.19 U | 0.18 U | 0.18 U | 0.18 U | 0.18 U | 0.19 U |
| 2,6-Dinitrotoluene | mg/kg | 1.5 | 0.15 U | 0.16 U | 0.08 U | 0.073 U | 0.078 U | 0.077 U | 0.083 U | 0.079 U | 0.077 U | 0.072 U | 0.077 U | 0.073 U | 0.069 U | 0.079 U | 0.077 U | 0.07 U | 0.082 U | 0.074 U | 0.072 U | 0.073 U | 0.071 U | 0.072 U | 0.076 U |
| 2-Chloronaphthalene | mg/kg | 60,000 | 0.15 U | 0.16 U | 0.08 U | 0.073 U | 0.078 U | 0.077 U | 0.083 U | 0.079 U | 0.077 U | 0.072 U | 0.077 U | 0.073 U | 0.069 U | 0.079 U | 0.077 U | 0.07 U | 0.082 U | 0.074 U | 0.072 U | 0.073 U | 0.071 U | 0.072 U | 0.076 U |
| 2-Methylnaphthalene | mg/kg | 3,000 | 0.077 U | 0.08 U | **0.16** | 0.0074 U | 0.0078 U | **0.0021 J** | **0.04** | **0.48** | **0.04** | **0.05** | **0.10** | 0.073 U | **0.09** | **0.05** | **0.0061 J** | **0.01** | **0.20** | **0.01** | **0.01** | **0.01** | **0.01** | **0.01** | **0.062 J** |
| 2-Methylphenol | mg/kg | 41,000 | 0.15 U | 0.16 U | 0.08 U | 0.073 U | 0.078 U | 0.077 U | 0.083 UJ | 0.079 U | 0.077 R | 0.072 U | 0.077 U | 0.073 U | 0.069 U | 0.079 UJ | 0.077 R | 0.07 U | 0.082 U | 0.074 U | 0.072 U | 0.073 U | 0.071 U | 0.072 U | 0.076 U |
| 3&4-Methylphenol(m&p Cresol) | mg/kg | 41,000 | 0.31 U | 0.32 U | 0.16 U | 0.15 U | 0.16 U | 0.15 U | 0.17 UJ | **0.047 J** | 0.15 R | 0.14 U | 0.15 U | 0.15 U | 0.14 U | 0.16 UJ | 0.15 R | 0.14 U | 0.16 U | 0.15 U | 0.14 U | 0.15 U | 0.14 U | 0.14 U | 0.15 U |
| 4-Chloroaniline | mg/kg | 11 | 0.15 U | 0.16 U | 0.08 U | 0.073 U | 0.078 U | 0.077 U | 0.083 U | 0.079 U | 0.077 U | 0.072 U | 0.077 U | 0.073 U | 0.069 U | 0.079 U | 0.077 U | 0.07 U | 0.082 U | 0.074 U | 0.072 U | 0.073 U | 0.071 U | 0.072 U | 0.076 U |
| Acenaphthene | mg/kg | 45,000 | **0.16** | **0.12** | **0.01** | 0.0074 U | 0.0078 U | 0.0079 U | **0.01** | **0.96** | **0.05** | **0.18** | **0.08** | 0.073 U | **0.08** | **0.12** | **0.0019 J** | **0.0039 J** | **0.013 J** | **0.0028 B** | **0.0034 B** | **0.0038 B** | **0.0013 J** | **0.0025 J** | **0.011 B** |
| Acenaphthylene | mg/kg | 45,000 | **0.09** | **0.043 J** | **0.12** | 0.0074 U | 0.0078 U | **0.0011 J** | **0.03** | **0.14** | **0.05** | **0.01** | **0.02** | **0.0062 J** | **0.039 J** | **0.006 J** | **0.001 J** | **0.0019 J** | **0.14** | **0.0058 J** | **0.00093 J** | **0.002 J** | **0.0014 J** | **0.00073 J** | **0.18** |
| Acetophenone | mg/kg | 120,000 | 0.15 U | 0.16 U | **0.04 J** | 0.073 U | 0.078 U | 0.077 U | **0.02 J** | **0.18 J** | **0.036 J** | 0.072 U | 0.077 U | 0.073 U | **0.053 J** | 0.079 U | 0.077 U | 0.07 U | 0.082 U | 0.074 U | 0.072 U | 0.073 U | 0.071 U | 0.072 U | 0.076 U |
| Anthracene | mg/kg | 230,000 | **0.14** | **0.21** | **0.11** | 0.0074 U | 0.0078 U | **0.0035 J** | **0.04** | **2.10** | **0.18** | **0.43** | **0.17** | **0.028 B** | **0.57** | **0.03** | **0.0077 J** | **0.02** | **0.12** | **0.01** | **0.01** | **0.0059 B** | **0.0047 J** | **0.007 J** | **0.16** |
| Benzaldehyde | mg/kg | 120,000 | 0.15 R | 0.16 R | **0.069 J** | 0.073 R | 0.078 R | 0.077 R | **0.078 J** | **0.067 J** | **0.033 J** | 0.072 R | 0.077 R | 0.073 R | 0.069 R | **0.018 J** | 0.077 U | 0.07 R | 0.028 R | 0.074 R | 0.072 R | 0.073 R | 0.071 R | 0.072 R | **0.019 J** |
| Benzo[a]anthracene | mg/kg | 2.9 | **0.11** | **0.05 J** | **0.40** | 0.0074 U | 0.0078 U | **0.01** | **0.18** | **2.90** | **0.42** | **0.80** | **1.10** | **0.25** | 0.068 U | **0.10** | **0.03** | **0.01** | **0.40** | **0.08** | **0.04** | **0.03** | **0.03** | **0.03** | **0.97** |
| Benzo[a]pyrene | mg/kg | 0.29 | **0.09** | **0.016 J** | **0.43** | 0.0074 U | 0.0078 U | **0.01** | **0.23** | **2.50** | **0.54** | **0.75** | **0.96** | **0.36** | **2.90** | **0.20** | **0.03** | **0.01** | **0.61** | **0.09** | **0.05** | **0.05** | **0.06** | **0.03** | **1.30** |
| Benzo[b]fluoranthene | mg/kg | 2.9 | **0.21** | **0.039 J** | **1.00** | 0.0074 U | 0.0078 U | **0.02** | **0.77** | **4.90** | **1.10** | **1.30** | **1.30** | **1.20** | **8.50** | **0.33** | **0.06** | **0.04** | **1.10** | **0.18** | **0.08** | **0.07** | **0.10** | **0.08** | **3.20** |
| Benzo[g,h,i]perylene | mg/kg | | **0.09** | 0.08 U | **0.10** | 0.0074 U | 0.0078 U | **0.0068 J** | **0.08** | **1.40** | **0.35** | **0.19** | **0.24** | **0.14** | **1.60** | **0.10** | **0.02** | **0.004 J** | **0.16** | **0.05** | **0.03** | **0.03** | **0.02** | **0.01** | **0.34** |
| Benzo[k]fluoranthene | mg/kg | 29 | **0.21** | **0.037 J** | **1.00** | 0.0074 U | 0.0078 U | **0.0071 J** | **0.74** | **4.70** | **1.10** | **1.30** | **0.54** | **1.10** | **8.10** | **0.32** | **0.06** | **0.04** | **1.10** | **0.18** | **0.08** | **0.07** | **0.10** | **0.07** | **3.10** |
| bis(2-Ethylhexyl)phthalate | mg/kg | 160 | 0.15 UJ | 0.16 UJ | **0.042 B** | 0.073 U | 0.078 U | 0.077 U | **0.48 J** | 0.079 UJ | **0.047 B** | **0.024 B** | **0.016 B** | 0.073 UJ | 0.069 UJ | 0.079 UJ | 0.077 UJ | 0.07 U | 0.082 UJ | 0.074 U | 0.072 U | 0.073 U | 0.071 U | 0.072 U | 0.076 UJ |
| Caprolactam | mg/kg | 400,000 | 0.39 U | 0.4 U | 0.2 U | 0.18 U | 0.2 U | 0.19 U | 0.21 U | 0.2 U | 0.19 U | 0.18 U | 0.19 U | 0.18 U | 0.17 U | **0.074 J** | 0.19 U | 0.18 U | 0.2 U | 0.19 U | 0.18 U | 0.18 U | 0.18 U | 0.18 U | 0.19 U |
| Carbazole | mg/kg | | 0.15 U | 0.16 UJ | **0.12** | 0.073 U | 0.078 U | 0.077 U | **0.10** | **0.89 J** | **0.16** | **0.70** | **0.053 J** | 0.073 U | **0.3 J** | **0.31** | 0.077 U | 0.07 U | **0.059 J** | 0.074 U | 0.072 U | 0.073 U | 0.071 U | 0.072 U | **0.11 J** |
| Chrysene | mg/kg | | **0.17** | **0.035 J** | **0.51** | 0.0074 U | 0.0078 U | **0.01** | **0.26** | **2.80** | **1.30** | **0.72** | **1.40** | **1.80** | **12.6** | **0.12** | **0.03** | **0.02** | **0.52** | **0.09** | **0.05** | **0.05** | **0.04** | **0.04** | **0.95** |
| Dibenz[a,h]anthracene | mg/kg | 0.29 | **0.026 J** | 0.08 U | **0.06** | 0.0074 U | 0.0078 U | **0.0023 J** | **0.03** | **0.60** | **0.11 J** | **0.08** | **0.12** | **0.057 J** | **0.64** | **0.03** | **0.0043 J** | 0.0072 U | **0.09** | **0.02** | **0.01** | **0.01** | **0.01** | **0.0038 J** | **0.12** |
| Di-n-butylphthalate | mg/kg | 82,000 | 0.15 U | 0.16 UJ | 0.08 U | 0.073 U | 0.078 U | 0.077 U | 0.083 U | **0.037 J** | 0.077 U | 0.072 U | 0.077 U | 0.073 U | 0.069 UJ | 0.079 U | 0.077 U | 0.07 U | 0.082 U | 0.074 U | 0.072 U | 0.073 U | 0.071 U | 0.072 U | 0.076 U |
| Di-n-octylphthalate | mg/kg | 8,200 | 0.15 UJ | 0.16 UJ | 0.08 UJ | 0.073 U | 0.078 U | 0.077 U | 0.083 UJ | 0.079 UJ | 0.077 UJ | 0.072 UJ | 0.077 U | 0.073 UJ | 0.069 UJ | 0.079 UJ | 0.077 UJ | 0.07 U | 0.082 UJ | 0.074 U | 0.072 U | 0.073 U | 0.071 U | 0.072 U | 0.076 UJ |
| Fluoranthene | mg/kg | 30,000 | **0.36** | **0.11** | **1.10** | **0.00076 J** | **0.00097 J** | **0.02** | **0.44** | **7.90** | **1.20** | **2.00** | **1.40** | **0.41** | **6.40** | **0.20** | **0.04** | **0.06** | **0.69** | **0.17** | **0.06** | **0.04** | **0.05** | **0.04** | **2.10** |
| Fluorene | mg/kg | 30,000 | **0.40** | **0.09** | **0.03** | 0.0074 U | 0.0078 U | 0.0079 U | **0.01** | **0.94** | **0.04** | **0.15** | **0.02** | 0.073 U | **0.07** | **0.02** | 0.0079 U | **0.01** | **0.01** | **0.0026 B** | **0.0018 B** | **0.0022 B** | **0.0011 J** | **0.0012 J** | **0.022 B** |
| Hexachlorobenzene | mg/kg | 0.96 | 0.15 U | 0.16 UJ | 0.08 U | 0.073 U | 0.078 U | 0.077 U | 0.083 U | 0.079 UJ | 0.077 U | 0.072 U | 0.077 U | 0.073 U | 0.069 UJ | 0.079 U | 0.077 U | 0.07 U | 0.082 U | 0.074 U | 0.072 U | 0.073 U | 0.071 U | 0.072 U | 0.076 U |
| Hexachloroethane | mg/kg | 8 | 0.15 U | 0.16 U | 0.08 U | 0.073 U | 0.078 U | 0.077 U | 0.083 U | 0.079 U | 0.077 U | 0.072 U | 0.077 U | 0.073 U | 0.069 U | 0.079 U | 0.077 U | 0.07 U | 0.082 U | 0.074 U | 0.072 U | 0.073 U | 0.071 U | 0.072 U | 0.076 U |
| Indeno[1,2,3-c,d]pyrene | mg/kg | 2.9 | **0.063 J** | **0.01 J** | **0.13** | 0.0074 U | 0.0078 U | **0.0052 J** | **0.07** | **1.30** | **0.31** | **0.21** | **0.27** | **0.15** | **1.60** | **0.10** | **0.01** | **0.0037 J** | **0.19** | **0.04** | **0.02** | **0.02** | **0.02** | **0.01** | **0.35** |
| Naphthalene | mg/kg | 17 | 0.077 U | 0.08 U | **0.18** | 0.0074 U | 0.0078 U | **0.0028 J** | **0.04** | **0.48** | **0.09** | **0.12** | **0.08** | 0.073 U | **0.09** | **0.04** | **0.0042 J** | **0.01** | **0.21** | **0.0069 B** | **0.01** | **0.0045 B** | **0.0067 J** | **0.0051 J** | **0.09** |
| Nitrobenzene | mg/kg | 22 | 0.15 U | 0.16 U | 0.08 U | 0.073 U | 0.078 U | 0.077 U | **0.044 J** | 0.079 U | 0.077 U | 0.072 U | 0.077 U | 0.073 U | 0.069 U | 0.079 U | 0.077 U | 0.07 U | 0.082 U | 0.074 U | 0.072 U | 0.073 U | 0.071 U | 0.072 U | 0.076 U |
| N-Nitrosodiphenylamine | mg/kg | 470 | 0.15 U | 0.16 UJ | 0.08 U | 0.073 U | 0.078 U | 0.077 U | 0.083 U | 0.079 UJ | 0.077 U | 0.072 U | 0.077 U | 0.073 U | 0.069 UJ | 0.079 U | 0.077 U | 0.07 U | 0.082 U | 0.074 U | 0.072 U | 0.073 U | 0.071 U | 0.072 U | 0.076 U |
| Phenanthrene | mg/kg | | **0.18** | **0.26** | **0.64** | **0.00085 J** | 0.0078 U | **0.01** | **0.19** | **7.10** | **0.59** | **1.50** | **0.60** | **0.08** | **2.40** | **0.15** | **0.02** | **0.07** | **0.33** | **0.05** | **0.03** | **0.03** | **0.02** | **0.02** | **0.52** |
| Phenol | mg/kg | 250,000 | 0.15 U | 0.16 U | 0.08 U | 0.073 U | 0.078 U | 0.077 U | 0.083 U | **0.062 J** | 0.077 R | 0.072 U | 0.077 U | 0.073 U | **0.035 J** | 0.079 UJ | 0.077 R | 0.07 U | 0.082 U | 0.074 U | 0.072 U | 0.073 U | 0.071 U | 0.072 U | 0.076 U |
| Pyrene | mg/kg | 23,000 | **0.42** | **0.13** | **0.92** | **0.00069 J** | **0.0011 J** | **0.02** | **0.36** | **6.90** | **1.10** | **1.70** | **2.10** | **0.75** | **7.70** | **0.20** | **0.04** | **0.05** | **0.67** | **0.16** | **0.09** | **0.08** | **0.06** | **0.07** | **1.70** |
| **PCBs** | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aroclor 1221 | mg/kg | 0.72 | N/A | N/A | 0.29 U | N/A | N/A | 0.0608 U | N/A | 0.054 U | N/A | 0.0517 U | N/A | **0.28** | N/A | N/A | N/A | 0.054 U | N/A | 0.0542 U | N/A | N/A | 0.0596 U | N/A | 0.054 U |
| Aroclor 1242 | mg/kg | 0.97 | N/A | N/A | 0.29 U | N/A | N/A | 0.0608 U | N/A | 0.054 U | N/A | 0.0517 U | N/A | **0.16** | N/A | N/A | N/A | 0.054 U | N/A | 0.0542 U | N/A | N/A | 0.0596 U | N/A | 0.054 U |
| Aroclor 1248 | mg/kg | 0.94 | N/A | N/A | 0.29 U | N/A | N/A | 0.0608 U | N/A | 0.054 U | N/A | 0.0517 U | N/A | 0.0559 U | N/A | N/A | N/A | 0.054 U | N/A | 0.0542 U | N/A | N/A | 0.0596 U | N/A | 0.054 U |
| Aroclor 1254 | mg/kg | 0.97 | N/A | N/A | **11.0** | N/A | N/A | 0.0608 U | N/A | **0.21** | N/A | 0.0517 U | N/A | 0.0559 U | N/A | N/A | N/A | 0.054 U | N/A | 0.0542 U | N/A | N/A | 0.0596 U | N/A | 0.054 U |
| Aroclor 1260 | mg/kg | 0.99 | N/A | N/A | **6.01** | N/A | N/A | 0.0608 U | N/A | **0.19** | N/A | 0.0517 U | N/A | 0.0559 U | N/A | N/A | N/A | 0.054 U | N/A | 0.0542 U | N/A | N/A | 0.0596 U | N/A | **0.0417 J** |
| Aroclor 1262 | mg/kg | | N/A | N/A | 0.29 U | N/A | N/A | 0.0608 U | N/A | 0.054 U | N/A | 0.0517 U | N/A | 0.0559 U | N/A | N/A | N/A | 0.054 U | N/A | 0.0542 U | N/A | N/A | 0.0596 U | N/A | 0.054 U |
| Aroclor 1268 | mg/kg | | N/A | N/A | 0.29 U | N/A | N/A | 0.0608 U | N/A | 0.054 U | N/A | 0.0517 U | N/A | **0.30** | N/A | N/A | N/A | 0.054 U | N/A | 0.0542 U | N/A | N/A | 0.0596 U | N/A | 0.054 U |
| PCBs (total) | mg/kg | 0.97 | N/A | N/A | **17.0** | N/A | N/A | 0.0608 U | N/A | **0.40** | N/A | 0.0517 U | N/A | **0.74** | N/A | N/A | N/A | 0.054 U | N/A | 0.0542 U | N/A | N/A | 0.0596 U | N/A | **0.0417 J** |
| **TPH/Oil and Grease** | | | | | | | | | | | | | | | | | | | | | | | | | |
| Diesel Range Organics | mg/kg | 6,200 | **6,760** | **2,900** | **130** | 7.4 U | **4.7 J** | **15.7** | **156** | **428** | **191** | **27.2** | **347** | **1,210** | **6,270** | **52.2 J** | **9.7 J** | **6.8 J** | **60.1** | **10.1** | **13.3** | **12.4** | **7.80** | **10.4** | **147** |
| Gasoline Range Organics | mg/kg | 6,200 | 9.2 U | 9.9 U | 12.8 U | 8.8 U | 10.7 U | 9.7 U | 13.5 U | 13.2 U | 10.2 U | 10.5 U | 13.4 U | 15.5 U | 9 U | 12.2 U | 12.8 U | 12.3 U | 18.2 U | 10.4 U | 12.6 U | 12.7 U | 11.4 U | 12.5 U | 14.7 U |

**Bold indicates detection**

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

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

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

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

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

N/A: This parameter was not analyzed for this sample.

*Indicates nonvalidated

**PAH compounds were analyzed via SIM

**Red indicates a detection exceedance of the Project Action Limit**

**Table 5**
**Summary of Organics Detected in Soil**
**Parcel B4**
**Tradepoint Atlantic**
**Sparrows Point, Maryland**

| Parameter | Units | PAL | B4-047-SB-5 | B4-048-SB-1 | B4-048-SB-5 | B4-048-SB-10 | B4-049-SB-1 | B4-049-SB-4.5 | B4-050-SB-1 | B4-050-SB-5 | B4-054-SB-1* | B4-054-SB-6* | B4-055-SB-1* | B4-055-SB-5* | B4-056-SB-1.5* | B4-056-SB-7.5* | B4-057-SB-1* | B4-057-SB-5* | B4-057-SB-10* | B4-058-SB-1* | B4-058-SB-8* | B4-059-SB-1* | B4-059-SB-4* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Volatile Organic Compound** | | | | | | | | | | | | | | | | | | | | | | | |
| 1,2,3-Trichlorobenzene | mg/kg | 930 | 0.0048 U | 0.0068 U | 0.0055 U | 0.0054 U | 0.0049 U | 0.0062 U | 0.006 U | 0.0047 U | 0.0051 U | 0.0056 U | 0.0061 U | 0.0096 U | 0.0054 U | 0.0076 U | 0.0047 U | 0.0054 U | N/A | 0.0042 U | 0.0084 U | 0.0044 U | 0.0077 U |
| 1,2,4-Trichlorobenzene | mg/kg | 110 | 0.0048 U | 0.0068 U | 0.0055 U | 0.0054 U | 0.0049 U | 0.0062 U | 0.006 U | 0.0047 U | 0.0051 U | 0.0056 U | 0.0061 U | 0.0096 U | 0.0054 U | 0.0076 U | 0.0047 U | 0.0054 U | N/A | 0.0042 U | 0.0084 U | 0.0044 U | 0.0077 U |
| 1,4-Dichlorobenzene | mg/kg | 11 | 0.0048 U | 0.0068 U | 0.0055 U | 0.0054 U | 0.0049 U | 0.0062 U | 0.006 U | 0.0047 U | 0.0051 U | 0.0056 U | 0.0061 U | 0.0096 U | 0.0054 U | 0.0076 U | 0.0047 U | 0.0054 U | N/A | 0.0042 U | 0.0084 U | 0.0044 U | 0.0077 U |
| 2-Butanone (MEK) | mg/kg | 190,000 | 0.0096 U | 0.014 U | 0.011 U | 0.011 U | 0.0098 U | 0.012 U | 0.012 U | 0.0093 U | 0.01 U | 0.011 U | 0.012 U | 0.019 U | 0.011 U | 0.015 U | 0.0094 U | 0.011 U | N/A | 0.0085 U | 0.017 U | 0.0087 U | 0.015 U |
| 2-Hexanone | mg/kg | 1,300 | 0.0096 U | 0.014 U | 0.011 U | 0.011 U | 0.0098 U | 0.012 U | 0.012 U | 0.0093 U | 0.01 U | 0.011 U | 0.012 U | 0.019 U | 0.011 U | 0.015 U | 0.0094 U | 0.011 U | N/A | 0.0085 U | 0.017 U | 0.0087 U | 0.015 U |
| 4-Methyl-2-pentanone (MIBK) | mg/kg | 56,000 | 0.0096 U | 0.014 U | 0.011 U | 0.011 U | 0.0098 U | 0.012 U | 0.012 U | 0.0093 U | 0.01 U | 0.011 U | 0.012 U | 0.019 U | 0.011 U | 0.015 U | 0.0094 U | 0.011 U | N/A | 0.0085 U | 0.017 U | 0.0087 U | 0.015 U |
| Acetone | mg/kg | 670,000 | **0.03** | 0.014 U | **0.05** | **0.04** | **0.11 J** | **0.039 J** | 0.012 U | **0.034 J** | 0.01 U | 0.011 U | **0.02** | **0.03** | 0.011 U | 0.015 U | 0.0094 U | 0.011 U | N/A | **0.01** | 0.017 U | **0.03** | 0.015 U |
| Benzene | mg/kg | 5.1 | 0.0048 U | 0.0068 U | 0.0055 U | 0.0054 U | 0.0049 U | 0.0062 U | 0.006 U | 0.0047 U | 0.0051 U | 0.0056 U | 0.0061 U | 0.0096 U | 0.0054 U | 0.0076 U | 0.0047 U | 0.0054 U | N/A | 0.0042 U | 0.0084 U | 0.0044 U | 0.0077 U |
| Chloroform | mg/kg | 1.4 | 0.0048 U | 0.0068 U | 0.0055 U | 0.0054 U | 0.0049 U | 0.0062 U | 0.006 U | 0.0047 U | 0.0051 U | 0.0056 U | 0.0061 U | 0.0096 U | **0.02** | **0.08** | 0.0047 U | 0.0054 U | N/A | 0.0042 U | **0.0066 J** | 0.0044 U | 0.0077 U |
| Cyclohexane | mg/kg | 27,000 | 0.0096 U | 0.014 U | 0.011 U | 0.011 U | 0.0098 U | 0.012 U | 0.012 U | 0.0093 U | 0.01 U | 0.011 U | 0.012 U | 0.019 U | 0.011 U | 0.015 U | 0.0094 U | 0.011 U | N/A | 0.0085 U | 0.017 U | 0.0087 U | 0.015 U |
| Ethylbenzene | mg/kg | 25 | 0.0048 U | 0.0068 U | 0.0055 U | 0.0054 U | 0.0049 U | 0.0062 U | 0.006 U | 0.0047 U | 0.0051 U | 0.0056 U | 0.0061 U | 0.0096 U | 0.0054 U | 0.0076 U | 0.0047 U | 0.0054 U | N/A | 0.0042 U | 0.0084 U | 0.0044 U | 0.0077 U |
| Isopropylbenzene | mg/kg | 9,900 | 0.0048 U | 0.0068 U | 0.0055 U | 0.0054 U | 0.0049 U | 0.0062 U | 0.006 U | 0.0047 U | 0.0051 U | 0.0056 U | 0.0061 U | 0.0096 U | 0.0054 U | 0.0076 U | 0.0047 U | 0.0054 U | N/A | 0.0042 U | 0.0084 U | 0.0044 U | 0.0077 U |
| Methyl Acetate | mg/kg | 1,200,000 | 0.048 U | 0.068 U | 0.055 U | 0.054 U | 0.049 U | 0.062 U | 0.06 U | 0.047 U | 0.051 U | 0.056 U | 0.061 U | 0.096 U | 0.054 U | 0.076 U | 0.047 U | 0.054 U | N/A | 0.042 U | 0.084 U | 0.044 U | 0.077 U |
| Styrene | mg/kg | 35,000 | 0.0048 U | 0.0068 U | 0.0055 U | 0.0054 U | 0.0049 U | 0.0062 U | 0.006 U | 0.0047 U | 0.0051 U | 0.0056 U | 0.0061 U | 0.0096 U | 0.0054 U | 0.0076 U | 0.0047 U | 0.0054 U | N/A | 0.0042 U | 0.0084 U | 0.0044 U | 0.0077 U |
| Toluene | mg/kg | 47,000 | 0.015 U | 0.0097 U | 0.017 U | 0.0067 U | **0.01** | **0.0058 J** | **0.0051 J** | **0.01** | 0.0051 U | 0.0056 U | 0.0061 U | 0.0096 U | 0.0054 U | 0.0076 U | 0.0047 U | 0.0054 U | N/A | 0.0042 U | 0.0084 U | 0.0044 U | 0.0077 U |
| Xylenes | mg/kg | 2,800 | 0.014 U | 0.02 U | 0.016 U | 0.016 U | 0.015 U | 0.019 U | 0.018 U | 0.014 U | 0.015 U | 0.017 U | 0.018 U | 0.029 U | 0.016 U | 0.023 U | 0.014 U | 0.016 U | N/A | 0.013 U | 0.025 U | 0.013 U | 0.023 U |
| **Semi-Volatile Organic Compounds**** | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1-Biphenyl | mg/kg | 200 | 0.076 U | 0.072 U | 0.07 U | 0.07 U | 0.074 U | **0.019 J** | **0.067 J** | 0.077 U | 0.074 U | **0.028 J** | 0.089 U | 0.087 U | 0.078 U | **0.03 J** | 0.072 U | 0.072 U | N/A | 0.07 U | 0.083 U | 0.071 U | 0.091 U |
| 2,4-Dimethylphenol | mg/kg | 16,000 | 0.076 UJ | 0.072 R | 0.07 UJ | 0.07 U | 0.074 U | 0.076 U | 0.078 U | 0.077 U | 0.074 U | 0.077 U | 0.089 U | 0.087 U | 0.078 U | **0.052 J** | 0.072 U | 0.072 U | N/A | 0.07 U | 0.083 U | 0.071 U | 0.091 U |
| 2,4-Dinitrophenol | mg/kg | 1,600 | 0.19 U | 0.18 R | 0.18 UJ | 0.18 U | 0.19 UJ | 0.19 UJ | 0.2 UJ | 0.19 UJ | 0.19 U | 0.19 U | 0.22 U | 0.22 U | 0.2 U | 0.21 U | 0.18 U | 0.18 U | N/A | 0.18 U | 0.21 U | 0.18 U | 0.23 U |
| 2,6-Dinitrotoluene | mg/kg | 1.5 | 0.076 U | 0.072 U | 0.07 U | 0.07 U | 0.074 U | 0.076 U | 0.078 U | 0.077 U | 0.074 U | 0.077 U | 0.089 U | 0.087 U | 0.078 U | 0.084 U | 0.072 U | 0.072 U | N/A | 0.07 U | 0.083 U | 0.071 U | 0.091 U |
| 2-Chloronaphthalene | mg/kg | 60,000 | 0.076 U | 0.072 U | 0.07 U | 0.07 U | 0.074 U | 0.076 U | 0.078 U | 0.077 U | 0.074 U | **0.08** | 0.089 U | 0.087 U | 0.078 U | 0.084 U | 0.072 U | 0.072 U | N/A | 0.07 U | 0.083 U | 0.071 U | 0.091 U |
| 2-Methylnaphthalene | mg/kg | 3,000 | **0.0019 J** | **0.01** | **0.0039 J** | 0.0072 U | **0.01** | **0.08** | **0.25** | 0.0078 U | **0.03** | **0.01** | **0.026 J** | **0.16** | **0.02** | **1.50** | **0.01** | **0.02** | N/A | **0.021 J** | **0.05** | **0.0058 J** | **0.45** |
| 2-Methylphenol | mg/kg | 41,000 | 0.076 U | 0.072 R | 0.07 UJ | 0.07 U | 0.074 U | 0.076 U | 0.078 U | 0.077 U | 0.074 U | 0.077 U | 0.089 U | 0.087 U | 0.078 U | 0.084 U | 0.072 U | 0.072 U | N/A | 0.07 U | 0.083 U | 0.071 U | 0.091 U |
| 3&4-Methylphenol(m&p Cresol) | mg/kg | 41,000 | 0.15 U | 0.14 R | 0.14 UJ | 0.14 U | 0.15 U | 0.15 U | **0.03 J** | 0.15 U | 0.15 U | 0.15 U | 0.18 U | 0.17 U | **0.025 J** | **0.024 J** | 0.14 U | 0.14 U | N/A | 0.14 U | 0.17 U | 0.14 U | 0.18 U |
| 4-Chloroaniline | mg/kg | 11 | 0.076 U | 0.072 U | 0.07 U | 0.07 U | 0.074 U | 0.076 U | 0.078 U | 0.077 U | 0.074 U | 0.077 U | 0.089 U | 0.087 U | 0.078 U | 0.084 U | 0.072 U | 0.072 U | N/A | 0.07 U | 0.083 U | 0.071 U | 0.091 U |
| Acenaphthene | mg/kg | 45,000 | 0.0077 U | **0.01** | 0.0069 U | 0.0072 U | **0.0013 J** | **0.0036 J** | **0.01** | 0.0078 U | 0.0074 U | **0.00066 J** | **0.012 J** | **0.0017 J** | **0.03** | **0.60** | **0.0044 J** | **0.0017 J** | N/A | 0.071 U | **0.005 J** | 0.0072 U | **0.0061 J** |
| Acenaphthylene | mg/kg | 45,000 | **0.0042 J** | **0.08** | **0.0025 J** | 0.0072 U | **0.0034 J** | **0.03** | **0.18** | 0.0078 U | **0.0046 J** | 0.0077 U | **0.017 J** | **0.02** | **0.03** | **5.20** | **0.0054 J** | **0.006 J** | N/A | **0.0085 J** | **0.0041 J** | **0.0016 J** | **0.02** |
| Acetophenone | mg/kg | 120,000 | 0.076 U | **0.021 J** | 0.07 U | 0.07 U | 0.074 U | 0.076 U | **0.11** | 0.077 U | 0.074 U | 0.077 U | **0.034 J** | 0.087 U | 0.078 U | 0.084 U | 0.072 U | 0.072 U | N/A | 0.07 U | **0.023 J** | 0.071 U | **0.026 J** |
| Anthracene | mg/kg | 230,000 | **0.0059 B** | **0.13** | **0.0056 B** | **0.003 B** | **0.01** | **0.10** | **0.21** | 0.0078 U | **0.02** | **0.0028 J** | **0.02 J** | **0.01** | **0.19** | **15.7** | **0.01** | **0.04** | N/A | **0.012 J** | **0.01** | **0.003 J** | **0.03** |
| Benzaldehyde | mg/kg | 120,000 | 0.076 R | 0.072 R | 0.07 R | 0.07 R | 0.074 R | 0.076 R | **0.11 J** | 0.077 R | 0.074 U | **0.028 J** | **0.046 J** | **0.022 J** | 0.078 U | **0.026 J** | **0.023 J** | 0.072 U | N/A | 0.07 U | **0.032 J** | 0.071 U | **0.054 J** |
| Benzo[a]anthracene | mg/kg | 2.9 | **0.03** | **0.68** | **0.04** | **0.0029 B** | **0.02** | **0.13** | **0.95** | 0.0078 U | **0.06** | **0.02** | **0.10** | **0.09** | **0.67** | **40.2** | **0.04** | **0.41** | N/A | **0.034 J** | **0.02** | **0.02** | **0.09** |
| Benzo[a]pyrene | mg/kg | 0.29 | **0.05** | **1.90** | **0.04** | **0.0029 B** | **0.02** | **0.14** | **0.97** | 0.0078 U | **0.02** | **0.02** | **0.071 J** | **0.09** | **0.61** | **23.9** | **0.03** | **0.32** | **0.55** | **0.025 J** | **0.01** | **0.01** | **0.09** |
| Benzo[b]fluoranthene | mg/kg | 2.9 | **0.06** | **4.50** | **0.15** | **0.03** | **0.07** | **0.45** | **1.60** | **0.0018 J** | **0.15** | **0.06** | **0.17** | **0.19** | **0.90** | **41.0** | **0.09** | **0.77** | N/A | **0.09** | **0.03** | **0.04** | **0.22** |
| Benzo[g,h,i]perylene | mg/kg | | **0.03** | **0.89** | **0.03** | **0.0054 B** | **0.01** | **0.07** | **0.25** | 0.0078 U | **0.04** | **0.02** | **0.04 J** | **0.04** | **0.32** | **11.7** | **0.03** | **0.28** | N/A | **0.031 J** | **0.01** | **0.02** | **0.06** |
| Benzo[k]fluoranthene | mg/kg | 29 | **0.03** | **4.30** | **0.15** | **0.03** | **0.07** | **0.43** | **0.72** | **0.0016 J** | **0.11** | **0.05** | **0.16** | **0.17** | **0.30** | **17.2** | **0.07** | **0.23** | N/A | **0.063 J** | **0.02** | **0.03** | **0.20** |
| bis(2-Ethylhexyl)phthalate | mg/kg | 160 | 0.076 UJ | 0.072 UJ | 0.07 U | 0.07 U | 0.074 UJ | **0.015 B** | **0.024 B** | 0.077 U | 0.074 U | 0.077 U | **3.00** | 0.087 U | 0.078 U | 0.084 U | 0.072 U | 0.072 U | N/A | 0.07 U | 0.083 U | 0.071 U | 0.091 U |
| Caprolactam | mg/kg | 400,000 | 0.19 U | 0.18 U | 0.18 U | 0.18 U | 0.19 U | 0.19 U | 0.2 U | 0.19 U | 0.19 U | 0.19 U | 0.22 U | 0.22 U | 0.2 U | 0.21 U | 0.18 U | 0.18 U | N/A | 0.18 U | 0.21 U | 0.18 U | 0.23 U |
| Carbazole | mg/kg | | 0.076 U | **0.053 J** | 0.07 U | 0.07 U | 0.074 U | **0.18** | **0.09** | 0.077 U | 0.074 U | 0.077 U | 0.089 U | 0.087 U | **0.021 J** | **0.042 J** | 0.072 U | **0.036 J** | N/A | 0.07 U | 0.083 U | 0.071 U | 0.091 U |
| Chrysene | mg/kg | 290 | **0.03** | **0.75** | **0.07** | **0.02** | **0.04** | **0.21** | **0.92** | **0.00086 J** | **0.10** | **0.03** | **0.18** | **0.12** | **0.62** | **30.3** | **0.05** | **0.39** | N/A | **0.058 J** | **0.03** | **0.02** | **0.16** |
| Dibenz[a,h]anthracene | mg/kg | 0.29 | **0.01** | **0.32** | **0.01** | **0.0023 J** | **0.0032 J** | **0.03** | **0.13** | 0.0078 U | **0.01** | **0.0075 J** | **0.016 J** | **0.02** | **0.09** | **5.10** | **0.01** | **0.11** | N/A | 0.071 U | **0.0048 J** | **0.0038 J** | **0.02** |
| Di-n-butylphthalate | mg/kg | 82,000 | 0.076 U | 0.072 U | 0.07 U | 0.07 U | 0.074 U | 0.076 U | 0.078 U | 0.077 U | 0.074 U | 0.077 U | 0.089 U | 0.087 U | 0.078 U | 0.084 U | 0.072 U | 0.072 U | N/A | 0.07 U | 0.083 U | 0.071 U | 0.091 U |
| Di-n-octylphthalate | mg/kg | 8,200 | 0.076 UJ | 0.072 UJ | 0.07 U | 0.07 U | 0.074 UJ | 0.076 UJ | 0.078 UJ | 0.077 U | 0.074 U | 0.077 U | 0.089 U | 0.087 U | 0.078 U | 0.084 U | 0.072 U | 0.072 U | N/A | 0.07 U | 0.083 U | 0.071 U | 0.091 U |
| Fluoranthene | mg/kg | 30,000 | **0.07** | **0.99** | **0.13** | **0.03** | **0.05** | **0.38** | **2.20** | **0.0018 J** | **0.18** | **0.03** | **0.19** | **0.13** | **1.80** | **82.8** | **0.08** | **0.51** | N/A | **0.08** | **0.04** | **0.04** | **0.20** |
| Fluorene | mg/kg | 30,000 | 0.0077 U | **0.02** | **0.00075 B** | 0.0072 U | **0.0017 J** | **0.01** | **0.02** | 0.0078 U | 0.0074 U | 0.0077 U | **0.0088 J** | **0.0027 J** | **0.07** | **4.60** | **0.0012 J** | **0.0015 J** | N/A | 0.071 U | **0.004 J** | **0.00067 J** | **0.01** |
| Hexachlorobenzene | mg/kg | 0.96 | 0.076 U | 0.072 U | 0.07 U | 0.07 U | 0.074 U | **0.041 J** | 0.078 U | 0.077 U | 0.074 U | 0.077 U | 0.089 U | 0.087 U | 0.078 U | 0.084 U | 0.072 U | 0.072 U | N/A | 0.07 U | 0.083 U | 0.071 U | 0.091 U |
| Hexachloroethane | mg/kg | 8 | 0.076 U | 0.072 U | 0.07 U | 0.07 U | 0.074 U | 0.076 U | 0.078 U | 0.077 U | 0.074 U | 0.077 U | 0.089 U | 0.087 U | 0.078 U | 0.084 U | 0.072 U | 0.072 U | N/A | 0.07 U | 0.083 U | 0.071 U | 0.091 U |
| Indeno[1,2,3-c,d]pyrene | mg/kg | 2.9 | **0.03** | **0.87** | **0.03** | **0.0056 J** | **0.01** | **0.08** | **0.33** | 0.0078 U | **0.03** | **0.02** | **0.032 J** | **0.04** | **0.32** | **13.9** | **0.02** | **0.27** | N/A | **0.019 J** | **0.0079 J** | **0.01** | **0.06** |
| Naphthalene | mg/kg | 17 | **0.0025 B** | **0.02** | **0.0064 B** | **0.0026 B** | **0.0072 J** | **0.10** | **0.89** | 0.0078 U | **0.03** | **0.02** | **0.10** | **0.10** | **0.02** | **1.00** | **0.01** | **0.02** | N/A | **0.065 J** | **0.11** | **0.0067 J** | **0.31** |
| Nitrobenzene | mg/kg | 22 | 0.076 U | 0.072 U | 0.07 U | 0.07 U | 0.074 U | 0.076 U | 0.078 U | 0.077 U | 0.074 U | 0.077 U | 0.089 U | 0.087 U | 0.078 U | 0.084 U | 0.072 U | 0.072 U | N/A | 0.07 U | 0.083 U | 0.071 U | 0.091 U |
| N-Nitrosodiphenylamine | mg/kg | 470 | 0.076 U | 0.072 U | 0.07 U | 0.07 U | 0.074 U | 0.076 U | 0.078 U | 0.077 U | 0.074 U | 0.077 U | 0.089 U | 0.087 U | 0.078 U | 0.084 U | 0.072 U | 0.072 U | N/A | 0.07 U | 0.083 U | 0.071 U | 0.091 U |
| Phenanthrene | mg/kg | | **0.02** | **0.27** | **0.06** | **0.02** | **0.03** | **0.16** | **0.64** | **0.0016 J** | **0.12** | **0.04** | **0.085 J** | **0.15** | **1.10** | **78.7** | **0.07** | **0.28** | N/A | **0.062 J** | **0.10** | **0.03** | **0.33** |
| Phenol | mg/kg | 250,000 | 0.076 U | 0.072 R | 0.07 UJ | 0.07 U | 0.074 U | 0.076 U | **0.03 J** | 0.077 U | 0.074 U | 0.077 U | **0.49** | 0.087 U | 0.078 U | 0.084 U | 0.072 U | 0.072 U | N/A | 0.07 U | 0.083 U | 0.071 U | 0.091 U |
| Pyrene | mg/kg | 23,000 | **0.06** | **0.96** | **0.09** | **0.01** | **0.05** | **0.33** | **2.00** | **0.0019 J** | **0.14** | **0.02** | **0.21** | **0.11** | **1.20** | **57.8** | **0.07** | **0.39** | N/A | **0.062 J** | **0.03** | **0.03** | **0.16** |
| **PCBs** | | | | | | | | | | | | | | | | | | | | | | | |
| Aroclor 1221 | mg/kg | 0.72 | N/A | 0.0544 U | N/A | N/A | 0.0572 U | N/A | 0.0569 U | N/A | 0.0537 U | N/A | 0.0602 U | N/A | 0.0598 U | N/A | 0.0536 U | N/A | N/A | 0.059 U | 0.0665 U | 0.0548 U | N/A |
| Aroclor 1242 | mg/kg | 0.97 | N/A | 0.0544 U | N/A | N/A | 0.0572 U | N/A | 0.0569 U | N/A | 0.0537 U | N/A | 0.0602 U | N/A | 0.0598 U | N/A | 0.0536 U | N/A | N/A | 0.059 U | 0.0665 U | 0.0548 U | N/A |
| Aroclor 1248 | mg/kg | 0.94 | N/A | 0.0544 U | N/A | N/A | 0.0572 U | N/A | 0.0569 U | N/A | **0.0354 J** | N/A | **0.44** | N/A | 0.0598 U | N/A | 0.0536 U | N/A | N/A | 0.059 U | 0.0665 U | 0.0548 U | N/A |
| Aroclor 1254 | mg/kg | 0.97 | N/A | 0.0544 U | N/A | N/A | 0.0572 U | N/A | 0.0569 U | N/A | 0.0537 U | N/A | 0.0602 U | N/A | 0.0598 U | N/A | 0.0536 U | N/A | N/A | **0.11** | 0.0665 U | **0.12** | N/A |
| Aroclor 1260 | mg/kg | 0.99 | N/A | 0.0544 U | N/A | N/A | 0.0572 U | N/A | 0.0569 U | N/A | 0.0537 U | N/A | **1.05** | N/A | 0.0598 U | N/A | 0.0536 U | N/A | N/A | 0.059 U | 0.0665 U | 0.0548 U | N/A |
| Aroclor 1262 | mg/kg | | N/A | 0.0544 U | N/A | N/A | 0.0572 U | N/A | 0.0569 U | N/A | **0.10** | N/A | 0.0602 U | N/A | 0.0598 U | N/A | 0.0536 U | N/A | N/A | 0.059 U | 0.0665 U | 0.0548 U | N/A |
| Aroclor 1268 | mg/kg | | N/A | **0.18** | N/A | N/A | 0.0572 U | N/A | 0.0569 U | N/A | 0.0537 U | N/A | 0.0602 U | N/A | 0.0598 U | N/A | 0.0536 U | N/A | N/A | 0.059 U | 0.0665 U | 0.0548 U | N/A |
| PCBs (total) | mg/kg | 0.97 | N/A | **0.18** | N/A | N/A | 0.0572 U | N/A | 0.0569 U | N/A | **0.14** | N/A | **1.49** | N/A | 0.0598 U | N/A | 0.0536 U | N/A | N/A | **0.11** | 0.0665 U | **0.12** | N/A |
| **TPH/Oil and Grease** | | | | | | | | | | | | | | | | | | | | | | | |
| Diesel Range Organics | mg/kg | 6,200 | **4.1 J** | **107** | **12.1** | **3.2 B** | **45.7** | **125** | **91.0** | **3.8 J** | **30.5** | **10.4** | **158** | **56.8** | **22.8** | **116** | **222** | **19.2** | N/A | **171** | N/A | **31.8** | **36.0** |
| Gasoline Range Organics | mg/kg | 6,200 | 10.4 U | 10.6 U | 14.7 U | 10.1 U | 10.3 U | 12.5 U | 11.6 U | 9.1 U | 11 U | 12.9 U | 13 U | 16 U | 13 U | 13.4 U | 8.7 U | 11.6 U | N/A | 9.5 U | N/A | 8.4 U | 15.3 U |

**Bold indicates detection**

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

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

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

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

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

N/A: This parameter was not analyzed for this sample.

*Indicates nonvalidated

**PAH compounds were analyzed via SIM

**Red indicates a detection exceedance of the Project Action Limit**

**Table 6**
**Summary of Inorganics Detected in Soil**
**Parcel B4**
**Tradepoint Atlantic**
**Sparrows Point, Maryland**

| Parameter | Units | PAL | B4-001-SB-1 | B4-001-SB-4 | B4-002-SB-1 | B4-002-SB-5 | B4-003-SB-1 | B4-003-SB-5 | B4-004-SB-1 | B4-004-SB-4 | B4-005-SB-1 | B4-006-SB-1 | B4-006-SB-5 | B4-007-SB-1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals** | | | | | | | | | | | | | | |
| Aluminum | mg/kg | 1,100,000 | **11,800** | **23,500** | **14,400** | **72,600** | **20,800** | **5,140** | **10,700** | **20,600** | **13,300** | **6,340** | **6,820** | **25,700** |
| Antimony | mg/kg | 470 | 2.1 UJ | 2.4 UJ | 1.8 UJ | 4 UJ | 3.5 UJ | **3.6 J** | 2 UJ | 3.5 UJ | 3.4 UJ | 1.7 UJ | 1.8 UJ | 2.8 UJ |
| Arsenic | mg/kg | 3 | 1.8 U | **9.70** | 1.5 U | **2.70** | **8.90** | **85.7** | **3.60** | **17.3** | **7.70** | **5.10** | **3.50** | **3.40** |
| Barium | mg/kg | 220,000 | **52.5** | **401** | **124** | **411** | **239** | **35.7** | **117** | **367** | **108** | **54.2** | **69.0** | **290** |
| Beryllium | mg/kg | 2,300 | 0.71 U | **2.70** | **0.66** | **2.40** | **1.80** | **0.21 B** | **0.66 B** | **2.10** | **0.79 B** | **0.2 J** | **0.22 J** | **4.60** |
| Cadmium | mg/kg | 980 | **0.88 B** | **1.2 B** | **1.50** | **1 B** | **2.80** | **0.12 B** | **1.80** | **23.9** | **1.90** | **0.97** | **0.68 B** | **0.78 B** |
| Chromium | mg/kg | 120,000 | **1,100** | **163** | **957** | **239** | **305 J** | **48.3 J** | **141 J** | **230 J** | **175 J** | **1,240** | **1,280** | **19.2** |
| Chromium VI | mg/kg | 6.3 | **7.5 J-** | **0.84 B** | **1.9 J-** | **0.63 B** | 1.2 UJ | 1.1 UJ | 1.1 UJ | **0.32 J-** | 1.1 UJ | **2.8 J-** | **2.5 J-** | 1.1 UJ |
| Cobalt | mg/kg | 350 | **3.4 B** | **21.6** | **3.50** | **7.30** | **8.80** | **23.6** | **9.20** | **18.6** | **5.2 B** | **9.80** | **6.20** | **2 J** |
| Copper | mg/kg | 47,000 | **74.1 J** | **120 J** | **83.9 J** | **25.4 J** | **92.6** | **145** | **59.6** | **227** | **53.9** | **79.7 J** | **62.7 J** | **13.6 J** |
| Iron | mg/kg | 820,000 | **272,000** | **147,000** | **171,000** | **9,590** | **76,200** | **130,000** | **44,200** | **124,000** | **41,200** | **242,000** | **237,000** | **21,100** |
| Lead | mg/kg | 800 | **13.5** | **106** | **137** | **7.00** | **210 J** | **52.1 J** | **179 J** | **1,110 J** | **140 J** | **40.4** | **47.3** | **14.8** |
| Manganese | mg/kg | 26,000 | **24,000** | **4,670** | **23,000** | **1,390** | **9,050** | **19,400** | **6,180** | **6,200** | **4,580** | **28,300** | **26,100** | **1,970** |
| Mercury | mg/kg | 350 | **0.026 J** | **0.045 J** | **0.11 J** | 0.13 UJ | **0.3 J-** | **0.038 J-** | **0.12 J-** | **0.13 J-** | **0.056 J-** | **0.022 J** | **0.026 J** | 0.1 UJ |
| Nickel | mg/kg | 22,000 | **31.5** | **72.7** | **27.4** | **42.5** | **43.5** | **33.5** | **26.0** | **71.2** | **23.7** | **48.1** | **37.5** | **4.5 B** |
| Selenium | mg/kg | 5,800 | 2.8 U | 3.2 U | 2.4 U | **3.8 J** | 4.6 U | 3 U | 2.7 U | 4.7 U | 4.5 U | 2.3 U | 2.5 U | **4.20** |
| Silver | mg/kg | 5,800 | 2.1 UJ | 2.4 UJ | 1.8 UJ | 4 UJ | 3.5 U | **2.1 J** | 2 U | **3.3 J** | 3.4 U | 1.7 UJ | 1.8 UJ | 2.8 UJ |
| Thallium | mg/kg | 12 | 7.1 UJ | 8.1 UJ | 6.1 UJ | 10.6 UJ | 11.6 U | 7.4 U | 6.8 U | 11.7 U | 11.3 U | **6.3 J** | **6.9 J** | 9.3 UJ |
| Vanadium | mg/kg | 5,800 | **763 J** | **198 J** | **557 J** | **16.7 J** | **215 J** | **126 J** | **80.4 J** | **447 J** | **128 J** | **2,530 J** | **2,690 J** | **39.2 J** |
| Zinc | mg/kg | 350,000 | **155** | **272** | **499** | **97.3** | **819 J** | **46 J** | **568 J** | **3,020 J** | **416 J** | **219** | **279** | **98.1** |
| **Other** | | | | | | | | | | | | | | |
| Cyanide | mg/kg | 150 | **0.14 J-** | **0.62 J-** | **0.51 J-** | **1.7 J-** | **0.77 J-** | **0.58 J-** | **1.2 J-** | **1 J-** | **1.4 J-** | **0.089 J-** | **0.15 J-** | **0.17 J-** |

**Bold indicates detection**

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

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

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

J+: The positive result reported for this analyte is a quantitative estimate, but may be biased high.

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

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

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.

N/A: This parameter was not analysed for this sample.

*Indicates nonvalidated

**Value in red indicate a detection exceedance of the Project Action Limit (PAL)**

**Table 6**
**Summary of Inorganics Detected in Soil**
**Parcel B4**
**Tradepoint Atlantic**
**Sparrows Point, Maryland**

| Parameter | Units | PAL | B4-007-SB-5 | B4-008-SB-1 | B4-008-SB-7 | B4-009-SB-1 | B4-009-SB-5 | B4-010-SB-1 | B4-010-SB-6 | B4-011-SB-1 | B4-011-SB-4.5 | B4-012-SB-1 | B4-012-SB-5 | B4-013-SB-1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals** | | | | | | | | | | | | | | |
| Aluminum | mg/kg | 1,100,000 | **15,800** | **39,500** | **9,860** | **15,100** | **42,800** | **16,200** | **36,500** | **23,600** | **4,590** | **32,100** | **16,100** | **24,900** |
| Antimony | mg/kg | 470 | 2.3 UJ | 3.1 UJ | 2 UJ | 3.2 UJ | 2.3 UJ | 2.5 UJ | 2.1 UJ | 2.2 UJ | **2 B** | 2.4 UJ | 3.2 UJ | 3.7 UJ |
| Arsenic | mg/kg | 3 | 2 U | **2.4 B** | **8.80** | **8.30** | 1.9 U | **2.50** | **3.20** | **7.10** | **40.5** | 2 U | **8.50** | **9.30** |
| Barium | mg/kg | 220,000 | **130** | **632** | **209** | **141** | **535** | **89.2** | **96.9** | **39.2** | **27.5** | **92.8** | **70.2** | **303** |
| Beryllium | mg/kg | 2,300 | **1.60** | **6.80** | **0.32 B** | **1.10** | **7.10** | **0.36 J** | **0.32 B** | **0.25 B** | 1.1 U | **0.33 J** | **0.65 J** | **1.70** |
| Cadmium | mg/kg | 980 | **0.66 B** | **1.60** | **0.9 B** | **7.50** | **0.32 B** | **0.82 B** | **0.63 J** | **0.33 B** | 1.6 U | **0.71 B** | **0.18 B** | **1.90** |
| Chromium | mg/kg | 120,000 | **975** | **83.5 J** | **1,220 J** | **279** | **138** | **1,200 J** | **1,050 J** | **1,050 J** | **220 J** | **942** | **72.8** | **52.2 J** |
| Chromium VI | mg/kg | 6.3 | **0.43 B** | 1.1 UJ | **0.22 J-** | **0.44 B** | **0.22 B** | 1.1 UJ | **1.2 J-** | **9.9 J-** | 1.1 UJ | **9.7 J-** | **0.3 B** | 1.2 UJ |
| Cobalt | mg/kg | 350 | **3.8 J** | **2.4 J** | **7.30** | **10.0** | **0.72 B** | **2.4 B** | **2.3 B** | **4.10** | **26.0** | **1.6 J** | **8.00** | **9.70** |
| Copper | mg/kg | 47,000 | **30.1 B** | **23.3** | **103** | **102 J** | **4 J** | **44.5** | **57.3** | **40.0** | **402** | **23.1 J** | **25.6 J** | **88.2** |
| Iron | mg/kg | 820,000 | **118,000** | **39,700** | **149,000** | **151,000** | **31,800** | **179,000** | **171,000** | **212,000** | **255,000** | **159,000** | **220,000** | **79,900** |
| Lead | mg/kg | 800 | **38.3** | **49.8 J** | **160 J** | **518** | **2.00** | **108 J** | **205 J** | **25.2 J** | **31.4 J** | **24.3** | **27.2** | **792 J** |
| Manganese | mg/kg | 26,000 | **22,200** | **4,820** | **42,900** | **10,000** | **4,920** | **27,900** | **29,400** | **32,300** | **16,800** | **25,100** | **2,300** | **1,980** |
| Mercury | mg/kg | 350 | **0.014 J** | 0.11 R | **0.1 J-** | **0.38** | 0.1 UJ | **0.12 J-** | **0.3 J-** | **0.025 J-** | **0.0032 J-** | **0.0032 J** | 0.1 UJ | **0.0049 J-** |
| Nickel | mg/kg | 22,000 | **15.3** | **15.2** | **30.2** | **43.5** | **5 J** | **26.7** | **23.7** | **36.8** | **54.2** | **16.5** | **23.5** | **24.1** |
| Selenium | mg/kg | 5,800 | 3.1 U | 4.1 U | **3.30** | 4.3 U | **4.30** | **2.9 J** | **1.9 J** | 3 U | 4.2 U | 3.2 U | 4.3 U | 4.9 U |
| Silver | mg/kg | 5,800 | 2.3 UJ | 3.1 U | 2 U | **3.7 J** | 2.3 UJ | 2.5 U | **1 J** | **3.00** | **4.60** | 2.4 UJ | 3.2 UJ | 3.7 U |
| Thallium | mg/kg | 12 | 7.8 UJ | 10.3 U | 6.7 U | 10.8 UJ | 7.8 UJ | 8.2 U | 6.9 U | 7.4 U | 10.5 U | 8.1 UJ | 10.8 UJ | 9.8 U |
| Vanadium | mg/kg | 5,800 | **2,120 J** | **44.3 J** | **2,280 J** | **143 J** | **56.8 J** | **704 J** | **596 J** | **480 J** | **108 J** | **598 J** | **83.2 J** | **189 J** |
| Zinc | mg/kg | 350,000 | **271** | **832 J** | **281 J** | **4,880** | **17.5** | **459 J** | **222 J** | **82.9 J** | **43.6 J** | **159** | **29.8** | **639 J** |
| **Other** | | | | | | | | | | | | | | |
| Cyanide | mg/kg | 150 | **0.27 J-** | **1 J-** | **0.86 J-** | **0.54 J-** | **2.5 J-** | **3.3 J-** | **5.8 J-** | **0.85 J-** | **0.11 J-** | **0.18 J-** | **0.13 J-** | **1.7 J-** |

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**Table 6**
**Summary of Inorganics Detected in Soil**
**Parcel B4**
**Tradepoint Atlantic**
**Sparrows Point, Maryland**

| Parameter | Units | PAL | B4-013-SB-7.5 | B4-014-SB-1 | B4-014-SB-5 | B4-015-SB-1 | B4-015-SB-5 | B4-016-SB-1 | B4-016-SB-5 | B4-017-SB-1 | B4-017-SB-4 | B4-018-SB-1 | B4-018-SB-5 | B4-019-SB-1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals** | | | | | | | | | | | | | | |
| Aluminum | mg/kg | 1,100,000 | **13,800** | **7,970** | **16,200** | **13,900** | **17,400** | **18,600** | **15,600** | **11,500** | **36,300** | **20,100** | **24,300** | **34,400** |
| Antimony | mg/kg | 470 | 2.8 UJ | 3.5 UJ | 3.2 UJ | 3.1 UJ | 3.3 UJ | 3.2 UJ | 3.1 UJ | 3.1 UJ | 3.6 UJ | 3.1 UJ | 4.1 UJ | 3.2 UJ |
| Arsenic | mg/kg | 3 | **15.0** | **7.10** | **3.00** | **3.30** | **7.30** | 2.7 U | **36.1** | **3.20** | **19.9** | **3.20** | **17.8** | **4.50** |
| Barium | mg/kg | 220,000 | **155** | **101 J** | **54.8 J** | **60.9 J** | **78.1 J** | **40.9** | **1,300** | **100 J** | **244 J** | **214** | **434** | **412** |
| Beryllium | mg/kg | 2,300 | **0.87 B** | **0.32 B** | **0.54 B** | **0.78 B** | **0.69 B** | 1.1 U | **3.20** | 1 U | **1.2 B** | **2.40** | **3.10** | **6.40** |
| Cadmium | mg/kg | 980 | **1.70** | **7.50** | 1.6 U | **1.4 B** | **0.29 B** | **0.71 J** | **3.10** | **0.51 J** | **2.00** | **2.60** | **2.30** | **0.82 J** |
| Chromium | mg/kg | 120,000 | **137 J** | **764** | **17.9** | **1,130** | **35.6** | **1,340** | **405** | **1,380** | **840** | **828** | **1,180** | **277** |
| Chromium VI | mg/kg | 6.3 | 1.1 UJ | 1.2 U | 1.2 U | **5.80** | 1.2 UJ | **8 J-** | 1.2 R | **2.1 J** | 1.4 UJ | **0.73 J-** | 1.4 R | 1.1 R |
| Cobalt | mg/kg | 350 | **19.1** | **6.70** | **4.1 J** | **2.3 J** | **6.80** | **3.4 B** | **30.1** | **0.65 J** | **11.9** | **5.60** | **49.0** | **5.2 B** |
| Copper | mg/kg | 47,000 | **146** | **146** | **9.80** | **72.3** | **19.7** | **25.0** | **203** | **35.5 J** | **206 J** | **400** | **342** | **50.2** |
| Iron | mg/kg | 820,000 | **83,700** | **234,000** | **17,500** | **203,000** | **32,400** | **203,000** | **97,200** | **206,000** | **179,000** | **143,000** | **112,000** | **64,300** |
| Lead | mg/kg | 800 | **232 J** | **597** | **11.6** | **68.2** | **64.7** | **14.0** | **679** | **4.40** | **511** | **1,450** | **352** | **70.4** |
| Manganese | mg/kg | 26,000 | **28,200** | **20,200 J** | **89.2 J** | **25,800 J** | **237 J** | **28,800** | **11,700** | **30,000** | **22,600** | **13,900** | **7,810** | **9,930** |
| Mercury | mg/kg | 350 | **0.026 J-** | **0.35** | **0.0079 J** | **0.049 J** | **0.066 J** | **0.018 J** | **0.0038 J** | **0.019 J** | **0.95** | **46.4** | **2.50** | **2.00** |
| Nickel | mg/kg | 22,000 | **96.5** | **53.6** | **12.8** | **25.5** | **18.6** | **16.8** | **157** | **12.1 J** | **47.9 J** | **21.3** | **340** | **15.7** |
| Selenium | mg/kg | 5,800 | 3.8 U | 4.7 U | 4.3 U | 4.1 U | 4.5 U | 4.3 U | 4.1 U | 4.1 U | **3.1 J** | 4.2 U | **3.4 B** | 4.3 U |
| Silver | mg/kg | 5,800 | **2.5 J** | **3 J** | 3.2 U | **2 J** | 3.3 U | **2.1 J** | **1.7 J** | **1.7 J** | **1.8 J** | **2.3 J** | **1.2 J** | 3.2 U |
| Thallium | mg/kg | 12 | 9.5 U | 11.7 U | 10.8 U | 10.2 U | 11.1 U | 10.7 U | 10.2 U | 10.4 UJ | 12 UJ | 10.4 U | 11 U | 10.8 U |
| Vanadium | mg/kg | 5,800 | **53.5 J** | **503** | **20.6** | **768** | **46.6** | **938** | **197** | **739 J** | **624 J** | **488** | **91.8** | **188** |
| Zinc | mg/kg | 350,000 | **481 J** | **3,190** | **32.3** | **698** | **119** | **76.5 J** | **1,150 J** | **132 J** | **532 J** | **540 J** | **796 J** | **253 J** |
| **Other** | | | | | | | | | | | | | | |
| Cyanide | mg/kg | 150 | **0.47 J-** | **0.45 J-** | 0.69 UJ | **0.33 J-** | **0.069 J-** | **1.7 J-** | **10.5 J-** | **1.6 J+** | **8.5 J+** | **91.5 J-** | **4.3 J-** | **4.1 J-** |

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**Table 6**
**Summary of Inorganics Detected in Soil**
**Parcel B4**
**Tradepoint Atlantic**
**Sparrows Point, Maryland**

| Parameter | Units | PAL | B4-019-SB-5 | B4-020-SB-1 | B4-020-SB-5 | B4-021-SB-1 | B4-021-SB-5 | B4-022-SB-1 | B4-022-SB-5 | B4-023-SB-1 | B4-023-SB-5 | B4-024-SB-1 | B4-024-SB-4.5 | B4-025-SB-1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals** | | | | | | | | | | | | | | |
| Aluminum | mg/kg | 1,100,000 | **6,050** | **6,440** | **8,380** | **7,900** | **23,400** | **14,300** | **10,500** | **11,100** | **17,800** | **33,400** | **3,590** | **36,600** |
| Antimony | mg/kg | 470 | 3.2 UJ | 2.9 UJ | 2.8 UJ | 3.2 UJ | 3.4 UJ | 3.5 UJ | 3.6 UJ | 3.1 UJ | 3 UJ | 1.9 UJ | 3 UJ | 3.1 UJ |
| Arsenic | mg/kg | 3 | **42.0** | **5.60** | **5.30** | **5.40** | **8.20** | **3.00** | **13.2** | **3.40** | **15.2** | **4.70** | 2.5 U | **2.70** |
| Barium | mg/kg | 220,000 | **210** | **57.3** | **143** | **68.6** | **262** | **98.8** | **98.5** | **56.5** | **380** | **291** | **20.8 J** | **328 J** |
| Beryllium | mg/kg | 2,300 | **0.49 B** | **0.53 B** | 0.93 U | **0.71 B** | **1.60** | **0.78 J** | **0.91 J** | 1 U | **1.10** | **5.40** | **0.38 B** | **6.60** |
| Cadmium | mg/kg | 980 | **4.60** | **1.2 J** | **0.88 J** | **1.80** | **1.3 J** | **0.56 B** | **1.6 B** | **0.32 B** | **2.70** | **2.70** | 1.5 U | **0.36 B** |
| Chromium | mg/kg | 120,000 | **1,770** | **241** | **1,750** | **529** | **169** | **980** | **54.3** | **978** | **52.7** | **56.1** | **7.50** | **32.4** |
| Chromium VI | mg/kg | 6.3 | 1.2 R | 1.1 UJ | **0.31 J-** | 1.1 R | 1.2 UJ | **4.50** | 1.2 U | **5.80** | 1.2 U | **0.18 B** | 1.1 U | 1.1 U |
| Cobalt | mg/kg | 350 | **133** | **4.4 B** | **12.4** | **4.3 B** | **12.1** | **1.4 B** | **10.1** | **1.3 B** | **8.80** | **3.30** | **0.32 J** | **0.85 J** |
| Copper | mg/kg | 47,000 | **621** | **36.9** | **138** | **44.3** | **161** | **32.9 J** | **65 J** | **30 J** | **89.1 J** | **28.6** | **2.3 J** | **4.2 J** |
| Iron | mg/kg | 820,000 | **293,000** | **118,000** | **131,000** | **135,000** | **123,000** | **192,000 J** | **48,600 J** | **229,000 J** | **74,400 J** | **18,000** | **2,310** | **9,020** |
| Lead | mg/kg | 800 | **664** | **72.8** | **76.0** | **169** | **222** | **20.1** | **358** | 2.6 U | **200** | **160** | **3.30** | **11.2** |
| Manganese | mg/kg | 26,000 | **5,510** | **7,710** | **45,600** | **12,100** | **4,200** | **25,000** | **2,610** | **26,200** | **3,430** | **3,400 J** | **205 J+** | **4,070 J+** |
| Mercury | mg/kg | 350 | **0.20** | **0.038 J** | **0.049 J** | **0.1 J** | **0.0048 J** | **0.0099 J** | **0.3 J** | **0.066 J** | **0.37 J** | **0.0022 J** | **0.0031 J** | 0.11 R |
| Nickel | mg/kg | 22,000 | **941** | **20.4** | **60.6** | **22.6** | **31.9** | **19.8 J** | **36.9 J** | **18.8 J** | **31.2 J** | **9.70** | 10 U | **3.1 B** |
| Selenium | mg/kg | 5,800 | **3.6 B** | 3.9 U | 3.7 U | 4.3 U | **5.30** | 4.6 U | 4.8 U | 4.2 U | 4 U | **2.5 B** | 4 U | 4.1 U |
| Silver | mg/kg | 5,800 | **4.10** | **1.5 B** | 2.8 U | **1.9 B** | 3.4 U | 3.5 U | 3.6 U | **1.1 B** | 3 U | 1.9 U | 3 U | 3.1 U |
| Thallium | mg/kg | 12 | 10.7 U | 9.6 U | **15.0** | 10.8 U | 11.4 U | 11.6 UJ | 11.9 UJ | 10.4 UJ | 10.1 UJ | 6.4 U | 10 U | 10.3 U |
| Vanadium | mg/kg | 5,800 | **379** | **152** | **8,320** | **278** | **603** | **567** | **130** | **629** | **93.9** | **36.7** | **9.40** | **29.3** |
| Zinc | mg/kg | 350,000 | **1,750 J** | **686 J** | **173 J** | **990 J** | **410 J** | **316** | **948** | **194** | **393** | **362** | **3.6 J** | **55.5** |
| **Other** | | | | | | | | | | | | | | |
| Cyanide | mg/kg | 150 | **1.8 J-** | **2.9 J-** | **0.76 J-** | **10 J-** | **1.7 J-** | **0.45 J** | **0.19 J** | **1.10** | **13.2** | **0.52 J** | **0.27 J** | **0.31 J** |

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**Table 6**
**Summary of Inorganics Detected in Soil**
**Parcel B4**
**Tradepoint Atlantic**
**Sparrows Point, Maryland**

| Parameter | Units | PAL | B4-025-SB-5 | B4-026-SB-1 | B4-026-SB-5 | B4-027-SB-1 | B4-027-SB-5 | B4-028-SB-1 | B4-028-SB-4 | B4-029-SB-1 | B4-030-SB-1 | B4-030-SB-5 | B4-031-SB-1 | B4-031-SB-4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals** | | | | | | | | | | | | | | |
| Aluminum | mg/kg | 1,100,000 | **46,200** | **17,600** | **6,220** | **7,780** | **25,500** | **13,600** | **8,350** | **14,700** | **32,200** | **8,650** | **15,700** | **23,300** |
| Antimony | mg/kg | 470 | 3.8 UJ | 3.3 UJ | 3.2 UJ | 2.1 UJ | 2.6 UJ | 3.2 UJ | 3.1 UJ | 2.8 UJ | 3 UJ | 3 UJ | 3.3 UJ | **2.3 B** |
| Arsenic | mg/kg | 3 | **7.00** | **9.60** | 2.7 U | **8.20** | **6.00** | **3.50** | 2.6 U | **4.40** | **2.70** | **2.80** | **6.90** | **9.60** |
| Barium | mg/kg | 220,000 | **424 J** | **117** | **28.5** | **24.3** | **445** | **79.6 J** | **42.2 J** | **105 J** | **655 J** | **45.5 J** | **251 J** | **557 J** |
| Beryllium | mg/kg | 2,300 | **2.10** | **1.10** | **0.2 J** | 0.7 U | **3.30** | **0.35 B** | **0.39 B** | **0.47 B** | **3.00** | **0.32 B** | **1.30** | **2.20** |
| Cadmium | mg/kg | 980 | **2.60** | **8.00** | **60.8** | **0.81 B** | **1.80** | **0.62 B** | **0.35 B** | **1.2 J** | **0.95 B** | 1.5 U | **3.10** | **2.80** |
| Chromium | mg/kg | 120,000 | **271** | **745** | **40.7** | **303** | **151** | **1,130** | **479** | **1,400** | **52.1** | **12.1** | **341** | **114** |
| Chromium VI | mg/kg | 6.3 | 1.3 U | **0.31 B** | **0.18 B** | **0.81 B** | 1.1 R | 1.2 UJ | 1.2 UJ | 1.1 UJ | 1.1 U | 1.2 U | 1.1 U | 1.2 U |
| Cobalt | mg/kg | 350 | **11.1** | **33.8** | **2.5 J** | **31.0** | **6.80** | **2.6 J** | **0.41 J** | **1.1 B** | **3.2 J** | **4 J** | **10.2** | **9.20** |
| Copper | mg/kg | 47,000 | **64.9** | **61.1** | **7.70** | **29.7** | **59.6** | **51.1 J** | **17.1 J** | **34.1 J** | **45.5** | **3.3 J** | **128** | **113** |
| Iron | mg/kg | 820,000 | **25,200** | **154,000** | **9,570** | **58,400** | **33,900** | **268,000** | **77,200** | **235,000** | **28,800** | **11,000** | **109,000** | **76,200** |
| Lead | mg/kg | 800 | **478** | **88.2 J** | **10.4 J** | **12.4 J** | **90.9 J** | **23.7** | **11.0** | **91.3** | **103** | **5.00** | **408** | **305** |
| Manganese | mg/kg | 26,000 | **2,460 J+** | **49,400 J** | **439 J** | **40,400 J** | **4,630 J** | **24,300** | **11,900** | **28,700** | **7,540 J** | **248 J** | **8,150 J** | **6,750 J** |
| Mercury | mg/kg | 350 | **0.079 J** | **0.073 J** | **0.015 J** | **0.011 J** | 0.11 U | **0.092 J** | **0.12** | **7.80** | 0.11 U | **0.017 J** | **0.25** | **0.065 J** |
| Nickel | mg/kg | 22,000 | **63.2** | **62.2** | **17.4** | **30.5** | **29.8** | **25.2 J** | **8.2 J** | **15.7 J** | **22.8** | **6.6 B** | **67.1** | **45.5** |
| Selenium | mg/kg | 5,800 | **5.60** | 4.3 U | 4.3 U | 2.8 U | **2.9 B** | 4.2 U | 4.2 U | 3.7 U | 3.9 U | 4 U | 4.4 U | 4 U |
| Silver | mg/kg | 5,800 | 3.8 U | **5.90** | 3.2 U | **5.40** | 2.6 U | **2.5 B** | 3.1 U | **2.4 J** | 3 U | 3 U | **0.91 B** | 3 U |
| Thallium | mg/kg | 12 | 10.2 U | 10.8 U | 10.8 U | 7 U | 8.6 U | 10.6 UJ | 10.5 UJ | 9.3 UJ | 9.9 U | 9.9 U | 11.1 U | 10 U |
| Vanadium | mg/kg | 5,800 | **37.3** | **429** | **21.3** | **176** | **477** | **532 J** | **235 J** | **794 J** | **155** | **19.5** | **295** | **138** |
| Zinc | mg/kg | 350,000 | **451** | **932** | **29.5** | **129** | **261** | **313 J** | **63.6 J** | **802 J** | **233** | **17.5** | **1,230** | **368** |
| **Other** | | | | | | | | | | | | | | |
| Cyanide | mg/kg | 150 | **2.40** | **0.28 J** | 0.69 U | 0.64 U | **2.80** | **1.4 J+** | **0.79 J+** | **87.2 J+** | **0.83 J-** | 0.67 U | **0.9 J-** | **0.88 J-** |

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**Summary of Inorganics Detected in Soil**
**Parcel B4**
**Tradepoint Atlantic**
**Sparrows Point, Maryland**

| Parameter | Units | PAL | B4-032-SB-1 | B4-033-SB-1 | B4-034-SB-1 | B4-035-SB-1 | B4-035-SB-5 | B4-036-SB-1 | B4-036-SB-5 | B4-037-SB-1 | B4-037-SB-6 | B4-037-SB-10 | B4-038-SB-1 | B4-038-SB-5 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals** | | | | | | | | | | | | | | |
| Aluminum | mg/kg | 1,100,000 | **24,000** | **19,400** | **11,200** | **17,900** | **18,100** | **23,900** | **22,200** | **6,900** | **16,400** | **16,800** | **7,760** | **5,420** |
| Antimony | mg/kg | 470 | 3.3 UJ | 3 UJ | 3.2 UJ | 3.3 UJ | 3.6 UJ | 3.3 UJ | 3.6 UJ | 2.9 UJ | 2.9 UJ | 3.3 UJ | 2.8 UJ | 3.1 UJ |
| Arsenic | mg/kg | 3 | **2.90** | **3.80** | **4.00** | **4.40** | **9.80** | **10.7** | **9.70** | **3.50** | **6.40** | **4.00** | **13.4** | 2.6 U |
| Barium | mg/kg | 220,000 | **216** | **62.4** | **82.7** | **105 J** | **224 J** | **148 J** | **161 J** | **220** | **65.6** | **61.8** | **166** | **32.9** |
| Beryllium | mg/kg | 2,300 | **2.40** | **0.36 B** | **0.27 B** | **0.71 B** | **0.75 B** | **1.30** | **1.1 B** | **0.54 J** | **0.6 J** | **0.32 J** | **0.94** | **0.31 J** |
| Cadmium | mg/kg | 980 | **0.55 B** | **0.49 B** | **0.87 B** | **2.00** | **0.55 J** | **1.2 B** | **2.30** | **2.70** | **0.28 B** | 1.6 U | **2.00** | 1.6 U |
| Chromium | mg/kg | 120,000 | **554** | **740** | **533** | **87.7** | **142** | **147** | **180** | **34.6** | **25.5** | **19.9** | **66.5** | **7.50** |
| Chromium VI | mg/kg | 6.3 | 1.1 U | **3.10** | 1.2 U | **0.44 J** | **0.84 J** | 1.2 U | **1.30** | **0.22 B** | 1.1 R | 1.2 R | **5.6 J-** | **0.27 B** |
| Cobalt | mg/kg | 350 | **3.2 B** | **2.4 B** | **1.6 B** | **5.4 J** | **5.5 J** | **7.80** | **6.50** | **4.3 B** | **5.00** | **4.7 B** | **11.0** | **3.6 B** |
| Copper | mg/kg | 47,000 | **44.4 J** | **49.3 J** | **57.6 J** | **24.4** | **26.1** | **41.4** | **42.5** | **96.1** | **17.3** | **6.30** | **236** | **2 J** |
| Iron | mg/kg | 820,000 | **123,000 J** | **155,000 J** | **95,800 J** | **24,100** | **36,800** | **37,300** | **39,500** | **16,700** | **20,600** | **19,000** | **34,400** | **6,420** |
| Lead | mg/kg | 800 | **89.5** | **52.4** | **163** | **70.5** | **24.7** | **69.5** | **112** | **348 J** | **16.6 J** | **8.5 J** | **715 J** | **3.6 J** |
| Manganese | mg/kg | 26,000 | **14,500** | **20,200** | **14,000** | **1,910 J** | **4,110 J** | **2,610 J** | **5,050 J** | **1,100 J** | **113 J** | **69.1 J** | **1,200 J** | **235 J** |
| Mercury | mg/kg | 350 | **1.4 J** | **0.3 J** | **2.7 J** | **0.30** | **0.061 J** | **0.094 J** | **0.20** | **0.096 J** | **0.027 J** | **0.041 J** | **0.14** | **0.0079 J** |
| Nickel | mg/kg | 22,000 | **19.3 J** | **24.1 J** | **15.5 J** | **26.0** | **23.1** | **32.7** | **39.4** | **15.2** | **11.4** | **12.4** | **46.8** | **5.6 J** |
| Selenium | mg/kg | 5,800 | 4.4 U | 4 U | 4.3 U | 4.4 U | 4.8 U | 4.5 U | 4.8 U | 3.9 U | 3.9 U | 4.4 U | 3.8 U | 4.2 U |
| Silver | mg/kg | 5,800 | 3.3 U | **0.99 J** | 3.2 U | 3.3 U | 3.6 U | 3.3 U | 3.6 U | 2.9 U | 2.9 U | 3.3 U | 2.8 U | 3.1 U |
| Thallium | mg/kg | 12 | 11.1 UJ | 10.1 UJ | 10.7 UJ | 11 U | 11.9 U | 11.1 U | 12 U | 9.6 U | 9.7 U | 10.9 U | 9.4 U | 10.4 U |
| Vanadium | mg/kg | 5,800 | **338** | **431** | **369** | **63.8** | **92.8** | **71.7** | **116** | **36.3** | **36.7** | **24.2** | **31.9** | **11.5** |
| Zinc | mg/kg | 350,000 | **246** | **131** | **213** | **269** | **80.4** | **1,230** | **337** | **455** | **41.4** | **33.4** | **639** | **15.1** |
| **Other** | | | | | | | | | | | | | | |
| Cyanide | mg/kg | 150 | **10.1** | **5.20** | **7.10** | **0.96 J-** | 0.69 UJ | **0.29 J-** | **0.73 J-** | **0.13 J** | 0.7 U | 0.7 U | **0.36 J** | 0.56 U |

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

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

N/A: This parameter was not analysed for this sample.

*Indicates nonvalidated

**Value in red indicate a detection exceedance of the Project Action Limit (PAL)**

**Table 6**
**Summary of Inorganics Detected in Soil**
**Parcel B4**
**Tradepoint Atlantic**
**Sparrows Point, Maryland**

| Parameter | Units | PAL | B4-038-SB-10 | B4-039-SB-1 | B4-039-SB-5 | B4-040-SB-1 | B4-040-SB-5 | B4-041-SB-1 | B4-041-SB-4 | B4-042-SB-1 | B4-042-SB-5 | B4-043-SB-1 | B4-043-SB-5 | B4-044-SB-1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals** | | | | | | | | | | | | | | |
| Aluminum | mg/kg | 1,100,000 | **16,500** | **10,100** | **12,200** | **16,000** | **14,100** | **11,400** | **25,700** | **3,120** | **16,200** | **6,700** | **49,200** | **7,420** |
| Antimony | mg/kg | 470 | 3 UJ | 2.6 UJ | 2.9 UJ | 2 UJ | 2.1 UJ | 2.5 UJ | 2.2 UJ | 2.6 UJ | 2.7 UJ | 3.6 UJ | 3.1 UJ | 3.2 UJ |
| Arsenic | mg/kg | 3 | **4.70** | **7.50** | **17.7** | **7.70** | **3.90** | 2.1 U | **2.30** | 2.2 U | **6.70** | **4.50** | 2.5 U | **7.00** |
| Barium | mg/kg | 220,000 | **55.7** | **47.3** | **235** | **225** | **51.3** | **60.6** | **213** | **30.3** | **154** | **55.6 J** | **363 J** | **87.6** |
| Beryllium | mg/kg | 2,300 | **0.55 J** | **0.49 J** | **0.54 J** | **1.80** | **0.44 J** | **0.33 J** | **2.50** | 0.87 U | **1.80** | 1.2 U | **7.40** | 1.1 U |
| Cadmium | mg/kg | 980 | 1.5 U | **0.28 B** | **7.00** | **6.60** | **1.90** | **0.7 B** | **1.30** | **0.44 B** | **2.10** | **2.90** | **0.3 J** | **1.1 J** |
| Chromium | mg/kg | 120,000 | **15.6** | **41.1** | **750** | **199** | **1,050** | **1,430** | **93.7** | **23.0** | **85.1** | **1,270** | **17.4** | **1,670** |
| Chromium VI | mg/kg | 6.3 | **0.33 B** | **0.19 B** | **0.66 B** | **0.43 B** | **1.2 J-** | **4.8 J-** | 1.2 UJ | **0.57 B** | **0.62 B** | 1.2 UJ | 1.2 UJ | 1.1 UJ |
| Cobalt | mg/kg | 350 | **6.90** | **5.00** | **25.9** | **10.8** | **1.9 B** | **0.35 B** | **2.4 B** | **0.72 B** | **7.50** | **3.8 B** | **0.45 B** | **4.5 J** |
| Copper | mg/kg | 47,000 | **9.40** | **16.5** | **125** | **231** | **39.6** | **25.1 J** | **158 J** | **8.1 J** | **81.2 J** | **54.2 J** | **2.4 B** | **38.5** |
| Iron | mg/kg | 820,000 | **19,900** | **19,100** | **185,000** | **91,000** | **164,000** | **169,000** | **41,400** | **6,170** | **59,100** | **254,000** | **8,230** | **204,000** |
| Lead | mg/kg | 800 | **7 J** | **20.2 J** | **3,120 J** | **653 J** | **87.6 J** | **46.8** | **81.0** | **17.0** | **130** | **133** | **2.90** | **33.0** |
| Manganese | mg/kg | 26,000 | **179 J** | **282 J** | **17,800 J** | **5,590 J** | **24,400 J** | **25,500** | **5,030** | **353** | **4,190** | **26,900** | **3,080** | **47,000** |
| Mercury | mg/kg | 350 | **0.014 J** | **0.13** | **0.052 J** | 0.11 U | **0.019 J** | **0.21 J** | **0.027 J** | **0.013 J** | **0.0047 J** | **0.012 J** | 0.11 U | 0.1 U |
| Nickel | mg/kg | 22,000 | **12.6** | **10.8** | **200** | **43.5** | **18.1** | **11.0** | **19.8** | **4.6 B** | **21.6** | **29.5 J** | **1.3 J** | **21.2** |
| Selenium | mg/kg | 5,800 | 3.9 U | 3.4 U | 3.9 U | 2.7 U | 2.8 U | 3.3 U | 3 U | 3.5 U | 3.5 U | 4.8 U | 4.1 U | 4.2 U |
| Silver | mg/kg | 5,800 | 3 U | 2.6 U | **2.5 J** | **1.8 J** | **1.8 J** | 2.5 UJ | 2.2 UJ | 2.6 UJ | 2.7 UJ | 3.6 U | 3.1 U | 3.2 U |
| Thallium | mg/kg | 12 | 9.8 U | 8.6 U | 9.8 U | 6.7 U | 7.1 U | 8.3 UJ | 7.5 UJ | 8.7 UJ | 8.9 UJ | 11.9 UJ | 10.2 UJ | **12.3** |
| Vanadium | mg/kg | 5,800 | **30.3** | **35.2** | **432** | **135** | **816** | **701 J** | **59.7 J** | **15.3 J** | **129 J** | **4,000 J** | **14.3 J** | **6,330** |
| Zinc | mg/kg | 350,000 | **33.9** | **61.4** | **1,900** | **835** | **302** | **80.6** | **218** | **30.6** | **344** | **4,100 J** | **6.4 J** | **347 J** |
| **Other** | | | | | | | | | | | | | | |
| Cyanide | mg/kg | 150 | **0.043 J** | **0.12 J** | **0.24 J** | **0.33 J** | **0.15 J** | **0.19 J-** | **0.24 J-** | **0.085 J-** | **0.093 J-** | **0.36 J+** | **0.27 J+** | 0.65 UJ |

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**Table 6**
**Summary of Inorganics Detected in Soil**
**Parcel B4**
**Tradepoint Atlantic**
**Sparrows Point, Maryland**

| Parameter | Units | PAL | B4-044-SB-4 | B4-045-SB-1 | B4-045-SB-5 | B4-045-SB-10 | B4-046-SB-1 | B4-046-SB-5 | B4-047-SB-1 | B4-047-SB-5 | B4-048-SB-1 | B4-048-SB-5 | B4-048-SB-10 | B4-049-SB-1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals** | | | | | | | | | | | | | | |
| Aluminum | mg/kg | 1,100,000 | **26,200** | **46,300** | **38,600** | **51,200** | **38,300** | **45,000** | **11,600** | **10,500** | **10,200** | **10,300** | **4,180** | **10,400** |
| Antimony | mg/kg | 470 | 3.6 UJ | 3.1 UJ | 2.9 UJ | 3.1 U | 2.5 UJ | 2.7 UJ | 2.9 UJ | 2.8 UJ | 3.2 UJ | 3.2 UJ | 3.2 UJ | 2.1 UJ |
| Arsenic | mg/kg | 3 | **38.2** | 2.6 U | 2.4 U | **3.10** | **3.00** | 2.3 U | **17.6** | **4.20** | **9.80** | 2.6 U | **4.80** | **3.20** |
| Barium | mg/kg | 220,000 | **375** | **851 J** | **487** | **982** | **617** | **658** | **328 J** | **81.3 J** | **299 J** | **122 J** | **39.1 J** | **57.5** |
| Beryllium | mg/kg | 2,300 | **1.50** | **7.70** | **7.60** | **9.00** | **6.50** | **8.10** | **0.98** | **0.7 J** | **0.44 B** | **0.38 B** | 1.1 U | **0.45 J** |
| Cadmium | mg/kg | 980 | **6.40** | **0.82 B** | **0.33 B** | **0.26 B** | **3.60** | **0.29 J** | **1.2 B** | 1.4 U | **7.60** | **0.76 B** | **0.86 B** | **0.75 B** |
| Chromium | mg/kg | 120,000 | **198** | **32.5** | **22.1** | **28.0** | **73.7** | **28.3** | **103** | **13.5** | **209** | **555** | **677** | **334** |
| Chromium VI | mg/kg | 6.3 | 1.2 UJ | 1.1 UJ | 1.1 UJ | 1.1 UJ | 1.1 UJ | 1.1 UJ | 1.1 U | 1.1 U | 1.1 UJ | 1.1 UJ | **6 J-** | **1.4 J-** |
| Cobalt | mg/kg | 350 | **28.6** | **0.75 J** | **0.37 J** | **0.54 J** | **2.3 B** | **0.57 B** | **19.3** | **4.90** | **8.30** | **2.5 J** | **10.4** | **4.70** |
| Copper | mg/kg | 47,000 | **216** | **7.50** | **1.9 J** | **3.7 J** | **27.7** | **3.4 B** | **146** | **5.50** | **72.7** | **19.2** | **76.8** | **25.5** |
| Iron | mg/kg | 820,000 | **129,000** | **28,800** | **14,100** | **25,100** | **77,100** | **13,300** | **78,400** | **13,700** | **131,000** | **106,000** | **69,500** | **68,900** |
| Lead | mg/kg | 800 | **1,090** | **19.7** | 2.4 U | 2.6 U | **119** | 2.3 U | **475** | **6.60** | **544** | **63.1** | **172** | **58.9 J** |
| Manganese | mg/kg | 26,000 | **3,520** | **3,080 J** | **2,660 J** | **3,200** | **3,970** | **3,040** | **3,050 J** | **285 J** | **5,260 J** | **11,000 J** | **9,030 J** | **6,970 J** |
| Mercury | mg/kg | 350 | 0.12 U | 0.11 U | 0.11 R | 0.1 R | 0.11 U | 0.11 U | **0.051 J** | **0.016 J** | **0.16** | **0.022 J** | **0.065 J** | **0.33** |
| Nickel | mg/kg | 22,000 | **120** | **5.5 B** | **2.2 B** | **3.8 B** | **13.1** | **3.1 J** | **113** | **6.3 B** | **38.1** | **14.8** | **39.0** | **14.0** |
| Selenium | mg/kg | 5,800 | **3.1 J** | **3.4 B** | **2.2 B** | **3.9 B** | **2.7 B** | **4.20** | 3.9 U | 3.7 U | 4.2 U | 4.2 U | 4.2 U | 2.8 U |
| Silver | mg/kg | 5,800 | **1.3 J** | 3.1 U | 2.9 U | 3.1 U | **0.62 B** | 2.7 U | 2.9 U | 2.8 U | **2.1 J** | 3.2 U | 3.2 U | 2.1 U |
| Thallium | mg/kg | 12 | 9.7 U | 10.2 U | 9.5 U | 10.3 U | 8.3 U | 9 U | 9.7 U | 9.3 U | 10.6 U | 10.6 U | 10.5 U | 7.1 U |
| Vanadium | mg/kg | 5,800 | **217** | **20.1** | **14.1** | **18.2** | **43.0** | **23.0** | **180** | **23.9** | **180** | **691** | **2,680** | **173** |
| Zinc | mg/kg | 350,000 | **1,850 J** | **449** | **7.10** | **15.4** | **3,700 J** | **10.6 J** | **448** | **19.8** | **1,100** | **136** | **233** | **164** |
| **Other** | | | | | | | | | | | | | | |
| Cyanide | mg/kg | 150 | **13.7 J-** | **0.97 J-** | **0.93 J-** | **0.89 J-** | **1.4 J-** | **1.2 J-** | **0.2 J** | 0.55 UJ | **0.49 J-** | **0.21 J-** | 0.52 UJ | **0.24 J** |

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**Table 6**
**Summary of Inorganics Detected in Soil**
**Parcel B4**
**Tradepoint Atlantic**
**Sparrows Point, Maryland**

| Parameter | Units | PAL | B4-049-SB-4.5 | B4-050-SB-1 | B4-050-SB-5 | B4-054-SB-1* | B4-054-SB-6* | B4-055-SB-1* | B4-055-SB-5* | B4-056-SB-1.5* | B4-056-SB-7.5* | B4-057-SB-1* | B4-057-SB-5* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals** | | | | | | | | | | | | | |
| Aluminum | mg/kg | 1,100,000 | **6,110** | **7,770** | **8,340** | **8,450** | **4,240** | **18,800** | **11,600** | **21,100** | **30,400** | **7,240** | **24,100** |
| Antimony | mg/kg | 470 | 2.7 UJ | 3.1 UJ | 2.3 UJ | 2.7 U | 2.9 U | 2.7 U | 2.6 U | 2.6 U | 2.6 U | 2.5 U | 2.7 U |
| Arsenic | mg/kg | 3 | **10.7** | **20.5** | **2.10** | **4.50** | **2.2 J** | **9.10** | **8.30** | **5.80** | **10.7** | **8.90** | **13.1** |
| Barium | mg/kg | 220,000 | **60.9** | **90.4** | **23.5** | **33.9** | **40.4** | **232** | **199** | **166** | **350** | **53.5** | **199** |
| Beryllium | mg/kg | 2,300 | **0.2 B** | **0.44 J** | **0.24 J** | 0.89 U | **0.35 J** | **0.76 J** | **0.59 J** | **1.50** | **1.90** | **0.16 J** | **0.99** |
| Cadmium | mg/kg | 980 | **5.90** | **1.60** | 1.1 U | **0.54 J** | **0.49 J** | **3.40** | **0.77 JB** | **0.68 JB** | **3.50** | **27.3** | **1.1 J** |
| Chromium | mg/kg | 120,000 | **134** | **217** | **9.10** | **1,190** | **288** | **335** | **92.6** | **84.3** | **543** | **836** | **365** |
| Chromium VI | mg/kg | 6.3 | **1.1 B** | **0.33 B** | **0.42 B** | **5.00** | **0.42 J** | **0.32 JB** | 1.3 U | **0.32 JB** | **0.3 JB** | **0.3 JB** | **0.51 JB** |
| Cobalt | mg/kg | 350 | **12.3** | **43.1** | **3 B** | 4.4 U | **3.7 J** | **12.4** | **14.1** | **8.00** | **19.8** | **4.80** | **52.0** |
| Copper | mg/kg | 47,000 | **215** | **228** | **3.80** | **31.4** | **60.1** | **211** | **335** | **33.0** | **438** | **119** | **76.7** |
| Iron | mg/kg | 820,000 | **86,000** | **101,000** | **11,600** | **171,000** | **54,000** | **149,000** | **87,700** | **32,900** | **71,300** | **329,000** | **58,100** |
| Lead | mg/kg | 800 | **695 J** | **247 J** | **5.1 J** | **48.0** | **19.0** | **758** | **74.9** | **76.3** | **420** | **556** | **165** |
| Manganese | mg/kg | 26,000 | **1,560 J** | **1,950 J** | **53.5 J** | **26,200** | **5,360** | **11,500** | **2,340** | **1,450** | **6,030** | **14,700** | **4,000** |
| Mercury | mg/kg | 350 | **0.26** | **0.06 J** | **0.013 J** | **0.027 J** | **0.048 J** | **2.60** | **0.02 J** | **0.069 J** | **0.069 J** | **0.019 J** | **0.029 J** |
| Nickel | mg/kg | 22,000 | **65.5** | **290** | **6.6 J** | **21.6** | **15.8** | **78.2** | **21.8** | **31.3** | **103** | **69.6** | **415** |
| Selenium | mg/kg | 5,800 | 3.6 U | 4.1 U | 3.1 U | 3.5 U | 3.8 U | 3.6 U | 3.4 U | 3.4 U | **3.3 J** | 3.4 U | 3.6 U |
| Silver | mg/kg | 5,800 | **1.7 J** | **1.4 B** | 2.3 U | **2.80** | 2.9 U | **2.2 J** | **0.86 J** | 2.6 U | **1 J** | **11.1** | **0.72 J** |
| Thallium | mg/kg | 12 | 9 U | 10.2 U | 7.6 U | 8.9 U | 9.5 U | 9.1 U | 8.6 U | 8.6 U | 8.7 U | 8.4 U | 9.1 U |
| Vanadium | mg/kg | 5,800 | **100** | **171** | **13.6** | **604** | **192** | **339** | **23.7** | **45.9** | **158** | **343** | **231** |
| Zinc | mg/kg | 350,000 | **1,750** | **542** | **17.9** | **63.2** | **39.2** | **1,020** | **163** | **127** | **704** | **36,700** | **504** |
| **Other** | | | | | | | | | | | | | |
| Cyanide | mg/kg | 150 | **1.30** | **0.18 J** | 0.64 U | **0.17 J** | **0.14 J** | **2.60** | **2.80** | **1.40** | **5.60** | **0.45 J** | **6.70** |

**Bold indicates detection**

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

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

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

J+: The positive result reported for this analyte is a quantitative estimate, but may be biased high.

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

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

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.

N/A: This parameter was not analysed for this sample.

*Indicates nonvalidated

**Value in red indicate a detection exceedance of the Project Action Limit (PAL)**

**Table 6**
**Summary of Inorganics Detected in Soil**
**Parcel B4**
**Tradepoint Atlantic**
**Sparrows Point, Maryland**

| Parameter | Units | PAL | B4-057-SB-10* | B4-058-SB-1* | B4-058-SB-8* | B4-059-SB-1* | B4-059-SB-4* |
|---|---|---|---|---|---|---|---|
| **Metals** | | | | | | | |
| Aluminum | mg/kg | 1,100,000 | N/A | **24,900** | **29,100** | **13,100** | **14,800** |
| Antimony | mg/kg | 470 | N/A | 2.6 U | 3 U | 2.7 U | 3.3 U |
| Arsenic | mg/kg | 3 | **4.90** | **2.70** | **8.50** | **2 J** | **13.6** |
| Barium | mg/kg | 220,000 | N/A | **378** | **309** | **87.1** | **202** |
| Beryllium | mg/kg | 2,300 | N/A | **1.90** | **4.20** | **0.26 J** | **0.98 J** |
| Cadmium | mg/kg | 980 | N/A | **1.90** | **0.72 J** | **0.45 J** | **2.80** |
| Chromium | mg/kg | 120,000 | N/A | **395** | **28.4** | **1,080** | **142** |
| Chromium VI | mg/kg | 6.3 | N/A | **0.47 JB** | **0.35 JB** | **0.39 JB** | **0.49 JB** |
| Cobalt | mg/kg | 350 | N/A | **3.2 J** | **3.7 J** | 4.4 U | **18.2** |
| Copper | mg/kg | 47,000 | N/A | **49.1** | **79.8** | **42.3** | **307** |
| Iron | mg/kg | 820,000 | N/A | **111,000** | **59,600** | **207,000** | **38,300** |
| Lead | mg/kg | 800 | N/A | **87.7** | **188** | **46.4** | **706** |
| Manganese | mg/kg | 26,000 | N/A | **12,400** | **1,970** | **24,600** | **2,630** |
| Mercury | mg/kg | 350 | N/A | **0.027 J** | 0.12 U | **0.053 J** | **0.62** |
| Nickel | mg/kg | 22,000 | N/A | **19.5** | **6.1 J** | **26.1** | **96.9** |
| Selenium | mg/kg | 5,800 | N/A | 3.5 U | **2.9 J** | 3.6 U | 4.3 U |
| Silver | mg/kg | 5,800 | N/A | **1.4 J** | 3 U | **2.90** | **1.2 J** |
| Thallium | mg/kg | 12 | N/A | 8.8 U | 9.9 U | 8.9 U | 10.9 U |
| Vanadium | mg/kg | 5,800 | N/A | **371** | **26.4** | **530** | **72.4** |
| Zinc | mg/kg | 350,000 | N/A | **398** | **188** | **124** | **1,290** |
| **Other** | | | | | | | |
| Cyanide | mg/kg | 150 | N/A | **0.5 J** | **0.99** | **0.88** | **10.1** |

**Bold indicates detection**

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

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

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

J+: The positive result reported for this analyte is a quantitative estimate, but may be biased high.

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

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

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.

N/A: This parameter was not analysed for this sample.

*Indicates nonvalidated

**Value in red indicate a detection exceedance of the Project Action Limit (PAL)**

**TABLE 7**
**SUMMARY OF SOIL PAL EXCEEDANCES**

| Parameter | CAS# | Frequency of Detections (%) | Sample ID of Max Result | Unit | PAL Solid | Max Result |
|---|---|---|---|---|---|---|
| Aroclor 1254 | 11097-69-1 | 32 | B4-037-SB-1 | mg/kg | 0.97 | 84.0 |
| Aroclor 1260 | 11096-82-5 | 36 | B4-037-SB-1 | mg/kg | 0.99 | 39.7 |
| Arsenic | 7440-38-2 | 85 | B4-003-SB-5 | mg/kg | 3.0 | 85.7 |
| Benzo[a]anthracene | 56-55-3 | 94 | B4-056-SB-7.5 | mg/kg | 2.9 | 40.2 |
| Benzo[a]pyrene | 50-32-8 | 95 | B4-056-SB-7.5 | mg/kg | 0.29 | 23.9 |
| Benzo[b]fluoranthene | 205-99-2 | 95 | B4-056-SB-7.5 | mg/kg | 2.9 | 41.0 |
| Chromium, Hexavalent | 18540-29-9 | 55 | B4-011-SB-1 | mg/kg | 6.3 | 9.9 |
| Dibenz[a,h]anthracene | 53-70-3 | 86 | B4-056-SB-7.5 | mg/kg | 0.29 | 5.1 |
| Diesel Range Organics | DRO | 99 | B4-037-SB-6 | mg/kg | 6,200 | 6,760 |
| Indeno[1,2,3-cd]pyrene | 193-39-5 | 93 | B4-056-SB-7.5 | mg/kg | 2.9 | 13.9 |
| Lead | 7439-92-1 | 96 | B4-039-SB-5 | mg/kg | 800 | 3,120 |
| Manganese | 7439-96-5 | 100 | B4-026-SB-1 | mg/kg | 26,000 | 49,400 |
| Naphthalene | 91-20-3 | 92 | B4-016-SB-5 | mg/kg | 17 | 32.8 |
| Thallium | 7440-28-0 | 4 | B4-020-SB-5 | mg/kg | 12 | 15.0 |
| Vanadium | 7440-62-2 | 100 | B4-020-SB-5 | mg/kg | 5,800 | 8,320 |
| PCBs (total) | 1336-36-3 | 55 | B4-037-SB-1 | mg/kg | 0.97 | 123.7 |

PCB delineation samples are not included in the statistics provided on this table.

**Table 8**
**Soil PAL Exceedances for Specific Targets**

| Target Feature | Boring ID | Sample Depth | Parameter | PAL (mg/kg) | Result (mg/kg) | Final Flag |
|---|---|---|---|---|---|---|
| Drip Legs | B4-001-SB | 1 | Chromium VI | 6.3 | 7.5 | J- |
| | B4-001-SB | 4 | Arsenic | 3 | 9.7 | |
| | B4-001-SB | 4 | Benzo[a]pyrene | 0.29 | 0.46 | |
| | B4-002-SB | 1 | PCBs (total) | 0.97 | 1.214 | |
| | B4-018-SB | 1 | Arsenic | 3 | 3.2 | |
| | B4-018-SB | 1 | Lead | 800 | 1,450 | |
| | B4-018-SB | 5 | Arsenic | 3 | 17.8 | |
| | B4-018-SB | 5 | Benzo[a]pyrene | 0.29 | 2.3 | |
| | B4-018-SB | 5 | Benzo[b]fluoranthene | 2.9 | 4 | |
| | B4-018-SB | 5 | Dibenz[a,h]anthracene | 0.29 | 0.68 | |
| | B4-019-SB | 1 | Arsenic | 3 | 4.5 | |
| | B4-019-SB | 5 | Arsenic | 3 | 42 | |
| | B4-019-SB | 5 | Benzo[a]anthracene | 2.9 | 7.5 | |
| | B4-019-SB | 5 | Benzo[a]pyrene | 0.29 | 6.7 | |
| | B4-019-SB | 5 | Benzo[b]fluoranthene | 2.9 | 15.7 | |
| | B4-019-SB | 5 | Dibenz[a,h]anthracene | 0.29 | 0.65 | |
| | B4-020-SB | 1 | Arsenic | 3 | 5.6 | |
| | B4-020-SB | 5 | Arsenic | 3 | 5.3 | |
| | B4-020-SB | 5 | Manganese | 26,000 | 45,600 | |
| | B4-020-SB | 5 | Thallium | 12 | 15 | |
| | B4-020-SB | 5 | Vanadium | 5,800 | 8,320 | |
| | B4-021-SB | 1 | Arsenic | 3 | 5.4 | |
| | B4-021-SB | 1 | Benzo[a]pyrene | 0.29 | 0.8 | J |
| | B4-021-SB | 5 | Arsenic | 3 | 8.2 | |
| | B4-021-SB | 5 | Benzo[a]anthracene | 2.9 | 7 | |
| | B4-021-SB | 5 | Benzo[a]pyrene | 0.29 | 6 | |
| | B4-021-SB | 5 | Benzo[b]fluoranthene | 2.9 | 12.6 | |
| | B4-021-SB | 5 | Dibenz[a,h]anthracene | 0.29 | 1.1 | |
| | B4-021-SB | 5 | Indeno[1,2,3-c,d]pyrene | 2.9 | 3 | |
| | B4-022-SB | 1 | Arsenic | 3 | 3 | |
| | B4-022-SB | 5 | Arsenic | 3 | 13.2 | |
| | B4-022-SB | 5 | Benzo[a]pyrene | 0.29 | 0.51 | |
| | B4-023-SB | 1 | Arsenic | 3 | 3.4 | |
| | B4-023-SB | 1 | Manganese | 26,000 | 26,200 | |
| | B4-023-SB | 5 | Arsenic | 3 | 15.2 | |
| | B4-023-SB | 5 | Benzo[a]anthracene | 2.9 | 4.8 | |
| | B4-023-SB | 5 | Benzo[a]pyrene | 0.29 | 4.1 | J |
| | B4-023-SB | 5 | Benzo[b]fluoranthene | 2.9 | 9.8 | J |
| | B4-023-SB | 5 | Dibenz[a,h]anthracene | 0.29 | 0.37 | |
| | B4-024-SB | 1 | Arsenic | 3 | 4.7 | |
| | B4-025-SB | 5 | Arsenic | 3 | 7 | |

**Table 8**
**Soil PAL Exceedances for Specific Targets**

| Target Feature | Boring ID | Sample Depth | Parameter | PAL (mg/kg) | Result (mg/kg) | Final Flag |
|---|---|---|---|---|---|---|
| REC Oil House | B4-003-SB | 1 | Arsenic | 3 | 8.9 | |
| | B4-003-SB | 5 | Arsenic | 3 | 85.7 | |
| | B4-004-SB | 1 | Arsenic | 3 | 3.6 | |
| | B4-004-SB | 1 | PCBs (total) | 0.97 | 1.046 | |
| | B4-004-SB | 4 | Arsenic | 3 | 17.3 | |
| | B4-004-SB | 4 | Benzo[a]pyrene | 0.29 | 1.5 | |
| | B4-004-SB | 4 | Benzo[b]fluoranthene | 2.9 | 3.7 | |
| | B4-004-SB | 4 | Dibenz[a,h]anthracene | 0.29 | 0.29 | |
| | B4-004-SB | 4 | Lead | 800 | 1,110 | J |
| | B4-005-SB | 1 | Arsenic | 3 | 7.7 | |
| Emergency Plating Pit | B4-006-SB | 1 | Arsenic | 3 | 5.1 | |
| | B4-006-SB | 5 | Arsenic | 3 | 3.5 | |
| | B4-006-SB | 5 | Benzo[a]pyrene | 0.29 | 0.37 | |
| | B4-006-SB | 1 | Manganese | 26,000 | 28,300 | |
| | B4-006-SB | 5 | Manganese | 26,000 | 26,100 | |
| | B4-007-SB | 1 | Arsenic | 3 | 3.4 | |
| | B4-007-SB | 5 | Benzo[a]pyrene | 0.29 | 1.2 | |
| Substation / Transformers | B4-008-SB | 7 | Arsenic | 3 | 8.8 | |
| | B4-008-SB | 7 | Benzo[a]pyrene | 0.29 | 0.46 | |
| | B4-008-SB | 7 | Manganese | 26,000 | 42,900 | |
| | B4-009-SB | 1 | Aroclor 1260 | 0.99 | 1.78 | |
| | B4-009-SB | 1 | Arsenic | 3 | 8.3 | |
| | B4-009-SB | 1 | PCBs (total) | 0.97 | 2.191 | |
| | B4-035-SB | 1 | Arsenic | 3 | 4.4 | |
| | B4-035-SB | 5 | Arsenic | 3 | 9.8 | |
| | B4-036-SB | 1 | Arsenic | 3 | 10.7 | |
| | B4-036-SB | 5 | Arsenic | 3 | 9.7 | |
| | B4-037-SB | 1 | Aroclor 1254 | 0.97 | 84 | |
| | B4-037-SB | 1 | Aroclor 1260 | 0.99 | 39.7 | |
| | B4-037-SB | 1 | Arsenic | 3 | 3.5 | |
| | B4-037-SB | 1 | Benzo[a]pyrene | 0.29 | 1.1 | |
| | B4-037-SB | 1 | PCBs (total) | 0.97 | 123.7 | |
| | B4-037-SB | 6 | Arsenic | 3 | 6.4 | |
| | B4-037-SB | 6 | Diesel Range Organics | 6,200 | 6,760 | |
| | B4-037-SB | 10 | Arsenic | 3 | 4 | |
| | B4-038-SB | 1 | Aroclor 1254 | 0.97 | 11 | |
| | B4-038-SB | 1 | Aroclor 1260 | 0.99 | 6.01 | |
| | B4-038-SB | 1 | Arsenic | 3 | 13.4 | |
| | B4-038-SB | 1 | Benzo[a]pyrene | 0.29 | 0.43 | |
| | B4-038-SB | 1 | PCBs (total) | 0.97 | 17.01 | |
| | B4-038-SB | 10 | Arsenic | 3 | 4.7 | |

**Table 8**
**Soil PAL Exceedances for Specific Targets**

| Target Feature | Boring ID | Sample Depth | Parameter | PAL (mg/kg) | Result (mg/kg) | Final Flag |
|---|---|---|---|---|---|---|
| Desulfurizer Stations | B4-014-SB | 1 | Aroclor 1260 | 0.99 | 4.68 | |
| | B4-014-SB | 1 | Arsenic | 3 | 7.1 | |
| | B4-014-SB | 1 | PCBs (total) | 0.97 | 4.68 | |
| | B4-014-SB | 5 | Arsenic | 3 | 3 | |
| | B4-015-SB | 1 | Arsenic | 3 | 3.3 | |
| | B4-015-SB | 5 | Arsenic | 3 | 7.3 | |
| | B4-016-SB | 1 | Chromium VI | 6.3 | 8 | J- |
| | B4-016-SB | 1 | Manganese | 26,000 | 28,800 | |
| | B4-016-SB | 5 | Arsenic | 3 | 36.1 | |
| | B4-016-SB | 5 | Benzo[a]pyrene | 0.29 | 1.4 | |
| | B4-016-SB | 5 | Benzo[b]fluoranthene | 2.9 | 3.9 | |
| | B4-016-SB | 5 | Naphthalene | 17 | 32.8 | |
| | B4-017-SB | 1 | Arsenic | 3 | 3.2 | |
| | B4-017-SB | 1 | Manganese | 26,000 | 30,000 | |
| | B4-017-SB | 4 | Arsenic | 3 | 19.9 | |
| | B4-017-SB | 4 | Benzo[a]anthracene | 2.9 | 4.3 | |
| | B4-017-SB | 4 | Benzo[a]pyrene | 0.29 | 4.7 | |
| | B4-017-SB | 4 | Benzo[b]fluoranthene | 2.9 | 9.3 | |
| | B4-017-SB | 4 | Dibenz[a,h]anthracene | 0.29 | 1.1 | |
| | B4-017-SB | 4 | Indeno[1,2,3-c,d]pyrene | 2.9 | 3.3 | |
| Mould Treatment Building | B4-026-SB | 1 | Arsenic | 3 | 9.6 | |
| | B4-026-SB | 1 | Manganese | 26,000 | 49,400 | J |
| | B4-027-SB | 1 | Arsenic | 3 | 8.2 | |
| | B4-027-SB | 1 | Manganese | 26,000 | 40,400 | J |
| | B4-027-SB | 5 | Arsenic | 3 | 6 | |
| Fuel Department | B4-028-SB | 1 | Arsenic | 3 | 3.5 | |
| | B4-029-SB | 1 | Arsenic | 3 | 4.4 | |
| | B4-029-SB | 1 | Manganese | 26,000 | 28,700 | |
| Non-REC Oil House | B4-030-SB | 1 | Benzo[a]pyrene | 0.29 | 0.37 | J |
| | B4-031-SB | 1 | Arsenic | 3 | 6.9 | |
| | B4-031-SB | 1 | Benzo[a]anthracene | 2.9 | 4.1 | |
| | B4-031-SB | 1 | Benzo[a]pyrene | 0.29 | 4.2 | |
| | B4-031-SB | 1 | Benzo[b]fluoranthene | 2.9 | 8.7 | |
| | B4-031-SB | 1 | Dibenz[a,h]anthracene | 0.29 | 0.35 | |
| | B4-031-SB | 4 | Arsenic | 3 | 9.6 | |
| | B4-031-SB | 4 | Benzo[a]anthracene | 2.9 | 6.1 | |
| | B4-031-SB | 4 | Benzo[a]pyrene | 0.29 | 5.4 | J |
| | B4-031-SB | 4 | Benzo[b]fluoranthene | 2.9 | 16.6 | J |
| | B4-031-SB | 4 | Dibenz[a,h]anthracene | 0.29 | 0.49 | J |
| Gas Pump Station | B4-033-SB | 1 | Arsenic | 3 | 3.8 | |
| | B4-034-SB | 1 | Arsenic | 3 | 4 | |
| | B4-034-SB | 1 | Benzo[a]pyrene | 0.29 | 0.29 | |

**Table 8**
**Soil PAL Exceedances for Specific Targets**

| Target Feature | Boring ID | Sample Depth | Parameter | PAL (mg/kg) | Result (mg/kg) | Final Flag |
|---|---|---|---|---|---|---|
| Tar Tanks | B4-039-SB | 1 | Arsenic | 3 | 7.5 | |
| | B4-039-SB | 5 | Arsenic | 3 | 17.7 | |
| | B4-039-SB | 5 | Lead | 800 | 3,120 | J |
| | B4-040-SB | 1 | Arsenic | 3 | 7.7 | |
| | B4-040-SB | 1 | Benzo[a]anthracene | 2.9 | 2.9 | |
| | B4-040-SB | 1 | Benzo[a]pyrene | 0.29 | 2.5 | |
| | B4-040-SB | 1 | Benzo[b]fluoranthene | 2.9 | 4.9 | |
| | B4-040-SB | 1 | Dibenz[a,h]anthracene | 0.29 | 0.6 | |
| | B4-040-SB | 5 | Arsenic | 3 | 3.9 | |
| | B4-040-SB | 5 | Benzo[a]pyrene | 0.29 | 0.54 | |
| | B4-041-SB | 1 | Benzo[a]pyrene | 0.29 | 0.75 | |
| | B4-041-SB | 4 | Benzo[a]pyrene | 0.29 | 0.96 | |
| | B4-042-SB | 1 | Benzo[a]pyrene | 0.29 | 0.36 | |
| | B4-042-SB | 5 | Arsenic | 3 | 6.7 | |
| | B4-042-SB | 5 | Benzo[a]pyrene | 0.29 | 2.9 | |
| | B4-042-SB | 5 | Benzo[b]fluoranthene | 2.9 | 8.5 | |
| | B4-042-SB | 5 | Dibenz[a,h]anthracene | 0.29 | 0.64 | |
| | B4-042-SB | 5 | Diesel Range Organics | 6,200 | 6,270 | |
| Thickener Tanks | B4-043-SB | 1 | Arsenic | 3 | 4.5 | |
| | B4-043-SB | 1 | Manganese | 26,000 | 26,900 | |
| | B4-044-SB | 1 | Arsenic | 3 | 7 | |
| | B4-044-SB | 1 | Manganese | 26,000 | 47,000 | |
| | B4-044-SB | 1 | Thallium | 12 | 12.3 | |
| | B4-044-SB | 1 | Vanadium | 5,800 | 6,330 | |
| | B4-044-SB | 4 | Arsenic | 3 | 38.2 | |
| | B4-044-SB | 4 | Benzo[a]pyrene | 0.29 | 0.61 | |
| | B4-044-SB | 4 | Lead | 800 | 1,090 | |
| | B4-045-SB | 10 | Arsenic | 3 | 3.1 | |
| | B4-046-SB | 1 | Arsenic | 3 | 3 | |
| Mould Yards | B4-054-SB | 1 | Arsenic | 3 | 4.5 | |
| | B4-054-SB | 1 | Manganese | 26,000 | 26,200 | |
| | B4-055-SB | 1 | Aroclor 1260 | 0.99 | 1.05 | |
| | B4-055-SB | 1 | Arsenic | 3 | 9.1 | |
| | B4-055-SB | 1 | PCBs (total) | 0.97 | 1.49 | |
| | B4-055-SB | 5 | Arsenic | 3 | 8.3 | |
| Water Treatment Area | B4-056-SB | 1.5 | Arsenic | 3 | 5.8 | |
| | B4-056-SB | 1.5 | Benzo[a]pyrene | 0.29 | 0.61 | |
| | B4-056-SB | 7.5 | Arsenic | 3 | 10.7 | |
| | B4-056-SB | 7.5 | Benzo[a]anthracene | 2.9 | 40.2 | |
| | B4-056-SB | 7.5 | Benzo[a]pyrene | 0.29 | 23.9 | |
| | B4-056-SB | 7.5 | Benzo[b]fluoranthene | 2.9 | 41 | |
| | B4-056-SB | 7.5 | Dibenz[a,h]anthracene | 0.29 | 5.1 | |
| | B4-056-SB | 7.5 | Indeno[1,2,3-c,d]pyrene | 2.9 | 13.9 | |

**Table 8**
**Soil PAL Exceedances for Specific Targets**

| Target Feature | Boring ID | Sample Depth | Parameter | PAL (mg/kg) | Result (mg/kg) | Final Flag |
|---|---|---|---|---|---|---|
| No. 3 Open Hearth | B4-057-SB | 1 | Arsenic | 3 | 8.9 | |
| | B4-057-SB | 5 | Arsenic | 3 | 13.1 | |
| | B4-057-SB | 5 | Benzo[a]pyrene | 0.29 | 0.32 | |
| | B4-057-SB | 10 | Arsenic | 3 | 4.9 | |
| | B4-057-SB | 10 | Benzo[a]pyrene | 0.29 | 0.55 | |
| Additional PCB Investigation | B4-058-SB | 8 | Arsenic | 3 | 8.5 | |
| | B4-059-SB | 4 | Arsenic | 3 | 13.6 | |

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

**Table 9**
**Soil PCB Delineation Results (B4-037-SB)**
**Parcel B4**
**Tradepoint Atlantic**
**Sparrows Point, Maryland**

Total PCBs Results

| **Boring ID** | B4-037-SB | | B4-037-SB | | B4-037A-SB | | B4-037B-SB | | B4-037C-SB | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Sample Date** | 3/2/2016 | | 10/13/2016 | | 10/12/2016 | | 10/12/2016 | | 10/12/2016 | |
| **Depth (ft)** | Result (mg/kg) | Flag | Result (mg/kg) | Flag | Result (mg/kg) | Flag | Result (mg/kg) | Flag | Result (mg/kg) | Flag |
| **0.5** | -- | | -- | | 0.28 | | 342 | | 7.37 | |
| **1** | 123.7 | | 670 | | 0.0571 | U | 0.102 | | 0.0686 | |
| **2** | -- | | 1.44 | | -- | | -- | | -- | |
| **3** | -- | | 0.693 | | -- | | -- | | -- | |
| **4** | -- | | 1.166 | | -- | | -- | | -- | |
| **5** | -- | | 0.0565 | U | 0.0614 | U | 0.0567 | U | 0.0561 | U |

Red highlighted cells indicate PCB exceedance of delineation/excavation criteria (50 mg/kg)

**Table 9**
**Soil PCB Delineation Results (B4-037-SB)**
**Parcel B4**
**Tradepoint Atlantic**
**Sparrows Point, Maryland**

Total PCBs Results

| **Boring ID** | B4-037D-SB | | B4-037E-SB | | B4-037F-SB | | B4-037G-SB | | B4-037H-SB | | B4-037I-SB | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Sample Date** | 10/12/2016 | | 10/12/2016 | | 10/12/2016 | | 10/12/2016 | | 10/12/2016 | | 10/12/2016 | |
| **Depth (ft)** | Result (mg/kg) | Flag | Result (mg/kg) | Flag | Result (mg/kg) | Flag | Result (mg/kg) | Flag | Result (mg/kg) | Flag | Result (mg/kg) | Flag |
| **0.5** | -- | | 1.57 | | -- | | 1.264 | | -- | | -- | |
| **1** | 2.72 | | 4.69 | | 32 | | 0.0569 | U | 0.579 | | 88.1 | |
| **2** | -- | | -- | | -- | | -- | | -- | | 1.03 | |
| **3** | -- | | -- | | -- | | -- | | -- | | 0.0556 | U |
| **4** | -- | | -- | | -- | | -- | | -- | | 0.053 | J |
| **5** | 0.0582 | U | 0.0563 | U | 4.65 | | 0.0726 | | 0.0601 | | 0.0542 | U |

Red highlighted cells indicate PCB exceedance of delineation/excavation criteria (50 mg/kg)

**Table 9**
**Soil PCB Delineation Results (B4-037-SB)**
**Parcel B4**
**Tradepoint Atlantic**
**Sparrows Point, Maryland**

Total PCBs Results

| **Boring ID** | B4-037J-SB | | B4-037K-SB | | B4-037L-SB | | B4-037M-SB | | B4-037N-SB | | B4-037O-SB | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Sample Date** | 10/12/2016 | | 10/12/2016 | | 10/12/2016 | | 10/12/2016 | | 10/12/2016 | | 10/12/2016 | |
| **Depth (ft)** | Result (mg/kg) | Flag | Result (mg/kg) | Flag | Result (mg/kg) | Flag | Result (mg/kg) | Flag | Result (mg/kg) | Flag | Result (mg/kg) | Flag |
| **0.5** | -- | | -- | | -- | | -- | | -- | | -- | |
| **1** | 6.57 | | 12.4 | | 5.58 | | 14.68 | | 28.9 | | 12.3 | |
| **2** | -- | | -- | | -- | | -- | | -- | | -- | |
| **3** | -- | | -- | | -- | | -- | | -- | | -- | |
| **4** | -- | | -- | | -- | | -- | | -- | | -- | |
| **5** | 0.0581 | U | 1.53 | | 0.0586 | U | 0.059 | U | 0.0598 | U | 0.0589 | U |

**Table 9**
**Soil PCB Delineation Results (B4-037-SB)**
**Parcel B4**
**Tradepoint Atlantic**
**Sparrows Point, Maryland**

Total PCBs Results

| **Boring ID** | B4-037P-SB | | B4-037Q-SB | | B4-037R-SB | | B4-037S-SB | | B4-037T-SB | | B4-037U-SB | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Sample Date** | 10/12/2016 | | 10/12/2016 | | 10/12/2016 | | 10/12/2016 | | 10/12/2016 | | 10/28/2016 | |
| **Depth (ft)** | Result (mg/kg) | Flag | Result (mg/kg) | Flag | Result (mg/kg) | Flag | Result (mg/kg) | Flag | Result (mg/kg) | Flag | Result (mg/kg) | Flag |
| **0.5** | -- | | -- | | -- | | -- | | -- | | -- | |
| **1** | 7.94 | | 2.83 | | 0.0551 | U | 0.0556 | U | 0.0556 | U | 1.335 | |
| **2** | -- | | -- | | -- | | -- | | -- | | -- | |
| **3** | -- | | -- | | -- | | -- | | -- | | -- | |
| **4** | -- | | -- | | -- | | -- | | -- | | -- | |
| **5** | 0.0588 | U | 0.0579 | U | 0.0602 | U | 0.0542 | U | 2.74 | | 0.056 | U |

**Table 9**
**Soil PCB Delineation Results (B4-037-SB)**
**Parcel B4**
**Tradepoint Atlantic**
**Sparrows Point, Maryland**

Total PCBs Results

| **Boring ID** | B4-037V-SB | | B4-037W-SB | | B4-037X-SB | | B4-037Y-SB | | B4-037Z-SB | | B4-037AA-SB | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Sample Date** | 10/28/2016 | | 10/28/2016 | | 10/27/2016 | | 10/27/2016 | | 10/27/2016 | | 10/27/2016 | |
| **Depth (ft)** | Result (mg/kg) | Flag | Result (mg/kg) | Flag | Result (mg/kg) | Flag | Result (mg/kg) | Flag | Result (mg/kg) | Flag | Result (mg/kg) | Flag |
| **0.5** | -- | | -- | | -- | | -- | | -- | | -- | |
| **1** | 0.682 | | 0.0556 | J | 22.2 | | 114 | | 11.3 | | 11.5 | |
| **2** | -- | | -- | | -- | | 20.6 | | -- | | -- | |
| **3** | -- | | -- | | -- | | 6.74 | | -- | | -- | |
| **4** | -- | | -- | | -- | | 0.231 | | -- | | -- | |
| **5** | 0.0569 | U | 0.0602 | U | 0.0565 | U | 0.0611 | U | 0.0571 | U | 0.056 | U |

Red highlighted cells indicate PCB exceedance of delineation/excavation criteria (50 mg/kg)

**Table 9**
**Soil PCB Delineation Results (B4-037-SB)**
**Parcel B4**
**Tradepoint Atlantic**
**Sparrows Point, Maryland**

Total PCBs Results

| **Boring ID** | B4-037BB-SB | | B4-037CC-SB | | B4-037DD-SB | | B4-037EE-SB | | B4-037FF-SB | | B4-037GG-SB | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Sample Date** | 10/27/2016 | | 10/27/2016 | | 10/27/2016 | | 10/27/2016 | | 10/28/2016 | | 10/28/2016 | |
| **Depth (ft)** | Result (mg/kg) | Flag | Result (mg/kg) | Flag | Result (mg/kg) | Flag | Result (mg/kg) | Flag | Result (mg/kg) | Flag | Result (mg/kg) | Flag |
| **0.5** | -- | | -- | | -- | | | | -- | | 0.0548 | |
| **1** | 29.4 | | 34 | | 9.3 | | 5.73 | | 0.2952 | | 0.3395 | |
| **2** | -- | | -- | | refusal | | | | -- | | -- | |
| **3** | -- | | -- | | -- | | | | -- | | -- | |
| **4** | -- | | -- | | -- | | | | -- | | -- | |
| **5** | 0.0713 | | 0.0586 | U | -- | | 0.0595 | U | 0.0576 | U | 0.0582 | U |

**Table 9**
**Soil PCB Delineation Results (B4-037-SB)**
**Parcel B4**
**Tradepoint Atlantic**
**Sparrows Point, Maryland**

Total PCBs Results

| **Boring ID** | B4-037HH-SB | | B4-037II-SB | | B4-037JJ-SB | | B4-037KK-SB | | B4-037LL-SB | | B4-037MM-SB | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Sample Date** | 10/28/2016 | | 10/28/2016 | | 11/21/2016 | | 11/21/2016 | | 11/21/2016 | | 11/21/2016 | |
| **Depth (ft)** | Result (mg/kg) | Flag | Result (mg/kg) | Flag | Result (mg/kg) | Flag | Result (mg/kg) | Flag | Result (mg/kg) | Flag | Result (mg/kg) | Flag |
| **0.5** | -- | | -- | | -- | | -- | | | | -- | |
| **1** | 0.136 | | 25.21 | | 121 | | 1.45 | | 87.8 | | 4.16 | |
| **2** | -- | | -- | | 14 | | -- | | 15.1 | | -- | |
| **3** | -- | | -- | | 0.298 | | -- | | 0.0378 | J | -- | |
| **4** | -- | | -- | | 0.0611 | | -- | | 0.145 | | -- | |
| **5** | 0.0555 | U | 0.0577 | U | 0.327 | | 0.0569 | | 0.0586 | | 0.0559 | U |

Red highlighted cells indicate PCB exceedance of delineation/excavation criteria (50 mg/kg)

**Table 9**
**Soil PCB Delineation Results (B4-037-SB)**
**Parcel B4**
**Tradepoint Atlantic**
**Sparrows Point, Maryland**

Total PCBs Results

| **Boring ID** | B4-037NN-SB | | B4-037OO-SB | | B4-037PP-SB | | B4-037QQ-SB | | B4-037RR-SB | | B4-037SS-SB | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Sample Date** | 11/21/2016 | | 12/13/2016 | | 12/13/2016 | | 12/13/2016 | | 12/13/2016 | | 12/13/2016 | |
| **Depth (ft)** | Result (mg/kg) | Flag | Result (mg/kg) | Flag | Result (mg/kg) | Flag | Result (mg/kg) | Flag | Result (mg/kg) | Flag | Result (mg/kg) | Flag |
| **0.5** | -- | | -- | | -- | | -- | | -- | | -- | |
| **1** | 1.3 | | 1.2 | J | 1.6 | J | 2.3 | J | 1.3 | J | 6.1 | |
| **2** | -- | | -- | | -- | | -- | | -- | | -- | |
| **3** | -- | | -- | | -- | | -- | | -- | | -- | |
| **4** | -- | | -- | | -- | | -- | | -- | | -- | |
| **5** | 0.0563 | U | 0.14 | U | 0.14 | U | 0.13 | U | 0.14 | U | 0.67 | U |

**Table 9**
**Soil PCB Delineation Results (B4-037-SB)**
**Parcel B4**
**Tradepoint Atlantic**
**Sparrows Point, Maryland**

Total PCBs Results

| **Boring ID** | B4-037TT-SB | | B4-037UU-SB | | B4-037VV-SB | |
|---|---|---|---|---|---|---|
| **Sample Date** | 12/13/2016 | | 12/13/2016 | | 12/13/2016 | |
| **Depth (ft)** | Result (mg/kg) | Flag | Result (mg/kg) | Flag | Result (mg/kg) | Flag |
| **0.5** | -- | | -- | | -- | |
| **1** | 11.4 | | 1.4 | J | 1.4 | U |
| **2** | -- | | -- | | -- | |
| **3** | -- | | -- | | -- | |
| **4** | -- | | -- | | -- | |
| **5** | 0.13 | U | 0.14 | U | 0.15 | U |

**Table 10**
**Summary of Organics Detectin in Soil Gas**
**Parcel B4**
**Tradepoint Atlantic**
**Sparrows Point, Maryland**

| Parameter | Units | PAL | B4-051-SG | B4-052-SG | B4-053-SG |
|---|---|---|---|---|---|
| **Volatile Organic Compound** | | | | | |
| 1,1,1-Trichloroethane | µg/m3 | 2,200,000 | 1.09 U | **3.38** | **1.58** |
| 2-Butanone (MEK) | µg/m3 | 2,200,000 | **45.3** | **43.6** | **46.8** |
| 4-Methyl-2-pentanone (MIBK) | µg/m3 | 1,400,000 | **0.9** | **0.78 J** | **0.86** |
| Acetone | µg/m3 | 14,000,000 | **207** | **219** | **170** |
| Benzene | µg/m3 | 1,600 | **3.39** | **6.39** | **7.48** |
| Bromodichloromethane | µg/m3 | | **7.84** | **4.09** | **9.18** |
| Carbon disulfide | µg/m3 | 310,000 | **111** | **101** | **80.4** |
| Chloroform | µg/m3 | 540 | **56.6** | **43.6** | **39** |
| Chloromethane | µg/m3 | 40,000 | **0.58** | **0.45** | **0.5** |
| Ethylbenzene | µg/m3 | 5,000 | **1.13** | **1.35** | **1.95** |
| Methylene Chloride | µg/m3 | 270,000 | **6.56** | **6.45** | **6.95** |
| Styrene | µg/m3 | 440,000 | **0.68 J** | 0.85 U | **0.47 J** |
| Tetrachloroethene | µg/m3 | 18,000 | **16.2** | **66.7** | **9.02** |
| Toluene | µg/m3 | 2,200,000 | **7.95** | **21.7** | **37.6** |
| Trichloroethene | µg/m3 | 880 | 1.07 U | **1.45** | 1.07 U |
| Xylenes | µg/m3 | 44,000 | **6.12** | **4.65** | **6.04** |

**Bold indicates detection**
U: This analyte was not detected in the sample. The numeric value represents the sample quantitation/detection limit
J: The positive result reported for this analyte is a quantitative estimate

EnviroAnalytics Group

# Parcel B4 - Table 11

*Rejected Results for Soil*

| Parameter | Result | Units | PAL | Exceeds PAL? | Flag |
|---|---|---|---|---|---|
| **Sample:** *B4-001-SB-1* | | | | | |
| 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 |
| Benzaldehyde | 0.072 | mg/kg | 120,000 | no | R |
| Pentachlorophenol | 0.18 | mg/kg | 4 | no | R |
| Phenol | 0.072 | mg/kg | 250,000 | no | R |
| **Sample:** *B4-001-SB-4* | | | | | |
| Benzaldehyde | 0.078 | mg/kg | 120,000 | no | R |
| **Sample:** *B4-002-SB-1* | | | | | |
| 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 |
| Benzaldehyde | 0.072 | mg/kg | 120,000 | no | R |
| Pentachlorophenol | 0.18 | mg/kg | 4 | no | R |
| Phenol | 0.072 | mg/kg | 250,000 | no | R |

## *Rejected Results for Soil*

| Parameter | Result | Units | PAL | Exceeds PAL? | Flag |
|---|---|---|---|---|---|
| ***Sample:*** ***B4-002-SB-5*** | | | | | |
| Benzaldehyde | 0.094 | mg/kg | 120,000 | no | R |
| ***Sample:*** ***B4-003-SB-1*** | | | | | |
| 1,4-Dioxane | 0.13 | mg/kg | 24 | no | R |
| Bromomethane | 0.0066 | mg/kg | 30 | no | R |
| ***Sample:*** ***B4-003-SB-5*** | | | | | |
| 1,4-Dioxane | 0.11 | mg/kg | 24 | no | R |
| Bromomethane | 0.0054 | mg/kg | 30 | no | R |
| ***Sample:*** ***B4-004-SB-1*** | | | | | |
| 1,4-Dioxane | 0.12 | mg/kg | 24 | no | R |
| Bromomethane | 0.0059 | mg/kg | 30 | no | R |
| ***Sample:*** ***B4-004-SB-4*** | | | | | |
| 1,4-Dioxane | 0.11 | mg/kg | 24 | no | R |
| Bromomethane | 0.0057 | mg/kg | 30 | no | R |
| ***Sample:*** ***B4-005-SB-1*** | | | | | |
| 1,4-Dioxane | 0.12 | mg/kg | 24 | no | R |
| Bromomethane | 0.006 | mg/kg | 30 | no | R |
| ***Sample:*** ***B4-006-SB-1*** | | | | | |
| 2,3,4,6-Tetrachlorophenol | 0.071 | mg/kg | 25,000 | no | R |
| 2,4,5-Trichlorophenol | 0.18 | mg/kg | 82,000 | no | R |
| 2,4,6-Trichlorophenol | 0.071 | mg/kg | 210 | no | R |
| 2,4-Dichlorophenol | 0.071 | mg/kg | 2,500 | no | R |
| 2,4-Dimethylphenol | 0.071 | mg/kg | 16,000 | no | R |
| 2,4-Dinitrophenol | 0.18 | mg/kg | 1,600 | no | R |
| 2-Chlorophenol | 0.071 | mg/kg | 5,800 | no | R |
| 2-Methylphenol | 0.071 | mg/kg | 41,000 | no | R |
| 3&4-Methylphenol(m&p Cresol) | 0.14 | mg/kg | 41,000 | no | R |
| Benzaldehyde | 0.071 | mg/kg | 120,000 | no | R |
| Pentachlorophenol | 0.18 | mg/kg | 4 | no | R |

| Parameter | Result | Units | PAL | Exceeds PAL? | Flag |
|---|---|---|---|---|---|
| ***Sample:*** ***B4-006-SB-1*** | | | | | |
| Phenol | 0.071 | mg/kg | 250,000 | no | R |
| ***Sample:*** ***B4-006-SB-5*** | | | | | |
| 2,3,4,6-Tetrachlorophenol | 0.071 | mg/kg | 25,000 | no | R |
| 2,4,5-Trichlorophenol | 0.18 | mg/kg | 82,000 | no | R |
| 2,4,6-Trichlorophenol | 0.071 | mg/kg | 210 | no | R |
| 2,4-Dichlorophenol | 0.071 | mg/kg | 2,500 | no | R |
| 2,4-Dimethylphenol | 0.071 | mg/kg | 16,000 | no | R |
| 2,4-Dinitrophenol | 0.18 | mg/kg | 1,600 | no | R |
| 2-Chlorophenol | 0.071 | mg/kg | 5,800 | no | R |
| 2-Methylphenol | 0.071 | mg/kg | 41,000 | no | R |
| 3&4-Methylphenol(m&p Cresol) | 0.14 | mg/kg | 41,000 | no | R |
| Benzaldehyde | 0.071 | mg/kg | 120,000 | no | R |
| Pentachlorophenol | 0.18 | mg/kg | 4 | no | R |
| Phenol | 0.071 | mg/kg | 250,000 | no | R |
| ***Sample:*** ***B4-007-SB-1*** | | | | | |
| Benzaldehyde | 0.073 | mg/kg | 120,000 | no | R |
| ***Sample:*** ***B4-007-SB-5*** | | | | | |
| Benzaldehyde | 0.07 | mg/kg | 120,000 | no | R |
| ***Sample:*** ***B4-008-SB-1*** | | | | | |
| 1,1,2,2-Tetrachloroethane | 0.0051 | mg/kg | 2.7 | no | R |
| 1,4-Dioxane | 0.1 | mg/kg | 24 | no | R |
| 2,4-Dinitrophenol | 0.18 | mg/kg | 1,600 | no | R |
| Bromomethane | 0.0051 | mg/kg | 30 | no | R |
| Hexachlorocyclopentadiene | 0.072 | mg/kg | 7.5 | no | R |
| Mercury | 0.11 | mg/kg | 350 | no | R |
| Methyl Acetate | 0.051 | mg/kg | 1,200,000 | no | R |
| ***Sample:*** ***B4-008-SB-7*** | | | | | |
| 1,4-Dioxane | 0.12 | mg/kg | 24 | no | R |

## *Rejected Results for Soil*

| Parameter | Result | Units | PAL | Exceeds PAL? | Flag |
|---|---|---|---|---|---|
| ***Sample:*** | ***B4-009-SB-1*** | | | | |
| Benzaldehyde | 0.073 | mg/kg | 120,000 | no | R |
| ***Sample:*** | ***B4-009-SB-5*** | | | | |
| 2,4-Dinitrophenol | 0.18 | mg/kg | 1,600 | no | R |
| Benzaldehyde | 0.072 | mg/kg | 120,000 | no | R |
| ***Sample:*** | ***B4-010-SB-1*** | | | | |
| 1,4-Dioxane | 0.1 | 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 |
| Pentachlorophenol | 0.18 | mg/kg | 4 | no | R |
| Phenol | 0.072 | mg/kg | 250,000 | no | R |
| ***Sample:*** | ***B4-010-SB-6*** | | | | |
| 1,4-Dioxane | 0.1 | 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 |
| Bromomethane | 0.0051 | mg/kg | 30 | no | R |
| Pentachlorophenol | 0.18 | mg/kg | 4 | no | R |
| Phenol | 0.071 | mg/kg | 250,000 | no | R |

## *Rejected Results for Soil*

| Parameter | Result | Units | PAL | Exceeds PAL? | Flag |
|---|---|---|---|---|---|
| ***Sample:*** | ***B4-011-SB-1*** | | | | |
| 1,4-Dioxane | 0.11 | 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 |
| 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) | 0.15 | mg/kg | 41,000 | no | R |
| Bromomethane | 0.0056 | mg/kg | 30 | no | R |
| Pentachlorophenol | 0.18 | mg/kg | 4 | no | R |
| Phenol | 0.073 | mg/kg | 250,000 | no | R |
| ***Sample:*** | ***B4-011-SB-4.5*** | | | | |
| 1,4-Dioxane | 0.11 | mg/kg | 24 | no | R |
| Bromomethane | 0.0056 | mg/kg | 30 | no | R |
| ***Sample:*** | ***B4-012-SB-1*** | | | | |
| 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 |
| Pentachlorophenol | 0.18 | mg/kg | 4 | no | R |
| Phenol | 0.074 | mg/kg | 250,000 | no | R |
| ***Sample:*** | ***B4-012-SB-5*** | | | | |
| Benzaldehyde | 0.07 | mg/kg | 120,000 | no | R |

| Parameter | Result | Units | PAL | Exceeds PAL? | Flag |
|---|---|---|---|---|---|
| **Sample:** *B4-013-SB-1* | | | | | |
| 1,4-Dioxane | 0.15 | mg/kg | 24 | no | R |
| Bromomethane | 0.0073 | mg/kg | 30 | no | R |
| **Sample:** *B4-013-SB-7.5* | | | | | |
| 1,4-Dioxane | 0.079 | mg/kg | 24 | no | R |
| Bromomethane | 0.004 | mg/kg | 30 | no | R |
| **Sample:** *B4-014-SB-1* | | | | | |
| 1,4-Dioxane | 0.099 | mg/kg | 24 | no | R |
| Bromomethane | 0.005 | mg/kg | 30 | no | R |
| **Sample:** *B4-014-SB-5* | | | | | |
| 1,4-Dioxane | 0.098 | mg/kg | 24 | no | R |
| Benzaldehyde | 0.08 | mg/kg | 120,000 | no | R |
| Bromomethane | 0.0049 | mg/kg | 30 | no | R |
| **Sample:** *B4-015-SB-1* | | | | | |
| 1,4-Dioxane | 0.099 | 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 |
| 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) | 0.15 | mg/kg | 41,000 | no | R |
| Benzaldehyde | 0.073 | mg/kg | 120,000 | no | R |
| Bromomethane | 0.005 | mg/kg | 30 | no | R |
| Pentachlorophenol | 0.18 | mg/kg | 4 | no | R |
| Phenol | 0.073 | mg/kg | 250,000 | no | R |
| **Sample:** *B4-015-SB-5* | | | | | |
| 1,4-Dioxane | 0.1 | mg/kg | 24 | no | R |

| Parameter | Result | Units | PAL | Exceeds PAL? | Flag |
|---|---|---|---|---|---|
| ***Sample:*** | ***B4-015-SB-5*** | | | | |
| Benzaldehyde | 0.081 | mg/kg | 120,000 | no | R |
| Bromomethane | 0.0052 | mg/kg | 30 | no | R |
| ***Sample:*** | ***B4-016-SB-1*** | | | | |
| 1,4-Dioxane | 0.098 | 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 |
| 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) | 0.15 | mg/kg | 41,000 | no | R |
| Benzaldehyde | 0.073 | mg/kg | 120,000 | no | R |
| Bromomethane | 0.0049 | mg/kg | 30 | no | R |
| Pentachlorophenol | 0.18 | mg/kg | 4 | no | R |
| Phenol | 0.073 | mg/kg | 250,000 | no | R |
| ***Sample:*** | ***B4-016-SB-5*** | | | | |
| 1,4-Dioxane | 0.11 | mg/kg | 24 | no | R |
| Benzaldehyde | 0.064 | mg/kg | 120,000 | no | R |
| Bromomethane | 0.0056 | mg/kg | 30 | no | R |
| Chromium VI | 1.2 | mg/kg | 6.3 | no | R |
| ***Sample:*** | ***B4-017-SB-1*** | | | | |
| 1,4-Dioxane | 0.098 | 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 |
| 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 |

| Parameter | Result | Units | PAL | Exceeds PAL? | Flag |
|---|---|---|---|---|---|
| ***Sample:*** | ***B4-017-SB-1*** | | | | |
| 2-Methylphenol | 0.073 | mg/kg | 41,000 | no | R |
| 3&4-Methylphenol(m&p Cresol) | 0.15 | mg/kg | 41,000 | no | R |
| Bromomethane | 0.0049 | mg/kg | 30 | no | R |
| Pentachlorophenol | 0.18 | mg/kg | 4 | no | R |
| Phenol | 0.073 | mg/kg | 250,000 | no | R |
| ***Sample:*** | ***B4-017-SB-4*** | | | | |
| 1,4-Dioxane | 0.16 | mg/kg | 24 | no | R |
| 2,3,4,6-Tetrachlorophenol | 0.09 | mg/kg | 25,000 | no | R |
| 2,4,5-Trichlorophenol | 0.23 | mg/kg | 82,000 | no | R |
| 2,4,6-Trichlorophenol | 0.09 | mg/kg | 210 | no | R |
| 2,4-Dichlorophenol | 0.09 | mg/kg | 2,500 | no | R |
| 2,4-Dimethylphenol | 0.09 | mg/kg | 16,000 | no | R |
| 2,4-Dinitrophenol | 0.23 | mg/kg | 1,600 | no | R |
| 2-Chlorophenol | 0.09 | mg/kg | 5,800 | no | R |
| 2-Methylphenol | 0.09 | mg/kg | 41,000 | no | R |
| 3&4-Methylphenol(m&p Cresol) | 0.18 | mg/kg | 41,000 | no | R |
| Benzaldehyde | 0.09 | mg/kg | 120,000 | no | R |
| Bromomethane | 0.0078 | mg/kg | 30 | no | R |
| Pentachlorophenol | 0.23 | mg/kg | 4 | no | R |
| Phenol | 0.09 | mg/kg | 250,000 | no | R |
| ***Sample:*** | ***B4-018-SB-1*** | | | | |
| 1,4-Dioxane | 0.1 | mg/kg | 24 | no | R |
| Benzaldehyde | 0.074 | mg/kg | 120,000 | no | R |
| Bromomethane | 0.005 | mg/kg | 30 | no | R |
| ***Sample:*** | ***B4-018-SB-5*** | | | | |
| 1,4-Dioxane | 0.14 | mg/kg | 24 | no | R |
| Benzaldehyde | 0.46 | mg/kg | 120,000 | no | R |
| Bromomethane | 0.0068 | mg/kg | 30 | no | R |
| Chromium VI | 1.4 | mg/kg | 6.3 | no | R |

## *Rejected Results for Soil*

| Parameter | Result | Units | PAL | Exceeds PAL? | Flag |
|---|---|---|---|---|---|
| ***Sample:*** | ***B4-019-SB-1*** | | | | |
| 1,4-Dioxane | 0.097 | mg/kg | 24 | no | R |
| Benzaldehyde | 0.075 | mg/kg | 120,000 | no | R |
| Bromomethane | 0.0049 | mg/kg | 30 | no | R |
| Chromium VI | 1.1 | mg/kg | 6.3 | no | R |
| ***Sample:*** | ***B4-019-SB-5*** | | | | |
| 1,4-Dioxane | 0.13 | mg/kg | 24 | no | R |
| Benzaldehyde | 0.071 | mg/kg | 120,000 | no | R |
| Bromomethane | 0.0065 | mg/kg | 30 | no | R |
| Chromium VI | 1.2 | mg/kg | 6.3 | no | R |
| ***Sample:*** | ***B4-020-SB-1*** | | | | |
| 1,4-Dioxane | 0.1 | mg/kg | 24 | no | R |
| Benzaldehyde | 0.071 | mg/kg | 120,000 | no | R |
| Bromomethane | 0.0051 | mg/kg | 30 | no | R |
| ***Sample:*** | ***B4-020-SB-5*** | | | | |
| 1,4-Dioxane | 0.14 | mg/kg | 24 | no | R |
| Benzaldehyde | 0.073 | mg/kg | 120,000 | no | R |
| Bromomethane | 0.0069 | mg/kg | 30 | no | R |
| ***Sample:*** | ***B4-021-SB-1*** | | | | |
| 1,4-Dioxane | 0.11 | mg/kg | 24 | no | R |
| Benzaldehyde | 0.074 | mg/kg | 120,000 | no | R |
| Bromomethane | 0.0057 | mg/kg | 30 | no | R |
| Chromium VI | 1.1 | mg/kg | 6.3 | no | R |
| ***Sample:*** | ***B4-021-SB-5*** | | | | |
| 1,4-Dioxane | 0.12 | mg/kg | 24 | no | R |
| Benzaldehyde | 0.078 | mg/kg | 120,000 | no | R |
| Bromomethane | 0.0062 | mg/kg | 30 | no | R |
| ***Sample:*** | ***B4-022-SB-1*** | | | | |
| 1,4-Dioxane | 0.12 | mg/kg | 24 | no | R |

## *Rejected Results for Soil*

| Parameter | Result | Units | PAL | Exceeds PAL? | Flag |
|---|---|---|---|---|---|
| ***Sample:*** | ***B4-022-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 |
| Bromomethane | 0.006 | mg/kg | 30 | no | R |
| Pentachlorophenol | 0.2 | mg/kg | 4 | no | R |
| Phenol | 0.078 | mg/kg | 250,000 | no | R |
| ***Sample:*** | ***B4-022-SB-5*** | | | | |
| 1,4-Dioxane | 0.12 | mg/kg | 24 | no | R |
| Bromomethane | 0.0061 | mg/kg | 30 | no | R |
| ***Sample:*** | ***B4-023-SB-1*** | | | | |
| 1,4-Dioxane | 0.12 | mg/kg | 24 | no | R |
| 2,3,4,6-Tetrachlorophenol | 0.077 | mg/kg | 25,000 | no | R |
| 2,4,5-Trichlorophenol | 0.19 | mg/kg | 82,000 | no | R |
| 2,4,6-Trichlorophenol | 0.077 | mg/kg | 210 | no | R |
| 2,4-Dichlorophenol | 0.077 | mg/kg | 2,500 | no | R |
| 2,4-Dimethylphenol | 0.077 | mg/kg | 16,000 | no | R |
| 2,4-Dinitrophenol | 0.19 | mg/kg | 1,600 | no | R |
| 2-Chlorophenol | 0.077 | mg/kg | 5,800 | no | R |
| 2-Methylphenol | 0.077 | mg/kg | 41,000 | no | R |
| 3&4-Methylphenol(m&p Cresol) | 0.15 | mg/kg | 41,000 | no | R |
| Benzaldehyde | 0.077 | mg/kg | 120,000 | no | R |
| Bromomethane | 0.0062 | mg/kg | 30 | no | R |
| Pentachlorophenol | 0.19 | mg/kg | 4 | no | R |
| Phenol | 0.077 | mg/kg | 250,000 | no | R |

| Parameter | Result | Units | PAL | Exceeds PAL? | Flag |
|---|---|---|---|---|---|
| ***Sample:*** | ***B4-023-SB-5*** | | | | |
| 1,4-Dioxane | 0.12 | mg/kg | 24 | no | R |
| Benzaldehyde | 0.079 | mg/kg | 120,000 | no | R |
| Bromomethane | 0.0059 | mg/kg | 30 | no | R |
| ***Sample:*** | ***B4-024-SB-1*** | | | | |
| 1,4-Dioxane | 0.13 | mg/kg | 24 | no | R |
| Benzaldehyde | 0.076 | mg/kg | 120,000 | no | R |
| Bromomethane | 0.0063 | mg/kg | 30 | no | R |
| ***Sample:*** | ***B4-024-SB-4.5*** | | | | |
| 1,4-Dioxane | 0.09 | mg/kg | 24 | no | R |
| Benzaldehyde | 0.072 | mg/kg | 120,000 | no | R |
| Bromomethane | 0.0045 | mg/kg | 30 | no | R |
| ***Sample:*** | ***B4-025-SB-1*** | | | | |
| 1,4-Dioxane | 0.11 | mg/kg | 24 | no | R |
| Benzaldehyde | 0.075 | mg/kg | 120,000 | no | R |
| Bromomethane | 0.0053 | mg/kg | 30 | no | R |
| Mercury | 0.11 | mg/kg | 350 | no | R |
| ***Sample:*** | ***B4-025-SB-5*** | | | | |
| 1,4-Dioxane | 0.16 | mg/kg | 24 | no | R |
| Benzaldehyde | 0.086 | mg/kg | 120,000 | no | R |
| Bromomethane | 0.0079 | mg/kg | 30 | no | R |
| ***Sample:*** | ***B4-026-SB-1*** | | | | |
| 1,4-Dioxane | 0.099 | mg/kg | 24 | no | R |
| Benzaldehyde | 0.073 | mg/kg | 120,000 | no | R |
| Bromomethane | 0.005 | mg/kg | 30 | no | R |
| ***Sample:*** | ***B4-026-SB-5*** | | | | |
| 1,4-Dioxane | 0.092 | mg/kg | 24 | no | R |
| Benzaldehyde | 0.075 | mg/kg | 120,000 | no | R |
| Bromomethane | 0.0046 | mg/kg | 30 | no | R |

## *Rejected Results for Soil*

| Parameter | Result | Units | PAL | Exceeds PAL? | Flag |
|---|---|---|---|---|---|
| ***Sample:*** | ***B4-027-SB-1*** | | | | |
| 1,4-Dioxane | 0.1 | mg/kg | 24 | no | R |
| Benzaldehyde | 0.073 | mg/kg | 120,000 | no | R |
| Bromomethane | 0.005 | mg/kg | 30 | no | R |
| ***Sample:*** | ***B4-027-SB-5*** | | | | |
| 1,4-Dioxane | 0.11 | mg/kg | 24 | no | R |
| Benzaldehyde | 0.077 | mg/kg | 120,000 | no | R |
| Bromomethane | 0.0057 | mg/kg | 30 | no | R |
| Chromium VI | 1.1 | mg/kg | 6.3 | no | R |
| ***Sample:*** | ***B4-028-SB-1*** | | | | |
| 1,4-Dioxane | 0.099 | mg/kg | 24 | no | R |
| 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 |
| Bromomethane | 0.005 | mg/kg | 30 | no | R |
| Pentachlorophenol | 0.2 | mg/kg | 4 | no | R |
| Phenol | 0.078 | mg/kg | 250,000 | no | R |
| ***Sample:*** | ***B4-028-SB-4*** | | | | |
| 1,4-Dioxane | 0.12 | 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 |

| Parameter | Result | Units | PAL | Exceeds PAL? | Flag |
|---|---|---|---|---|---|
| **Sample:** *B4-028-SB-4* | | | | | |
| 2-Methylphenol | 0.077 | mg/kg | 41,000 | no | R |
| 3&4-Methylphenol(m&p Cresol) | 0.15 | mg/kg | 41,000 | no | R |
| Bromomethane | 0.0059 | mg/kg | 30 | no | R |
| Pentachlorophenol | 0.19 | mg/kg | 4 | no | R |
| Phenol | 0.077 | mg/kg | 250,000 | no | R |
| **Sample:** *B4-029-SB-1* | | | | | |
| 1,4-Dioxane | 0.1 | 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 |
| Bromomethane | 0.0051 | mg/kg | 30 | no | R |
| Pentachlorophenol | 0.18 | mg/kg | 4 | no | R |
| Phenol | 0.072 | mg/kg | 250,000 | no | R |
| **Sample:** *B4-030-SB-1* | | | | | |
| 1,4-Dioxane | 0.12 | mg/kg | 24 | no | R |
| Benzaldehyde | 0.074 | mg/kg | 120,000 | no | R |
| Bromomethane | 0.0058 | mg/kg | 30 | no | R |
| **Sample:** *B4-030-SB-5* | | | | | |
| 1,4-Dioxane | 0.088 | mg/kg | 24 | no | R |
| Benzaldehyde | 0.077 | mg/kg | 120,000 | no | R |
| Bromomethane | 0.0044 | mg/kg | 30 | no | R |
| **Sample:** *B4-031-SB-1* | | | | | |
| 1,4-Dioxane | 0.087 | mg/kg | 24 | no | R |
| Bromomethane | 0.0044 | mg/kg | 30 | no | R |

## *Rejected Results for Soil*

| Parameter | Result | Units | PAL | Exceeds PAL? | Flag |
|---|---|---|---|---|---|
| ***Sample:*** | ***B4-031-SB-4*** | | | | |
| 1,4-Dioxane | 0.1 | mg/kg | 24 | no | R |
| Bromomethane | 0.0051 | mg/kg | 30 | no | R |
| ***Sample:*** | ***B4-032-SB-1*** | | | | |
| 1,4-Dioxane | 0.1 | mg/kg | 24 | no | R |
| 2,3,4,6-Tetrachlorophenol | 0.074 | mg/kg | 25,000 | no | R |
| 2,4,5-Trichlorophenol | 0.19 | 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 | 0.19 | 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 | 0.0051 | mg/kg | 30 | no | R |
| Pentachlorophenol | 0.19 | mg/kg | 4 | no | R |
| Phenol | 0.074 | mg/kg | 250,000 | no | R |
| ***Sample:*** | ***B4-033-SB-1*** | | | | |
| 1,4-Dioxane | 0.091 | mg/kg | 24 | no | R |
| Benzaldehyde | 0.073 | mg/kg | 120,000 | no | R |
| Bromomethane | 0.0046 | mg/kg | 30 | no | R |
| ***Sample:*** | ***B4-034-SB-1*** | | | | |
| 1,4-Dioxane | 0.098 | mg/kg | 24 | no | R |
| 2,3,4,6-Tetrachlorophenol | 0.076 | mg/kg | 25,000 | no | R |
| 2,4,5-Trichlorophenol | 0.19 | mg/kg | 82,000 | no | R |
| 2,4,6-Trichlorophenol | 0.076 | mg/kg | 210 | no | R |
| 2,4-Dichlorophenol | 0.076 | mg/kg | 2,500 | no | R |
| 2,4-Dimethylphenol | 0.076 | mg/kg | 16,000 | no | R |
| 2,4-Dinitrophenol | 0.19 | mg/kg | 1,600 | no | R |
| 2-Chlorophenol | 0.076 | mg/kg | 5,800 | no | R |
| 2-Methylphenol | 0.076 | mg/kg | 41,000 | no | R |
| 3&4-Methylphenol(m&p Cresol) | 0.15 | mg/kg | 41,000 | no | R |

## *Rejected Results for Soil*

| Parameter | Result | Units | PAL | Exceeds PAL? | Flag |
|---|---|---|---|---|---|
| ***Sample:*** | ***B4-034-SB-1*** | | | | |
| Bromomethane | 0.0049 | mg/kg | 30 | no | R |
| Pentachlorophenol | 0.19 | mg/kg | 4 | no | R |
| Phenol | 0.076 | mg/kg | 250,000 | no | R |
| ***Sample:*** | ***B4-035-SB-1*** | | | | |
| 1,4-Dioxane | 0.1 | mg/kg | 24 | no | R |
| Benzaldehyde | 0.083 | mg/kg | 120,000 | no | R |
| Bromomethane | 0.005 | mg/kg | 30 | no | R |
| ***Sample:*** | ***B4-035-SB-5*** | | | | |
| 1,4-Dioxane | 0.13 | mg/kg | 24 | no | R |
| Benzaldehyde | 0.084 | mg/kg | 120,000 | no | R |
| Bromomethane | 0.0063 | mg/kg | 30 | no | R |
| ***Sample:*** | ***B4-036-SB-1*** | | | | |
| 1,4-Dioxane | 0.1 | mg/kg | 24 | no | R |
| Benzaldehyde | 0.082 | mg/kg | 120,000 | no | R |
| Bromomethane | 0.0051 | mg/kg | 30 | no | R |
| ***Sample:*** | ***B4-036-SB-5*** | | | | |
| 1,4-Dioxane | 0.11 | mg/kg | 24 | no | R |
| Benzaldehyde | 0.085 | mg/kg | 120,000 | no | R |
| Bromomethane | 0.0057 | mg/kg | 30 | no | R |
| ***Sample:*** | ***B4-037-SB-1*** | | | | |
| 1,4-Dioxane | 0.11 | mg/kg | 24 | no | R |
| Benzaldehyde | 0.075 | mg/kg | 120,000 | no | R |
| Bromomethane | 0.0053 | mg/kg | 30 | no | R |
| ***Sample:*** | ***B4-037-SB-10*** | | | | |
| 1,4-Dioxane | 0.088 | mg/kg | 24 | no | R |
| Benzaldehyde | 0.16 | mg/kg | 120,000 | no | R |
| Bromomethane | 0.0044 | mg/kg | 30 | no | R |
| Chromium VI | 1.2 | mg/kg | 6.3 | no | R |

## *Rejected Results for Soil*

| Parameter | Result | Units | PAL | Exceeds PAL? | Flag |
|---|---|---|---|---|---|
| ***Sample:*** | ***B4-037-SB-6*** | | | | |
| 1,4-Dioxane | 0.085 | mg/kg | 24 | no | R |
| 2,4-Dinitrophenol | 0.39 | mg/kg | 1,600 | no | R |
| Benzaldehyde | 0.15 | mg/kg | 120,000 | no | R |
| Bromomethane | 0.0042 | mg/kg | 30 | no | R |
| Chromium VI | 1.1 | mg/kg | 6.3 | no | R |
| ***Sample:*** | ***B4-038-SB-1*** | | | | |
| 1,4-Dioxane | 0.11 | mg/kg | 24 | no | R |
| Bromomethane | 0.0054 | mg/kg | 30 | no | R |
| ***Sample:*** | ***B4-038-SB-10*** | | | | |
| 1,4-Dioxane | 0.088 | mg/kg | 24 | no | R |
| Benzaldehyde | 0.078 | mg/kg | 120,000 | no | R |
| Bromomethane | 0.0044 | mg/kg | 30 | no | R |
| ***Sample:*** | ***B4-038-SB-5*** | | | | |
| 1,4-Dioxane | 0.096 | mg/kg | 24 | no | R |
| Benzaldehyde | 0.073 | mg/kg | 120,000 | no | R |
| Bromomethane | 0.0048 | mg/kg | 30 | no | R |
| ***Sample:*** | ***B4-039-SB-1*** | | | | |
| 1,4-Dioxane | 0.094 | mg/kg | 24 | no | R |
| Benzaldehyde | 0.077 | mg/kg | 120,000 | no | R |
| Bromomethane | 0.0047 | mg/kg | 30 | no | R |
| ***Sample:*** | ***B4-039-SB-5*** | | | | |
| 1,4-Dioxane | 0.13 | mg/kg | 24 | no | R |
| Bromomethane | 0.0064 | mg/kg | 30 | no | R |
| ***Sample:*** | ***B4-040-SB-1*** | | | | |
| 1,4-Dioxane | 0.11 | mg/kg | 24 | no | R |
| Bromomethane | 0.0057 | mg/kg | 30 | no | R |

| Parameter | Result | Units | PAL | Exceeds PAL? | Flag |
|---|---|---|---|---|---|
| ***Sample:*** | ***B4-040-SB-5*** | | | | |
| 1,4-Dioxane | 0.095 | mg/kg | 24 | no | R |
| 2,3,4,6-Tetrachlorophenol | 0.077 | mg/kg | 25,000 | no | R |
| 2,4,5-Trichlorophenol | 0.19 | mg/kg | 82,000 | no | R |
| 2,4,6-Trichlorophenol | 0.077 | mg/kg | 210 | no | R |
| 2,4-Dichlorophenol | 0.077 | mg/kg | 2,500 | no | R |
| 2,4-Dimethylphenol | 0.077 | mg/kg | 16,000 | no | R |
| 2,4-Dinitrophenol | 0.19 | mg/kg | 1,600 | no | R |
| 2-Chlorophenol | 0.077 | mg/kg | 5,800 | no | R |
| 2-Methylphenol | 0.077 | mg/kg | 41,000 | no | R |
| 3&4-Methylphenol(m&p Cresol) | 0.15 | mg/kg | 41,000 | no | R |
| Bromomethane | 0.0048 | mg/kg | 30 | no | R |
| Pentachlorophenol | 0.19 | mg/kg | 4 | no | R |
| Phenol | 0.077 | mg/kg | 250,000 | no | R |
| ***Sample:*** | ***B4-041-SB-1*** | | | | |
| Benzaldehyde | 0.072 | mg/kg | 120,000 | no | R |
| ***Sample:*** | ***B4-041-SB-4*** | | | | |
| Benzaldehyde | 0.077 | mg/kg | 120,000 | no | R |
| ***Sample:*** | ***B4-042-SB-1*** | | | | |
| Benzaldehyde | 0.073 | mg/kg | 120,000 | no | R |
| ***Sample:*** | ***B4-042-SB-5*** | | | | |
| Benzaldehyde | 0.069 | mg/kg | 120,000 | no | R |
| ***Sample:*** | ***B4-043-SB-1*** | | | | |
| 1,4-Dioxane | 0.11 | mg/kg | 24 | no | R |
| Bromomethane | 0.0055 | mg/kg | 30 | no | R |
| ***Sample:*** | ***B4-043-SB-5*** | | | | |
| 1,4-Dioxane | 0.11 | 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 |

| Parameter | Result | Units | PAL | Exceeds PAL? | Flag |
|---|---|---|---|---|---|
| ***Sample:*** | ***B4-043-SB-5*** | | | | |
| 2,4,6-Trichlorophenol | 0.077 | mg/kg | 210 | no | R |
| 2,4-Dichlorophenol | 0.077 | mg/kg | 2,500 | no | R |
| 2,4-Dimethylphenol | 0.077 | mg/kg | 16,000 | no | R |
| 2,4-Dinitrophenol | 0.19 | mg/kg | 1,600 | no | R |
| 2-Chlorophenol | 0.077 | mg/kg | 5,800 | no | R |
| 2-Methylphenol | 0.077 | mg/kg | 41,000 | no | R |
| 3&4-Methylphenol(m&p Cresol) | 0.15 | mg/kg | 41,000 | no | R |
| Bromomethane | 0.0054 | mg/kg | 30 | no | R |
| Pentachlorophenol | 0.19 | mg/kg | 4 | no | R |
| Phenol | 0.077 | mg/kg | 250,000 | no | R |
| ***Sample:*** | ***B4-044-SB-1*** | | | | |
| 1,4-Dioxane | 0.12 | mg/kg | 24 | no | R |
| Benzaldehyde | 0.07 | mg/kg | 120,000 | no | R |
| Bromomethane | 0.0061 | mg/kg | 30 | no | R |
| ***Sample:*** | ***B4-044-SB-4*** | | | | |
| 1,4-Dioxane | 0.16 | mg/kg | 24 | no | R |
| Benzaldehyde | 0.028 | mg/kg | 120,000 | no | R |
| Bromomethane | 0.008 | mg/kg | 30 | no | R |
| ***Sample:*** | ***B4-045-SB-1*** | | | | |
| 1,4-Dioxane | 0.13 | mg/kg | 24 | no | R |
| Benzaldehyde | 0.074 | mg/kg | 120,000 | no | R |
| Bromomethane | 0.0065 | mg/kg | 30 | no | R |
| ***Sample:*** | ***B4-045-SB-10*** | | | | |
| 1,4-Dioxane | 0.11 | mg/kg | 24 | no | R |
| Benzaldehyde | 0.073 | mg/kg | 120,000 | no | R |
| Bromomethane | 0.0053 | mg/kg | 30 | no | R |
| Mercury | 0.1 | mg/kg | 350 | no | R |
| ***Sample:*** | ***B4-045-SB-5*** | | | | |
| 1,4-Dioxane | 0.12 | mg/kg | 24 | no | R |

## *Rejected Results for Soil*

| Parameter | Result | Units | PAL | Exceeds PAL? | Flag |
|---|---|---|---|---|---|
| ***Sample:*** ***B4-045-SB-5*** | | | | | |
| Benzaldehyde | 0.072 | mg/kg | 120,000 | no | R |
| Bromomethane | 0.0059 | mg/kg | 30 | no | R |
| Mercury | 0.11 | mg/kg | 350 | no | R |
| ***Sample:*** ***B4-046-SB-1*** | | | | | |
| 1,4-Dioxane | 0.12 | mg/kg | 24 | no | R |
| Benzaldehyde | 0.071 | mg/kg | 120,000 | no | R |
| Bromomethane | 0.0059 | mg/kg | 30 | no | R |
| ***Sample:*** ***B4-046-SB-5*** | | | | | |
| 1,4-Dioxane | 0.12 | mg/kg | 24 | no | R |
| Benzaldehyde | 0.072 | mg/kg | 120,000 | no | R |
| Bromomethane | 0.0061 | mg/kg | 30 | no | R |
| ***Sample:*** ***B4-047-SB-1*** | | | | | |
| 1,4-Dioxane | 0.13 | mg/kg | 24 | no | R |
| Bromomethane | 0.0066 | mg/kg | 30 | no | R |
| ***Sample:*** ***B4-047-SB-5*** | | | | | |
| 1,4-Dioxane | 0.096 | mg/kg | 24 | no | R |
| Benzaldehyde | 0.076 | mg/kg | 120,000 | no | R |
| Bromomethane | 0.0048 | mg/kg | 30 | no | R |
| ***Sample:*** ***B4-048-SB-1*** | | | | | |
| 1,4-Dioxane | 0.14 | mg/kg | 24 | no | R |
| 2,3,4,6-Tetrachlorophenol | 0.072 | mg/kg | 25,000 | no | R |
| 2,4,5-Trichlorophenol | 0.18 | mg/kg | 82,000 | no | R |
| 2,4,6-Trichlorophenol | 0.072 | mg/kg | 210 | no | R |
| 2,4-Dichlorophenol | 0.072 | mg/kg | 2,500 | no | R |
| 2,4-Dimethylphenol | 0.072 | mg/kg | 16,000 | no | R |
| 2,4-Dinitrophenol | 0.18 | mg/kg | 1,600 | no | R |
| 2-Chlorophenol | 0.072 | mg/kg | 5,800 | no | R |
| 2-Methylphenol | 0.072 | mg/kg | 41,000 | no | R |
| 3&4-Methylphenol(m&p Cresol) | 0.14 | mg/kg | 41,000 | no | R |

## *Rejected Results for Soil*

| Parameter | Result | Units | PAL | Exceeds PAL? | Flag |
|---|---|---|---|---|---|
| ***Sample:*** | ***B4-048-SB-1*** | | | | |
| Benzaldehyde | 0.072 | mg/kg | 120,000 | no | R |
| Bromomethane | 0.0068 | mg/kg | 30 | no | R |
| Pentachlorophenol | 0.18 | mg/kg | 4 | no | R |
| Phenol | 0.072 | mg/kg | 250,000 | no | R |
| ***Sample:*** | ***B4-048-SB-10*** | | | | |
| 1,4-Dioxane | 0.11 | mg/kg | 24 | no | R |
| Benzaldehyde | 0.07 | mg/kg | 120,000 | no | R |
| Bromomethane | 0.0054 | mg/kg | 30 | no | R |
| ***Sample:*** | ***B4-048-SB-5*** | | | | |
| 1,4-Dioxane | 0.11 | mg/kg | 24 | no | R |
| Benzaldehyde | 0.07 | mg/kg | 120,000 | no | R |
| Bromomethane | 0.0055 | mg/kg | 30 | no | R |
| ***Sample:*** | ***B4-049-SB-1*** | | | | |
| 1,4-Dioxane | 0.098 | mg/kg | 24 | no | R |
| Benzaldehyde | 0.074 | mg/kg | 120,000 | no | R |
| Bromomethane | 0.0049 | mg/kg | 30 | no | R |
| ***Sample:*** | ***B4-049-SB-4.5*** | | | | |
| 1,4-Dioxane | 0.12 | mg/kg | 24 | no | R |
| Benzaldehyde | 0.076 | mg/kg | 120,000 | no | R |
| Bromomethane | 0.0062 | mg/kg | 30 | no | R |
| ***Sample:*** | ***B4-050-SB-1*** | | | | |
| 1,4-Dioxane | 0.12 | mg/kg | 24 | no | R |
| Bromomethane | 0.006 | mg/kg | 30 | no | R |
| ***Sample:*** | ***B4-050-SB-5*** | | | | |
| 1,4-Dioxane | 0.093 | mg/kg | 24 | no | R |
| Benzaldehyde | 0.077 | mg/kg | 120,000 | no | R |
| Bromomethane | 0.0047 | mg/kg | 30 | no | R |

**Table 12 - Parcel B4**
**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 HI=1 (mg/kg) | COPC? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1-Biphenyl | 92-52-4 | B4-019-SB-5 | 0.66 | J | 0.016 | 0.08 | 111 | 37.8 | 409 | 200 | no |
| 1,2,3-Trichlorobenzene | 87-61-6 | B4-037-SB-6 | 0.0074 | | 0.0017 | 0.006 | 111 | 3.6 | | 934 | no |
| 1,2,4-Trichlorobenzene | 120-82-1 | B4-014-SB-1 | 0.0083 | | 0.0022 | 0.006 | 111 | 2.7 | 113 | 256 | no |
| 1,4-Dichlorobenzene | 106-46-7 | B4-025-SB-1 | 0.0039 | J | 0.0032 | 0.006 | 111 | 1.8 | 11.4 | 25,300 | no |
| 2,4-Dimethylphenol | 105-67-9 | B4-014-SB-1 | 0.055 | J | 0.024 | 0.08 | 89 | 3.4 | | 16,400 | no |
| 2,4-Dinitrophenol | 51-28-5 | B4-018-SB-1 | 0.066 | J | 0.066 | 0.20 | 86 | 1.2 | | 1,640 | no |
| 2,6-Dinitrotoluene | 606-20-2 | B4-015-SB-5 | 0.039 | J | 0.039 | 0.08 | 111 | 0.9 | 1.54 | 247 | no |
| 2-Butanone (MEK) | 78-93-3 | B4-029-SB-1 | 0.025 | | 0.0024 | 0.01 | 111 | 17.1 | | 193,000 | no |
| 2-Chloronaphthalene | 91-58-7 | B4-054-SB-6 | 0.083 | | 0.083 | 0.08 | 111 | 0.9 | | 60,300 | no |
| 2-Hexanone | 591-78-6 | B4-042-SB-5 | 0.0036 | J | 0.002 | 0.01 | 111 | 2.7 | | 1,340 | no |
| 2-Methylnaphthalene | 91-57-6 | B4-019-SB-5 | 2.2 | | 0.0011 | 0.12 | 111 | 91.0 | | 3,010 | no |
| 2-Methylphenol | 95-48-7 | B4-014-SB-1 | 0.064 | J | 0.031 | 0.08 | 89 | 2.2 | | 41,000 | no |
| 4-Chloroaniline | 106-47-8 | B4-031-SB-4 | 0.028 | J | 0.028 | 0.08 | 111 | 0.9 | 11.5 | 3,280 | no |
| 4-Methyl-2-pentanone (MIBK) | 108-10-1 | B4-018-SB-1 | 0.0083 | J | 0.0021 | 0.01 | 111 | 3.6 | | 139,000 | no |
| Acenaphthene | 83-32-9 | B4-018-SB-5 | 1 | | 0.00066 | 0.06 | 111 | 79.3 | | 45,200 | no |
| Acenaphthylene | 208-96-8 | B4-056-SB-7.5 | 5.2 | | 0.00073 | 0.15 | 111 | 91.0 | | | no |
| Acetone | 67-64-1 | B4-001-SB-4 | 0.13 | | 0.0049 | 0.04 | 111 | 83.8 | | 670,000 | no |
| Acetone | 67-64-1 | B4-003-SB-5 | 0.13 | J | 0.0049 | 0.04 | 111 | 83.8 | | 670,000 | no |
| Acetophenone | 98-86-2 | B4-040-SB-1 | 0.18 | J | 0.018 | 0.07 | 111 | 25.2 | | 117,000 | no |
| Aluminum | 7429-90-5 | B4-002-SB-5 | 72,600 | | 3,120 | 18,464 | 111 | 100 | | 1,120,000 | no |
| Anthracene | 120-12-7 | B4-056-SB-7.5 | 15.7 | | 0.0015 | 0.37 | 111 | 91.9 | | 226,000 | no |
| Antimony | 7440-36-0 | B4-003-SB-5 | 3.6 | J | 2 | 2.9 | 111 | 2.7 | | 467 | no |
| Aroclor 1221 | 11104-28-2 | B4-042-SB-1 | 0.279 | | 0.279 | 0.63 | 170 | 0.6 | 0.832 | | no |
| Aroclor 1242 | 53469-21-9 | B4-037II-SB-1 | 8.09 | | 0.158 | 0.68 | 170 | 1.2 | 0.95 | | YES (C) |
| Aroclor 1248 | 12672-29-6 | B4-004-SB-1 | 0.46 | | 0.0351 | 0.64 | 170 | 4.7 | 0.954 | | no |
| Aroclor 1254 | 11097-69-1 | B4-037B-SB-0.5 | 342 | | 0.0342 | 3.5 | 170 | 20.0 | 0.972 | 14.7 | YES (C/NC) |
| Aroclor 1260 | 11096-82-5 | B4-037-SB-1 | 670 | | 0.005 | 8.5 | 170 | 49.4 | 0.991 | | YES (C) |
| Arsenic | 7440-38-2 | B4-003-SB-5 | 85.7 | | 2 | 8.2 | 112 | 84.8 | 3 | 479 | YES (C/NC) |
| Barium | 7440-39-3 | B4-016-SB-5 | 1,300 | | 20.8 | 208 | 111 | 100 | | 217,000 | no |
| Benzaldehyde | 100-52-7 | B4-014-SB-1 | 0.15 | J | 0.018 | 0.05 | 44 | 77.3 | 818 | 117,000 | no |
| Benzene | 71-43-2 | B4-021-SB-5 | 0.037 | | 0.0013 | 0.006 | 111 | 16.2 | 5.08 | 423 | no |
| Benzo[a]anthracene | 56-55-3 | B4-056-SB-7.5 | 40.2 | | 0.0029 | 0.90 | 111 | 93.7 | 21 | | YES (C) |
| Benzo[a]pyrene | 50-32-8 | B4-056-SB-7.5 | 23.9 | | 0.001 | 0.79 | 112 | 94.6 | 2.1 | 220 | YES (C/NC) |
| Benzo[b]fluoranthene | 205-99-2 | B4-056-SB-7.5 | 41 | | 0.0018 | 1.7 | 111 | 94.6 | 21 | | YES (C) |
| Benzo[g,h,i]perylene | 191-24-2 | B4-056-SB-7.5 | 11.7 | | 0.0031 | 0.35 | 111 | 91.9 | | | no |
| Benzo[k]fluoranthene | 207-08-9 | B4-056-SB-7.5 | 17.2 | | 0.0016 | 1.4 | 111 | 94.6 | 210 | | no |
| Beryllium | 7440-41-7 | B4-045-SB-10 | 9 | | 0.16 | 1.7 | 111 | 89.2 | 6,950 | 2,290 | no |
| bis(2-Ethylhexyl)phthalate | 117-81-7 | B4-055-SB-1 | 3 | | 0.015 | 0.11 | 111 | 18.9 | 164 | 16,400 | no |
| Cadmium | 7440-43-9 | B4-026-SB-5 | 60.8 | | 0.12 | 2.7 | 111 | 91.9 | 9,260 | 982 | no |
| Caprolactam | 105-60-2 | B4-029-SB-1 | 0.087 | J | 0.074 | 0.20 | 111 | 1.8 | | 398,000 | no |
| Carbazole | 86-74-8 | B4-019-SB-5 | 2.5 | J | 0.019 | 0.13 | 111 | 41.4 | | | no |
| Chloroform | 67-66-3 | B4-056-SB-7.5 | 0.077 | | 0.0066 | 0.006 | 111 | 3.6 | 1.38 | 1,030 | no |
| Chromium | 7440-47-3 | B4-019-SB-5 | 1,770 | | 7.5 | 454 | 111 | 100 | | | no |
| Chromium VI | 18540-29-9 | B4-011-SB-1 | 9.9 | J- | 0.18 | 1.5 | 103 | 55.3 | 6.33 | 3,480 | YES (C) |

**Table 12 - Parcel B4**
**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 HI=1 (mg/kg) | COPC? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chrysene | 218-01-9 | B4-056-SB-7.5 | 30.3 | | 0.00086 | 0.94 | 111 | 97.3 | 289 | | no |
| Cobalt | 7440-48-4 | B4-019-SB-5 | 133 | | 0.32 | 9.7 | 111 | 98.2 | 1,850 | 347 | YES (NC) |
| Copper | 7440-50-8 | B4-019-SB-5 | 621 | | 1.9 | 88.0 | 111 | 100 | | 46,700 | no |
| Cyanide | 57-12-5 | B4-018-SB-1 | 91.5 | J- | 0.043 | 3.3 | 111 | 89.2 | | 147 | YES (NC) |
| Cyclohexane | 110-82-7 | B4-012-SB-5 | 0.027 | | 0.027 | 0.01 | 111 | 0.9 | | 27,400 | no |
| Dibenz[a,h]anthracene | 53-70-3 | B4-056-SB-7.5 | 5.1 | | 0.0016 | 0.14 | 111 | 85.6 | 2.1 | | YES (C) |
| Diesel Range Organics | DRO | B4-037-SB-6 | 6,760 | | 3.2 | 324 | 110 | 99.1 | | 6,200 | YES (NC) |
| Di-n-butylphthalate | 84-74-2 | B4-018-SB-5 | 0.88 | J | 0.018 | 0.08 | 111 | 4.5 | | 82,100 | no |
| Di-n-ocytlphthalate | 117-84-0 | B4-003-SB-1 | 0.026 | J | 0.026 | 0.08 | 111 | 0.9 | | 8,210 | no |
| Ethylbenzene | 100-41-4 | B4-020-SB-5 | 0.017 | | 0.001 | 0.006 | 111 | 9.9 | 25.4 | 20,500 | no |
| Fluoranthene | 206-44-0 | B4-056-SB-7.5 | 82.8 | | 0.00076 | 2.2 | 111 | 100 | | 30,100 | no |
| Fluorene | 86-73-7 | B4-056-SB-7.5 | 4.6 | | 0.00067 | 0.14 | 111 | 82.9 | | 30,100 | no |
| Gasoline Range Organics | GRO | B4-011-SB-4.5 | 26.7 | | 6.5 | 12.4 | 110 | 7.3 | | 6,200 | no |
| Hexachlorobenzene | 118-74-1 | B4-049-SB-4.5 | 0.041 | J | 0.041 | 0.08 | 111 | 0.9 | 0.96 | 934 | no |
| Hexachloroethane | 67-72-1 | B4-011-SB-4.5 | 0.066 | J | 0.066 | 0.08 | 111 | 0.9 | 8.05 | 460 | no |
| Indeno[1,2,3-c,d]pyrene | 193-39-5 | B4-056-SB-7.5 | 13.9 | | 0.0027 | 0.36 | 111 | 92.8 | 21 | | no |
| Iron | 7439-89-6 | B4-057-SB-1 | 329,000 | | 2,310 | 103,309 | 111 | 100 | | 818,000 | YES (NC) |
| Isopropylbenzene | 98-82-8 | B4-018-SB-5 | 0.011 | J | 0.011 | 0.006 | 111 | 0.9 | | 9,950 | no |
| Lead | 7439-92-1 | B4-039-SB-5 | 3,120 | J | 2 | 219 | 111 | 96.4 | | 800 | YES (NC) |
| Manganese | 7439-96-5 | B4-026-SB-1 | 49,400 | J | 53.5 | 11,684 | 111 | 100 | | 25,600 | YES (NC) |
| Mercury | 7439-97-6 | B4-018-SB-1 | 46.4 | | 0.0022 | 0.71 | 107 | 86.9 | | 45.6 | YES (NC) |
| Methyl Acetate | 79-20-9 | B4-035-SB-1 | 0.0025 | J | 0.0021 | 0.06 | 110 | 1.8 | | 1,170,000 | no |
| Naphthalene | 91-20-3 | B4-016-SB-5 | 32.8 | | 0.0016 | 0.56 | 111 | 91.9 | 16.7 | 585 | YES (C) |
| Nickel | 7440-02-0 | B4-019-SB-5 | 941 | | 1.3 | 49.6 | 111 | 99.1 | 64,100 | 22,400 | no |
| Nitrobenzene | 98-95-3 | B4-039-SB-5 | 0.044 | J | 0.044 | 0.08 | 111 | 0.9 | 22.4 | 1,290 | no |
| N-Nitrosodiphenylamine | 86-30-6 | B4-014-SB-1 | 0.065 | J | 0.065 | 0.08 | 111 | 0.9 | 469 | | no |
| PCBs (total) | 1336-36-3 | B4-037-SB-1 | 670 | | 0.0292 | 11.7 | 170 | 56.5 | 0.942 | | YES (C) |
| Phenanthrene | 85-01-8 | B4-056-SB-7.5 | 78.7 | | 0.00085 | 1.6 | 111 | 98.2 | | | no |
| Phenol | 108-95-2 | B4-025-SB-1 | 1.4 | | 0.019 | 0.10 | 89 | 13.5 | | 246,000 | no |
| Pyrene | 129-00-0 | B4-056-SB-7.5 | 57.8 | | 0.00069 | 1.7 | 111 | 100 | | 22,600 | no |
| Selenium | 7782-49-2 | B4-025-SB-5 | 5.6 | | 1.9 | 3.8 | 111 | 18.9 | | 5,840 | no |
| Silver | 7440-22-4 | B4-057-SB-1 | 11.1 | | 0.62 | 2.7 | 111 | 37.8 | | 5,840 | no |
| Styrene | 100-42-5 | B4-017-SB-4 | 0.0031 | J | 0.0031 | 0.006 | 111 | 0.9 | | 34,800 | no |
| Thallium | 7440-28-0 | B4-020-SB-5 | 15 | | 6.3 | 9.7 | 111 | 3.6 | | 11.7 | YES (NC) |
| Toluene | 108-88-3 | B4-020-SB-5 | 0.041 | | 0.002 | 0.009 | 111 | 67.6 | | 46,800 | no |
| Vanadium | 7440-62-2 | B4-020-SB-5 | 8,320 | | 9.4 | 506 | 111 | 100 | | 5,830 | YES (NC) |
| Xylenes | 1330-20-7 | B4-020-SB-5 | 0.018 | J | 0.003 | 0.02 | 111 | 9.0 | | 2,490 | no |
| Zinc | 7440-66-6 | B4-057-SB-1 | 36,700 | | 3.6 | 876 | 111 | 100 | | 350,000 | YES (NC) |

COPC = Constituent of Potential Concern
C = Compound was identified as a cancer COPC
NC = Compound was identified as a non-cancer COPC
TR = Target Risk
HI = Hazard Index. Although HI=1 is displayed, HQ=0.1 was applied to determine non-cancer COPCs

**Table 13 - Parcel B4**
**Assessment of Lead**

| Exposure Unit | Surface/Sub-Surface | Arithmetic Mean (mg/kg) |
|---|---|---|
| Parcel B4 (51.13 ac.) | Surface | 225.76 |
| | Sub-Surface | 260.80 |
| | Pooled | 243.69 |
| Sub-Parcel B4-1 (20.97 ac.) | Surface | 115.91 |
| | Sub-Surface | 155.61 |
| | Pooled | 134.96 |

| Adult Lead Model (ALM) Risk Levels | |
|---|---|
| Soil Concentration (mg/kg) | Probability of Blood Concentration of 10 ug/dL |
| 2,737 mg/kg | 5% |
| 3,417 mg/kg | 10% |

**Table 14 - Parcel B4**
**EPCs - Surface Soils**

| Parameter | Cancer COPC Screening Level (mg/kg) | Non-Cancer COPC Screening Level (mg/kg) | EPC Type Parcel B4 | EPC Parcel B4 (mg/kg) | EPC Type Sub-Parcel B4-1 | EPC Sub-Parcel B4-1 (mg/kg) |
|---|---|---|---|---|---|---|
| Arsenic | 3.00 | 48.0 | 95% KM (Chebyshev) UCL | **8.65** | 95% KM (t) UCL | **5.66** |
| Chromium VI | 6.33 | 348 | 95% KM (Chebyshev) UCL | 2.75 | 95% KM (t) UCL | 4.94 |
| Cobalt | 1,900 | 35.0 | 95% KM (Chebyshev) UCL | 13.1 | 95% Student's-t UCL | 6.52 |
| Cyanide | | 15.0 | 97.5% KM (Chebyshev) UCL | **24.1** | 95% Student's-t UCL | 1.23 |
| Iron | | 82,000 | 95% Student's-t UCL | **145,300** | 95% Student's-t UCL | **178,100** |
| Manganese | | 2,600 | 95% Adjusted Gamma UCL | **19,602** | 95% Student's-t UCL | **22,585** |
| Mercury | | 35.0 | 99% KM (Chebyshev) UCL | 12.9 | 95% KM (t) UCL | 0.18 |
| Vanadium | | 580 | 95% Chebyshev (Mean, Sd) UCL | **1,284** | 95% Adjusted Gamma UCL | **1,090** |
| Zinc | | 35,000 | 95% Chebyshev (Mean, Sd) UCL | 5,335 | 95% Adjusted Gamma UCL | 1,546 |
| PCBs (total) | 0.94 | | 97.5% KM (Chebyshev) UCL | **9.40** | 95% GROS Adjusted Gamma UCL | **7.27** |
| Benzo[a]anthracene | 21.0 | | 95% Chebyshev (Mean, Sd) UCL | 0.96 | 95% Adjusted Gamma UCL | 0.28 |
| Benzo[a]pyrene | 2.10 | 22.0 | 97.5% KM (Chebyshev) UCL | 1.25 | 95% Adjusted Gamma UCL | 0.32 |
| Benzo[b]fluoranthene | 21.0 | | 97.5% KM (Chebyshev) UCL | 2.56 | 95% Student's-t UCL | 0.53 |
| Dibenz[a,h]anthracene | 2.10 | | 97.5% KM (Chebyshev) UCL | 0.20 | 95% Adjusted Gamma UCL | 0.04 |
| Naphthalene | 16.7 | 58.5 | 97.5% KM (Chebyshev) UCL | 0.50 | 95% Chebyshev (Mean, Sd) UCL | 0.53 |

**Bold indicates EPC higher than lowest COPC SL**
COPC = Constituent of Potential Concern
Benzo[a]pyrene screening level was derived from the USEPA IRIS Recent Additions dated January 19, 2017
PAH compounds screening levels were adjusted based on the relative potency factor

**Table 15 - Parcel B4**
**EPCs - Sub-Surface Soils**

| Parameter | Cancer COPC Screening Level (mg/kg) | Non-Cancer COPC Screening Level (mg/kg) | EPC Type Parcel B4 | EPC Parcel B4 (mg/kg) | EPC Type Sub-Parcel B4-1 | EPC Sub-Parcel B4-1 (mg/kg) |
|---|---|---|---|---|---|---|
| Arsenic | 3.00 | 48.0 | 95% GROS Adjusted Gamma UCL | **15.6** | 95% GROS Adjusted Gamma UCL | **70.8** |
| Chromium VI | 6.33 | 348 | 95% KM (% Bootstrap) UCL | 0.94 | 95% KM (t) UCL | 1.01 |
| Cobalt | 1,900 | 35.0 | 95% H-UCL | 27.5 | 95% Adjusted Gamma UCL | 20.2 |
| Cyanide | | 15.0 | 95% KM (Chebyshev) UCL | 4.61 | 95% Adjusted Gamma UCL | 2.61 |
| Iron | | 82,000 | 95% Adjusted Gamma UCL | **83,406** | 95% Student's-t UCL | **177,300** |
| Manganese | | 2,600 | 95% Adjusted Gamma UCL | **9,095** | 95% Student's-t UCL | **21,949** |
| Mercury | | 35.0 | 97.5% KM (Chebyshev) UCL | 0.55 | 95% KM (Chebyshev) UCL | 0.17 |
| Vanadium | | 580 | 95% Chebyshev (Mean, Sd) UCL | **1,254** | 95% Adjusted Gamma UCL | **1,971** |
| Zinc | | 35,000 | 95% Adjusted Gamma UCL | 605 | 95% Chebyshev (Mean, Sd) UCL | 1,447 |
| PCBs (total) | 0.94 | | 95% Approximate Gamma KM-UCL | **2.56** | NS | NS |
| Benzo[a]anthracene | 21.0 | | 99% KM (Chebyshev) UCL | 11.2 | 95% KM (t) UCL | 0.56 |
| Benzo[a]pyrene | 2.10 | 22.0 | 99% KM (Chebyshev) UCL | **7.10** | 95% KM (t) UCL | 0.70 |
| Benzo[b]fluoranthene | 21.0 | | 99% KM (Chebyshev) UCL | 13.9 | 95% KM (t) UCL | 1.42 |
| Dibenz[a,h]anthracene | 2.10 | | 99% KM (Chebyshev) UCL | 1.45 | 95% KM (t) UCL | 0.12 |
| Naphthalene | 16.7 | 58.5 | 99% KM (Chebyshev) UCL | 8.74 | 95% Chebyshev (Mean, Sd) UCL | 0.41 |

**Bold indicates EPC higher than lowest COPC SL**
NS indicates not sampled in specified exposure unit
COPC = Constituent of Potential Concern
Benzo[a]pyrene screening level was derived from the USEPA IRIS Recent Additions dated January 19, 2017
PAH compounds screening levels were adjusted based on the relative potency factor

**Table 16 - Parcel B4**
**EPCs - Pooled Soils (Surface & Sub-Surface)**

| Parameter | Cancer COPC Screening Level (mg/kg) | Non-Cancer COPC Screening Level (mg/kg) | EPC Type Parcel B4 | EPC Parcel B4 (mg/kg) | EPC Type Sub-Parcel B4-1 | EPC Sub-Parcel B4-1 (mg/kg) |
|---|---|---|---|---|---|---|
| Arsenic | 3.00 | 48.0 | 95% KM (BCA) UCL | **8.99** | 95% KM (BCA) UCL | **16.3** |
| Chromium VI | 6.33 | 348 | 95% KM (Chebyshev) UCL | 1.81 | 95% GROS Adjusted Gamma UCL | 4.53 |
| Cobalt | 1,900 | 35.0 | 95% KM (Chebyshev) UCL | 18.2 | 95% Adjusted Gamma UCL | 11.0 |
| Cyanide | | 15.0 | 97.5% KM (Chebyshev) UCL | 13.1 | 95% Adjusted Gamma UCL | 1.49 |
| Iron | | 82,000 | 95% Approximate Gamma UCL | **110,800** | 95% Student's-t UCL | **163,800** |
| Manganese | | 2,600 | 95% Approximate Gamma UCL | **13,082** | 95% Chebyshev (Mean, Sd) UCL | **26,539** |
| Mercury | | 35.0 | 97.5% KM (Chebyshev) UCL | 4.41 | 95% KM (Chebyshev) UCL | 0.19 |
| Vanadium | | 580 | 95% Chebyshev (Mean, Sd) UCL | **1,034** | 95% Adjusted Gamma UCL | **1,039** |
| Zinc | | 35,000 | 95% H-UCL | 1,542 | 95% H-UCL | 1,170 |
| PCBs (total) | 0.94 | | 97.5% KM (Chebyshev) UCL | **6.19** | 95% GROS Adjusted Gamma UCL | **7.27** |
| Benzo[a]anthracene | 21.0 | | 97.5% KM (Chebyshev) UCL | 4.13 | 95% KM (Chebyshev) UCL | 0.53 |
| Benzo[a]pyrene | 2.10 | 22.0 | 97.5% KM (Chebyshev) UCL | **2.84** | 95% KM (Chebyshev) UCL | 0.64 |
| Benzo[b]fluoranthene | 21.0 | | 97.5% KM (Chebyshev) UCL | 5.61 | 95% KM (Chebyshev) UCL | 1.30 |
| Dibenz[a,h]anthracene | 2.10 | | 97.5% KM (Chebyshev) UCL | 0.56 | 95% KM (Chebyshev) UCL | 0.11 |
| Naphthalene | 16.7 | 58.5 | 97.5% KM (Chebyshev) UCL | 3.13 | 95% H-UCL | 0.25 |

**Bold indicates EPC higher than lowest COPC SL**
COPC = Constituent of Potential Concern
Benzo[a]pyrene screening level was derived from the USEPA IRIS Recent Additions dated January 19, 2017
PAH compounds screening levels were adjusted based on the relative potency factor

**Table 17 - Parcel B4**
**Composite Worker Surface Soils**
**Risk Ratios**

| Parameter | Target Organs | Parcel B4 (51.13 ac.) | | | | | Sub-Parcel B4-1 (20.97 ac.) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Composite Worker | | | | | Composite Worker | | | |
| | | | RSLs (mg/kg) | | Risk Ratios | | | RSLs (mg/kg) | | Risk Ratios | |
| | | EPC mg/kg | Cancer | Non-Cancer | Risk | HQ | EPC mg/kg | Cancer | Non-Cancer | Risk | HQ |
| **Arsenic** | **Cardiovascular; Dermal** | 8.65 | 3.00 | 480 | 2.9E-06 | 0.02 | 5.66 | 3.00 | 480 | 1.9E-06 | 0.01 |
| **Chromium VI** | **Respiratory** | 2.75 | 6.33 | 3,480 | 4.3E-07 | 0.0008 | 4.94 | 6.33 | 3,480 | 7.8E-07 | 0.001 |
| **Cobalt** | **None Specified** | 13.1 | 1,900 | 350 | 6.9E-09 | 0.04 | 6.52 | 1,900 | 350 | 3.4E-09 | 0.02 |
| **Cyanide** | **None Specified** | 24.1 | | 150 | | 0.2 | 1.23 | | 150 | | 0.008 |
| **Iron** | **None Specified** | 145,300 | | 820,000 | | 0.2 | 178,100 | | 820,000 | | 0.2 |
| **Manganese** | **Nervous** | 19,602 | | 26,000 | | 0.8 | 22,585 | | 26,000 | | 0.9 |
| **Mercury** | **Nervous** | 12.9 | | 350 | | 0.04 | 0.18 | | 350 | | 0.0005 |
| **Vanadium** | **Dermal** | 1,284 | | 5,800 | | 0.2 | 1,090 | | 5,800 | | 0.2 |
| **Zinc** | **Hematologic; Immune** | 5,335 | | 350,000 | | 0.02 | 1,546 | | 350,000 | | 0.004 |
| **PCBs (total)** | | 9.40 | 0.94 | | 1.0E-05 | | 7.27 | 0.94 | | 7.7E-06 | |
| **Benzo[a]anthracene** | | 0.96 | 21.0 | | 4.6E-08 | | 0.28 | 21.0 | | 1.3E-08 | |
| **Benzo[a]pyrene** | **None Specified** | 1.25 | 2.10 | 220 | 6.0E-07 | 0.006 | 0.32 | 2.10 | 220 | 1.5E-07 | 0.001 |
| **Benzo[b]fluoranthene** | | 2.56 | 21.0 | | 1.2E-07 | | 0.53 | 21.0 | | 2.5E-08 | |
| **Dibenz[a,h]anthracene** | | 0.20 | 2.10 | | 9.5E-08 | | 0.04 | 2.10 | | 1.9E-08 | |
| **Naphthalene** | **Nervous; Respiratory** | 0.50 | 16.7 | 585 | 3.0E-08 | 0.0009 | 0.53 | 16.7 | 585 | 3.2E-08 | 0.0009 |
| | | | | | **1E-05** | ↓ | | | | **1E-05** | ↓ |

RSLs were obtained from the EPA Regional Screening Levels at https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-may-2016

| | | |
|---|---|---|
| Total HI | Cardiovascular | 0 |
| | Dermal | 0 |
| | Respiratory | 0 |
| | Nervous | 1 |
| | Hematologic | 0 |
| | Immune | 0 |
| | None Specified | 0 |

| | | |
|---|---|---|
| Total HI | Cardiovascular | 0 |
| | Dermal | 0 |
| | Respiratory | 0 |
| | Nervous | 1 |
| | Hematologic | 0 |
| | Immune | 0 |
| | None Specified | 0 |

**Table 18 - Parcel B4**
**Composite Worker Sub-Surface Soils**
**Risk Ratios**

| Parameter | Target Organs | Parcel B4 (51.13 ac.) | | | | | Sub-Parcel B4-1 (20.97 ac.) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Composite Worker | | | | | Composite Worker | | | |
| | | | RSLs (mg/kg) | | Risk Ratios | | | RSLs (mg/kg) | | Risk Ratios | |
| | | EPC mg/kg | Cancer | Non-Cancer | Risk | HQ | EPC mg/kg | Cancer | Non-Cancer | Risk | HQ |
| **Arsenic** | **Cardiovascular; Dermal** | 15.6 | 3.00 | 480 | 5.2E-06 | 0.03 | 70.8 | 3.00 | 480 | 2.4E-05 | 0.1 |
| **Chromium VI** | **Respiratory** | 0.94 | 6.33 | 3,480 | 1.5E-07 | 0.0003 | 1.01 | 6.33 | 3,480 | 1.6E-07 | 0.0003 |
| **Cobalt** | **None Specified** | 27.5 | 1,900 | 350 | 1.4E-08 | 0.08 | 20.2 | 1,900 | 350 | 1.1E-08 | 0.06 |
| **Cyanide** | **None Specified** | 4.61 | | 150 | | 0.03 | 2.61 | | 150 | | 0.02 |
| **Iron** | **None Specified** | 83,406 | | 820,000 | | 0.1 | 177,300 | | 820,000 | | 0.2 |
| **Manganese** | **Nervous** | 9,095 | | 26,000 | | 0.3 | 21,949 | | 26,000 | | 0.8 |
| **Mercury** | **Nervous** | 0.55 | | 350 | | 0.002 | 0.17 | | 350 | | 0.0005 |
| **Vanadium** | **Dermal** | 1,254 | | 5,800 | | 0.2 | 1,971 | | 5,800 | | 0.3 |
| **Zinc** | **Hematologic; Immune** | 605 | | 350,000 | | 0.002 | 1,447 | | 350,000 | | 0.004 |
| **PCBs (total)** | | 2.56 | 0.94 | | 2.7E-06 | | NS | 0.94 | | | |
| **Benzo[a]anthracene** | | 11.2 | 21.0 | | 5.3E-07 | | 0.56 | 21.0 | | 2.7E-08 | |
| **Benzo[a]pyrene** | **None Specified** | 7.10 | 2.10 | 220 | 3.4E-06 | 0.03 | 0.70 | 2.10 | 220 | 3.3E-07 | 0.003 |
| **Benzo[b]fluoranthene** | | 13.9 | 21.0 | | 6.6E-07 | | 1.42 | 21.0 | | 6.8E-08 | |
| **Dibenz[a,h]anthracene** | | 1.45 | 2.10 | | 6.9E-07 | | 0.12 | 2.10 | | 5.7E-08 | |
| **Naphthalene** | **Nervous; Respiratory** | 8.74 | 16.70 | 585 | 5.2E-07 | 0.01 | 0.41 | 16.7 | 585 | 2.5E-08 | 0.0007 |
| | | | | | **1E-05** | ↓ | | | | **2E-05** | ↓ |

NS indicates not sampled in the specified exposure unit
RSLs were obtained from the EPA Regional Screening Levels at https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-may-2016

| | | |
|---|---|---|
| Total HI | Cardiovascular | 0 |
| | Dermal | 0 |
| | Respiratory | 0 |
| | Nervous | 0 |
| | Hematologic | 0 |
| | Immune | 0 |
| | None Specified | 0 |

| | | |
|---|---|---|
| Total HI | Cardiovascular | 0 |
| | Dermal | 0 |
| | Respiratory | 0 |
| | Nervous | 1 |
| | Hematologic | 0 |
| | Immune | 0 |
| | None Specified | 0 |

**Table 19 - Parcel B4**
**Composite Worker Pooled Soils**
**Risk Ratios**

| Parameter | Target Organs | Parcel B4 (51.13 ac.) EPC mg/kg | Composite Worker RSLs (mg/kg) Cancer | Composite Worker RSLs (mg/kg) Non-Cancer | Risk Ratios Risk | Risk Ratios HQ | Sub-Parcel B4-1 (20.97 ac.) EPC mg/kg | Composite Worker RSLs (mg/kg) Cancer | Composite Worker RSLs (mg/kg) Non-Cancer | Risk Ratios Risk | Risk Ratios HQ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Arsenic** | **Cardiovascular; Dermal** | 8.99 | 3.00 | 480 | 3.0E-06 | 0.02 | 16.3 | 3.00 | 480 | 5.4E-06 | 0.03 |
| **Chromium VI** | **Respiratory** | 1.81 | 6.33 | 3,480 | 2.9E-07 | 0.0005 | 4.53 | 6.33 | 3,480 | 7.2E-07 | 0.001 |
| **Cobalt** | **None Specified** | 18.2 | 1,900 | 350 | 9.6E-09 | 0.05 | 11.0 | 1,900 | 350 | 5.8E-09 | 0.03 |
| **Cyanide** | **None Specified** | 13.1 | | 150 | | 0.09 | 1.49 | | 150 | | 0.01 |
| **Iron** | **None Specified** | 110,800 | | 820,000 | | 0.1 | 163,800 | | 820,000 | | 0.2 |
| **Manganese** | **Nervous** | 13,082 | | 26,000 | | 0.5 | 26,539 | | 26,000 | | 1 |
| **Mercury** | **Nervous** | 4.41 | | 350 | | 0.01 | 0.19 | | 350 | | 0.0005 |
| **Vanadium** | **Dermal** | 1,034 | | 5,800 | | 0.2 | 1,039 | | 5,800 | | 0.2 |
| **Zinc** | **Hematologic; Immune** | 1,542 | | 350,000 | | 0.004 | 1,170 | | 350,000 | | 0.003 |
| **PCBs (total)** | | 6.19 | 0.94 | | 6.6E-06 | | 7.27 | 0.94 | | 7.7E-06 | |
| **Benzo[a]anthracene** | | 4.13 | 21.0 | | 2.0E-07 | | 0.53 | 21.0 | | 2.5E-08 | |
| **Benzo[a]pyrene** | **None Specified** | 2.84 | 2.10 | 220 | 1.4E-06 | 0.01 | 0.64 | 2.10 | 220 | 3.0E-07 | 0.003 |
| **Benzo[b]fluoranthene** | | 5.61 | 21.0 | | 2.7E-07 | | 1.30 | 21.0 | | 6.2E-08 | |
| **Dibenz[a,h]anthracene** | | 0.56 | 2.10 | | 2.7E-07 | | 0.11 | 2.10 | | 5.2E-08 | |
| **Naphthalene** | **Nervous; Respiratory** | 3.13 | 16.7 | 585 | 1.9E-07 | 0.005 | 0.25 | 16.7 | 585 | 1.5E-08 | 0.0004 |
| | | | | | **1E-05** | ↓ | | | | **1E-05** | ↓ |

RSLs were obtained from the EPA Regional Screening Levels at https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-may-2016

| | | |
|---|---|---|
| Total HI | Cardiovascular | 0 |
| | Dermal | 0 |
| | Respiratory | 0 |
| | Nervous | 1 |
| | Hematologic | 0 |
| | Immune | 0 |
| | None Specified | 0 |

| | | |
|---|---|---|
| Total HI | Cardiovascular | 0 |
| | Dermal | 0 |
| | Respiratory | 0 |
| | Nervous | 1 |
| | Hematologic | 0 |
| | Immune | 0 |
| | None Specified | 0 |

**Table 20 - Parcel B4**
**Construction Worker Surface Soils**
**Risk Ratios**

| 250 Day | | Parcel B4 (51.13 ac.) | | | | | Sub-Parcel B4-1 (20.97 ac.) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Construction Worker | | | | | Construction Worker | | | |
| | | | RSLs (mg/kg) | | Risk Ratios | | | RSLs (mg/kg) | | Risk Ratios | |
| Parameter | Target Organs | EPC mg/kg | Cancer | Non-Cancer | Risk | HQ | EPC mg/kg | Cancer | Non-Cancer | Risk | HQ |
| Arsenic | Cardiovascular; Dermal | 8.65 | 15.1 | 96.5 | 5.7E-07 | 0.09 | 5.66 | 15.1 | 96.1 | 3.7E-07 | 0.06 |
| Chromium VI | Respiratory | 2.75 | 21.7 | 801 | 1.3E-07 | 0.003 | 4.94 | 21.3 | 800 | 2.3E-07 | 0.006 |
| Cobalt | None Specified | 13.1 | 5,423 | 960 | 2.4E-09 | 0.01 | 6.52 | 3,676 | 930 | 1.8E-09 | 0.007 |
| Cyanide | None Specified | 24.1 | | 18.6 | | 1 | 1.23 | | 21.2 | | 0.06 |
| Iron | None Specified | 145,300 | | 240,541 | | 0.6 | 178,100 | | 240,541 | | 0.7 |
| Manganese | Nervous | 19,602 | | 4,261 | | 5 | 22,585 | | 4,027 | | 6 |
| Mercury | Nervous | 12.9 | | 494 | | 0.03 | 0.18 | | 494 | | 0.0004 |
| Vanadium | Dermal | 1,284 | | 1,605 | | 0.8 | 1,090 | | 1,588 | | 0.7 |
| Zinc | Hematologic; Immune | 5,335 | | 103,089 | | 0.05 | 1,546 | | 103,089 | | 0.01 |
| PCBs (total) | | 9.40 | 6.70 | | 1.4E-06 | | 7.27 | 6.90 | | 1.1E-06 | |
| Benzo[a]anthracene | | 0.96 | 165.2 | | 5.8E-09 | | 0.28 | 166.7 | | 1.7E-09 | |
| Benzo[a]pyrene | None Specified | 1.25 | 17.6 | 16.1 | 7.1E-08 | 0.08 | 0.32 | 17.6 | 17.7 | 1.8E-08 | 0.02 |
| Benzo[b]fluoranthene | | 2.56 | 175.3 | | 1.5E-08 | | 0.53 | 175.7 | | 3.0E-09 | |
| Dibenz[a,h]anthracene | | 0.20 | 17.7 | | 1.1E-08 | | 0.04 | 17.7 | | 2.3E-09 | |
| Naphthalene | Nervous; Respiratory | 0.50 | 41.2 | 60.0 | 1.2E-08 | 0.008 | 0.53 | 47.0 | 68.5 | 1.1E-08 | 0.008 |
| | | | | | 2E-06 | ↓ | | | | 2E-06 | ↓ |

SSLs calculated using equations in the EPA Supplemental Guidance dated 2002

Guidance Equation Input Assumptions:

5 cars/day (2 tons/car)
5 trucks/day (20 tons/car)
3 meter source depth thickness

| | | |
|---|---|---|
| Total HI | Cardiovascular | 0 |
| | Dermal | 1 |
| | Respiratory | 0 |
| | Nervous | 5 |
| | Hematologic | 0 |
| | Immune | 0 |
| | None Specified | 2 |

| | | |
|---|---|---|
| Total HI | Cardiovascular | 0 |
| | Dermal | 1 |
| | Respiratory | 0 |
| | Nervous | 6 |
| | Hematologic | 0 |
| | Immune | 0 |
| | None Specified | 1 |

**Table 21 - Parcel B4**
**Construction Worker Sub-Surface Soils**
**Risk Ratios**

| 250 Day | | Parcel B4 (51.13 ac.) | | | | | Sub-Parcel B4-1 (20.97 ac.) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Construction Worker | | | | | Construction Worker | | | |
| | | | RSLs (mg/kg) | | Risk Ratios | | | RSLs (mg/kg) | | Risk Ratios | |
| **Parameter** | **Target Organs** | **EPC mg/kg** | **Cancer** | **Non-Cancer** | **Risk** | **HQ** | **EPC mg/kg** | **Cancer** | **Non-Cancer** | **Risk** | **HQ** |
| **Arsenic** | **Cardiovascular; Dermal** | 15.6 | 15.1 | 96.5 | 1.0E-06 | 0.2 | 70.8 | 15.1 | 96.1 | 4.7E-06 | 0.7 |
| **Chromium VI** | **Respiratory** | 0.94 | 21.7 | 801 | 4.3E-08 | 0.001 | 1.01 | 21.3 | 800 | 4.7E-08 | 0.001 |
| **Cobalt** | **None Specified** | 27.5 | 5,423 | 960 | 5.1E-09 | 0.03 | 20.2 | 3,676 | 930 | 5.5E-09 | 0.02 |
| **Cyanide** | **None Specified** | 4.61 | | 18.6 | | 0.2 | 2.61 | | 21.2 | | 0.1 |
| **Iron** | **None Specified** | 83,406 | | 240,541 | | 0.3 | 177,300 | | 240,541 | | 0.7 |
| **Manganese** | **Nervous** | 9,095 | | 4,261 | | 2 | 21,949 | | 4,027 | | 5 |
| **Mercury** | **Nervous** | 0.55 | | 494 | | 0.001 | 0.17 | | 494 | | 0.0003 |
| **Vanadium** | **Dermal** | 1,254 | | 1,605 | | 0.8 | 1,971 | | 1,588 | | 1 |
| **Zinc** | **Hematologic; Immune** | 605 | | 103,089 | | 0.006 | 1,447 | | 103,089 | | 0.01 |
| **PCBs (total)** | | 2.56 | 6.70 | | 3.8E-07 | | NS | 6.90 | | | |
| **Benzo[a]anthracene** | | 11.2 | 165.2 | | 6.8E-08 | | 0.56 | 166.7 | | 3.4E-09 | |
| **Benzo[a]pyrene** | **None Specified** | 7.10 | 17.6 | 16.1 | 4.0E-07 | 0.4 | 0.70 | 17.6 | 17.7 | 4.0E-08 | 0.04 |
| **Benzo[b]fluoranthene** | | 13.9 | 175.3 | | 7.9E-08 | | 1.42 | 175.7 | | 8.1E-09 | |
| **Dibenz[a,h]anthracene** | | 1.45 | 17.7 | | 8.2E-08 | | 0.12 | 17.7 | | 6.8E-09 | |
| **Naphthalene** | **Nervous; Respiratory** | 8.74 | 41.2 | 60.0 | 2.1E-07 | 0.1 | 0.41 | 47.0 | 68.5 | 8.7E-09 | 0.006 |
| | | | | | **2E-06** | ↓ | | | | **5E-06** | ↓ |

NS indicates not sampled in specified exposure unit
SSLs calculated using equations in the EPA Supplemental Guidance dated 2002
Guidance Equation Input Assumptions:
5 cars/day (2 tons/car)
5 trucks/day (20 tons/car)
3 meter source depth thickness

| | | |
|---|---|---|
| Total HI | Cardiovascular | 0 |
| | Dermal | 1 |
| | Respiratory | 0 |
| | Nervous | 2 |
| | Hematologic | 0 |
| | Immune | 0 |
| | None Specified | 1 |

| | | |
|---|---|---|
| Total HI | Cardiovascular | 1 |
| | Dermal | 2 |
| | Respiratory | 0 |
| | Nervous | 5 |
| | Hematologic | 0 |
| | Immune | 0 |
| | None Specified | 1 |

**Table 22 - Parcel B4**
**Construction Worker Pooled Soils**
**Risk Ratios**

| 250 Day | | Parcel B4 (51.13 ac.) | | | | | Sub-Parcel B4-1 (20.97 ac.) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Construction Worker | | | | | Construction Worker | | | |
| | | | RSLs (mg/kg) | | Risk Ratios | | | RSLs (mg/kg) | | Risk Ratios | |
| Parameter | Target Organs | EPC mg/kg | Cancer | Non-Cancer | Risk | HQ | EPC mg/kg | Cancer | Non-Cancer | Risk | HQ |
| **Arsenic** | **Cardiovascular; Dermal** | 8.99 | 15.1 | 96.5 | 6.0E-07 | 0.09 | 16.3 | 15.1 | 96.1 | 1.1E-06 | 0.2 |
| **Chromium VI** | **Respiratory** | 1.81 | 21.7 | 801 | 8.3E-08 | 0.002 | 4.53 | 21.3 | 800 | 2.1E-07 | 0.006 |
| **Cobalt** | **None Specified** | 18.2 | 5,423 | 960 | 3.4E-09 | 0.02 | 11.0 | 3,676 | 930 | 3.0E-09 | 0.01 |
| **Cyanide** | **None Specified** | 13.1 | | 18.6 | | 0.7 | 1.49 | | 21.2 | | 0.07 |
| **Iron** | **None Specified** | 110,800 | | 240,541 | | 0.5 | 163,800 | | 240,541 | | 0.7 |
| **Manganese** | **Nervous** | 13,082 | | 4,261 | | 3 | 26,539 | | 4,027 | | 7 |
| **Mercury** | **Nervous** | 4.41 | | 494 | | 0.009 | 0.19 | | 494 | | 0.0004 |
| **Vanadium** | **Dermal** | 1,034 | | 1,605 | | 0.6 | 1,039 | | 1,588 | | 0.7 |
| **Zinc** | **Hematologic; Immune** | 1,542 | | 103,089 | | 0.01 | 1,170 | | 103,089 | | 0.01 |
| **PCBs (total)** | | 6.19 | 6.70 | | 9.2E-07 | | 7.27 | 6.90 | | 1.1E-06 | |
| **Benzo[a]anthracene** | | 4.13 | 165.2 | | 2.5E-08 | | 0.53 | 166.7 | | 3.2E-09 | |
| **Benzo[a]pyrene** | **None Specified** | 2.84 | 17.6 | 16.1 | 1.6E-07 | 0.2 | 0.64 | 17.6 | 17.7 | 3.6E-08 | 0.04 |
| **Benzo[b]fluoranthene** | | 5.61 | 175.3 | | 3.2E-08 | | 1.30 | 175.7 | | 7.4E-09 | |
| **Dibenz[a,h]anthracene** | | 0.56 | 17.7 | | 3.2E-08 | | 0.11 | 17.7 | | 6.2E-09 | |
| **Naphthalene** | **Nervous; Respiratory** | 3.13 | 41.2 | 60.0 | 7.6E-08 | 0.05 | 0.25 | 47.0 | 68.5 | 5.3E-09 | 0.004 |
| | | | | | **2E-06** | ↓ | | | | **2E-06** | ↓ |

SSLs calculated using equations in the EPA Supplemental Guidance dated 2002

Guidance Equation Input Assumptions:

5 cars/day (2 tons/car)
5 trucks/day (20 tons/car)
3 meter source depth thickness

| | | |
|---|---|---|
| Total HI | Cardiovascular | 0 |
| | Dermal | 1 |
| | Respiratory | 0 |
| | Nervous | 3 |
| | Hematologic | 0 |
| | Immune | 0 |
| | None Specified | 1 |

| | | |
|---|---|---|
| Total HI | Cardiovascular | 0 |
| | Dermal | 1 |
| | Respiratory | 0 |
| | Nervous | 7 |
| | Hematologic | 0 |
| | Immune | 0 |
| | None Specified | 1 |

# APPENDIX A

**Table 1 - Soil Samples**
Parcel B4 (Full) Sampling Plan Summary
Former Sparrows Point Steel Mill
Sparrows Point, Maryland

| Sub-Parcel | 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 |
|---|---|---|---|---|---|---|---|---|---|
| B4-1 | Drip Legs | | Drip Legs Drawing 5885B | Coke oven gas condensate was removed from the gas pipelines at drip legs located throughout the distribution system. The condensate was typically discharged to drums, although it is possible some spilled out of the drums and on to the ground. A subset of the drip legs was selected for investigation. | 2 | B4-001 and B4-002 | Total depth of 20 feet or groundwater. | 0-1', 4-5', 9-10' bgs. 4-5' interval may be adjusted in the field based on observations or field screening. | VOC, SVOC, Metals, DRO/GRO, PCBs (0-1') |
| B4-1 | REC Oil House | REC 8C, Finding 203 | REC Location Map/ Drawing 5020 | The Phase I ESA identified this particular oil house to be a REC, because the conditions and status of the building were unknown. The oil house was positively identified on several sets of historical drawings. Current aerial images indicate that this structure is no longer in use and has been demolished. | 3 | B4-003 through B4-005 | 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, PCBs (0-1') |
| B4-1 | Emergency Plating Pit | | Drawing 5120-A | Investigate potential impacts related to the emergency plating pit (potential leaks or releases). | 2 | B4-006 and B4-007 | Total depth of 20 feet or groundwater. | 0-1', 4-5', 9-10' bgs. 4-5' interval may be adjusted in the field based on observations or field screening. | VOC, SVOC, Metals, DRO/GRO, PCBs (0-1') |
| B4-1 | Substation/ Transformers | | Drawing 5120 | Investigate potential impacts related to a substation/transformers which are not on the list of PCB-containing equipment (potential leaks or releases). | 2 | B4-008 and B4-009 | Total depth of 20 feet or groundwater. | 0-1', 4-5', 9-10' bgs. 4-5' interval may be adjusted in the field based on observations or field screening. | VOC, SVOC, Metals, DRO/GRO, PCBs (0-1') |
| B4-1 | Parcel B4 Coverage | | | Investigate potential impacts related to any historical activities which may have occurred on the site (potential leaks or releases). | 3 | B4-010 through B4-012 | Total depth of 20 feet or groundwater. | 0-1', 4-5', 9-10' bgs. 4-5' interval may be adjusted in the field based on observations or field screening. | VOC, SVOC, Metals, DRO/GRO, PCBs (0-1') |

**Table 1 - Soil Samples**
Parcel B4 (Full) Sampling Plan Summary
Former Sparrows Point Steel Mill
Sparrows Point, Maryland

| Sub-Parcel | 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 |
|---|---|---|---|---|---|---|---|---|---|
| B4-2 | Desulfurizer Stations | | Drawings 5014 and 5020 | Investigate potential impacts related to the desulfurizer stations (potential leaks or releases). | 4 | B4-014 through B4-017 | Total depth of 20 feet or groundwater. | 0-1', 4-5', 9-10' bgs. 4-5' interval may be adjusted in the field based on observations or field screening. | VOC, SVOC, Metals, DRO/GRO, PCBs (0-1') |
| B4-2 | Drip Legs | | Drip Legs Drawing 5885B | Coke oven gas condensate was removed from the gas pipelines at drip legs located throughout the distribution system. The condensate was typically discharged to drums, although it is possible some spilled out of the drums and on to the ground. A subset of the drip legs was selected for investigation. | 8 | B4-018 through B4-025 | Total depth of 20 feet or groundwater. | 0-1', 4-5', 9-10' bgs. 4-5' interval may be adjusted in the field based on observations or field screening. | VOC, SVOC, Metals, DRO/GRO, PCBs (0-1') |
| B4-2 | Mould Treatment Building | | Drawing 5026 | Investigate potential impacts related to the mould treatment building (potential leaks or releases). | 2 | B4-026 and B4-027 | Total depth of 20 feet or groundwater. | 0-1', 4-5', 9-10' bgs. 4-5' interval may be adjusted in the field based on observations or field screening. | VOC, SVOC, Metals, DRO/GRO, PCBs (0-1') |
| B4-2 | Fuel Department | | Drawing 5014 | Investigate potential impacts related to the fuel department (potential leaks or releases). | 2 | B4-028 and B4-029 | Total depth of 20 feet or groundwater. | 0-1', 4-5', 9-10' bgs. 4-5' interval may be adjusted in the field based on observations or field screening. | VOC, SVOC, Metals, DRO/GRO, PCBs (0-1') |

**Table 1 - Soil Samples**
Parcel B4 (Full) Sampling Plan Summary
Former Sparrows Point Steel Mill
Sparrows Point, Maryland

| Sub-Parcel | 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 |
|---|---|---|---|---|---|---|---|---|---|
| B4-2 | Non-REC Oil House | | Drawing 5020 | Investigate potential impacts related to the oil house classified as a non-REC (potential leaks or releases). | 2 | B4-030 and B4-031 | Total depth of 20 feet or groundwater. | 0-1', 4-5', 9-10' bgs. 4-5' interval may be adjusted in the field based on observations or field screening. | VOC, SVOC, Metals, DRO/GRO, PCBs (0-1') |
| B4-2 | Gas Pump Station | REC 8D, Finding 204 | REC Location Map/ Drawing 5014 | Based on interviews conducted by Weaver Boos, they determined this gas pumping station to be a REC because the station was associated with coke oven gas. It is possible that a historical release of gas condensate may have occurred. The gas pumping station was positively identified on several sets of historical drawings. Current aerial images indicate that this structure is no longer in use and has been demolished. | 3 | B4-032 through B4-034 | Total depth of 20 feet or groundwater. | 0-1', 4-5', 9-10' bgs. 4-5' interval may be adjusted in the field based on observations or field screening. | VOC, SVOC, Metals, DRO/GRO, PCBs (0-1') |
| B4-2 | Substations/ Transformers | | Drawings 5020 and 5120 | Investigate potential impacts related to substations/transformers which may have included PCB-containing equipment (potential leaks or releases). | 4 | B4-035 through B4-038 | Total depth of 20 feet or groundwater. | 0-1', 4-5', 9-10' bgs. 4-5' interval may be adjusted in the field based on observations or field screening. | VOC, SVOC, Metals, DRO/GRO, PCBs (0-1') |
| B4-1 & B4-2 | Tar Tanks | | Drawing 5020 | Investigate potential impacts related to the tar tanks (potential leaks or releases). | 4 | B4-039 through B4-042 | 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, PCBs (0-1') |

**Table 1 - Soil Samples**
Parcel B4 (Full) Sampling Plan Summary
Former Sparrows Point Steel Mill
Sparrows Point, Maryland

| Sub-Parcel | 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 |
|---|---|---|---|---|---|---|---|---|---|
| B4-2 | Thickener Tanks | | Drawings 5014, 5020, and 5121 | Investigate potential impacts related to the thickener tanks (potential leaks or releases). | 4 | B4-043 through B4-046 | Total depth of 20 feet or groundwater. | 0-1', 4-5', 9-10' bgs. 4-5' interval may be adjusted in the field based on observations or field screening. | VOC, SVOC, Metals, DRO/GRO, PCBs (0-1') |
| B4-2 | Parcel B4 Coverage | | | Investigate potential impacts related to any historical activities which may have occurred on the site (potential leaks or releases). | 5 | B4-013; B4-047 through B4-050 | Total depth of 20 feet or groundwater. | 0-1', 4-5', 9-10' bgs. 4-5' interval may be adjusted in the field based on observations or field screening. | VOC, SVOC, Metals, DRO/GRO, PCBs (0-1') |
| B4-2 | Mould Yards | | Drawing 5120 | MDE Request. Investigate potential impacts related to the mould yards (potential leaks or releases). | 2 | B4-054 and B4-055 | Total depth of 20 feet or groundwater. | 0-1', 4-5', 9-10' bgs. 4-5' interval may be adjusted in the field based on observations or field screening. | VOC, SVOC, Metals, DRO/GRO, PCBs (0-1') |
| B4-2 | Water Treatment Area | | Drawing 5526 | MDE Request. Investigate potential impacts related to the water treatment area (potential leaks or releases). | 1 | B4-056 | Total depth of 20 feet or groundwater. | 0-1', 4-5', 9-10' bgs. 4-5' interval may be adjusted in the field based on observations or field screening. | VOC, SVOC, Metals, DRO/GRO, PCBs (0-1') |
| B4-2 | No. 3 Open Hearth | | Drawings 5121 and 5127 | MDE Request. Investigate potential impacts related to the No. 3 Open Hearth (potential leaks or releases). | 1 | B4-057 | Total depth of 20 feet or groundwater. | 0-1', 4-5', 9-10' bgs. 4-5' interval may be adjusted in the field based on observations or field screening. | VOC, SVOC, Metals, DRO/GRO, PCBs (0-1') |
| B4-2 | Additional PCB Investigation | | | MDE Request. Investigate potential impacts in the vicinity of an elevated PCB detection (potential leaks or releases). | 2 | B4-058 and B4-059 | Total depth of 20 feet or groundwater. | 0-1', 4-5', 9-10' bgs. 4-5' interval may be adjusted in the field based on observations or field screening. | VOC, SVOC, Metals, DRO/GRO, PCBs (0-1') |
| | | | | **Total** | 56 | | | | |

Soil Borings Sampling Density Requirements (from **Worksheet 17 - Sampling Design and Rationale**)
*Engineered Barrier (71-100 acres): 1 boring per 5 acres with no less than 35.*
*No Engineered Barrier (1-15 acres): 0.5 boring per acre with no less than 3.*
Engineered Barrier (70.5 acres) = **35 borings required, 53 proposed**
No Engineered Barrier (1.6 acres) = **3 borings required, 3 proposed**

VOCs - Volatile Organic Compounds (Target Compound List)
SVOCs - Semivolatile Organic Compounds (Target Compound List)
Metals - (Target Analyte List plus Hexavalent Chromium and Cyanide)
PCBs - Polychlorinated Biphenyls
DRO/GRO - Diesel Range Organics/Gasoline Range Organics
bgs - Below Ground Surface

**Table 2 - Sub-Slab Soil Gas Samples**
Parcel B4 (Full) Sampling Plan Summary
Former Sparrows Point Steel Mill
Sparrows Point, Maryland

| Source Area/ Description | RATIONALE | Number of Locations | Sample Locations | Boring Depth | Sample Depth | Analytical Parameters: Sub-Slab Soil Gas |
|---|---|---|---|---|---|---|
| Maintenance Shop (Coverage) | Investigate potential impacts related to any historical activities which may have occurred within the maintenance shop (potential leaks or releases). | 1 | B4-051 | 6 inches below bottom of concrete slab | 6 inches below bottom of concrete slab | VOCs |
| Maintenance Shop (Parts Washer) | Investigate potential impacts related to the observed parts washer (potential leaks or releases). | 1 | B4-052 | 6 inches below bottom of concrete slab | 6 inches below bottom of concrete slab | VOCs |
| Maintenance Shop (Storage Enclosure & Oil Release) | Investigate potential impacts related to the storage enclosure and small oil release (potential leaks or releases). | 1 | B4-053 | 6 inches below bottom of concrete slab | 6 inches below bottom of concrete slab | VOCs |
| | **Total** | 3 | | | | |

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

*Sub-Slab: 1 sample collected per 20,000 $ft^2$, with a minimum of 3 per building*

Maintenance Shop (5,750 $ft^2$) = 3 **Samples**

# APPENDIX B

ARM Group Inc.
Earth Resource Engineers and Consultants

# Boring ID: B4-001-SB

(page 1 of 1)

| | |
|---|---|
| Client | : EnviroAnalytics Group |
| ARM Project No. | : 150300M-7-3 |
| Project Description | : Sparrows Point - Parcel B4 |
| Site Location | : Sparrows Point, MD |
| ARM Representative | : L. Perrin |
| Checked by | : W. Mader P.G., CPSS |
| Drilling Company | : Green Services, Inc |
| Driller | : Tim Niblett |
| Drilling Equipment | : Geoprobe 7822DT |

| | |
|---|---|
| Date | : 3/1/2016 |
| Weather | : 40s, sunny |
| Northing (US ft) | : 564,546.4789 |
| Easting (US ft) | : 1,457,554.39 |

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample No/Interval | DESCRIPTION | USCS | REMARKS |
|---|---|---|---|---|---|---|
| 0 | | | | | | |
| | | 0.0 | B4-001-SB-1 | (0-1') SAND, fine to medium grained with GRAVEL SLAG, very loose, soft, light brown | SW-GW | |
| | | | | (1-1.5') GRAVEL, with ASPHALT, hard, very loose, black, moist | SW | |
| | 100 | 0.1 | | (1.5-2') SAND, fine to medium grained with GRAVEL SLAG, very loose, soft, light brown | SW-GW | |
| | | | | (2-6') SAND, very loose, brown with some oxidation present, dry | | |
| | | 120.1 | | | | |
| | | 395.6 | B4-001-SB-4 | | | |
| | | | | | SW | |
| | | 132.1 | | | | |
| 5 | | | | | | |
| | 100 | 181.9 | | | | |
| | | | | (6-6.3') SAND, coarse grained, slightly firm, loose, gray, moist | SW | Wet at 7' bgs |
| | | 119.6 | | (6.3-7') SAND, very loose, brown with some oxidation present, moist; wet at bottom | SW | Boring terminated at 7' bgs due to encountering groundwater |
| | | | | End of Boring | | |
| 10 | | | | | | |

Total Borehole Depth: 7' bgs.

02-07-2017 P:\EnviroAnalytics Group\150300M EAG_Sparrows Point Area B\Documents\Parcel B4\Boring Logs\2_Bor Logs\B4-001-SB.bor

ARM Group Inc.
Earth Resource Engineers and Consultants

# Boring ID: B4-002-SB

(page 1 of 1)

| | |
|---|---|
| Client | : EnviroAnalytics Group |
| ARM Project No. | : 150300M-7-3 |
| Project Description | : Sparrows Point - Parcel B4 |
| Site Location | : Sparrows Point, MD |
| ARM Representative | : L. Perrin |
| Checked by | : W. Mader P.G., CPSS |
| Drilling Company | : Green Services, Inc |
| Driller | : Tim Niblett |
| Drilling Equipment | : Geoprobe 7822DT |

| | |
|---|---|
| Date | : 3/1/2016 |
| Weather | : 40s, sunny |
| Northing (US ft) | : 564,524.3374 |
| Easting (US ft) | : 1,457,547.755 |

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample No/Interval | DESCRIPTION | USCS | REMARKS |
|---|---|---|---|---|---|---|
| 0 | | | | | | |
| | 50 | - | B4-002-SB-1 | (0-4') SAND, fine to medium grained with gravel, very loose, light brown, dry | SW | |
| | | - | | | | |
| | | 2.2 | | | | |
| | | 4.3 | | | | |
| | | 2.2 | B4-002-SB-5 | (4-8.5') SAND, coarse grained, beige, with large pieces of oxidized metal, moist, no plasticity, no cohesion | SP | |
| 5 | | - | | | | |
| | | - | | | | |
| | 60 | 0.7 | | | | |
| | | - | | | | Wet at 8.5' bgs |
| | | | | (8.5-10') GRAVEL, with SAND, hard, loose, light gray, wet | GW | |
| | | - | | | | Boring terminated at 10' bgs due to encountering groundwater |
| 10 | | | | | | |

Total Borehole Depth: 10' bgs.

ARM Group Inc.
Earth Resource Engineers and Consultants

# Boring ID: B4-003-SB

(page 1 of 1)

| | |
|---|---|
| Client | : EnviroAnalytics Group |
| ARM Project No. | : 150300M-7-3 |
| Project Description | : Sparrows Point - Parcel B4 |
| Site Location | : Sparrows Point, MD |
| ARM Representative | : L. Glumac |
| Checked by | : W. Mader P.G., CPSS |
| Drilling Company | : Green Services, Inc |
| Driller | : Don Marchese |
| Drilling Equipment | : Geoprobe 7822DT |

| | |
|---|---|
| Date | : 2/19/2016 |
| Weather | : 50s, cloudy/windy |
| Northing (US ft) | : 564,603.8415 |
| Easting (US ft) | : 1,457,209.414 |

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample No/Interval | DESCRIPTION | USCS | REMARKS |
|---|---|---|---|---|---|---|
| 0 | | - | B4-003-SB-1 | (0-2') SILT, black, with some gray to white granular SLAG, moist | ML | |
| | | - | | | | |
| | 75 | 0.1 | | (2-4') Sandy SILT, black, fine grained with some gray granular SLAG, moist | SM | |
| | | 1.4 | | | | |
| | | 396.5 | B4-003-SB-5 | (4-7') Sandy SILT, brown and black, moist | SM | |
| 5 | | - | | | | |
| | | - | | | | |
| | | | | (7-10') SLAG, black, granular with some red BRICK, wet | | Wet at 7' + bgs |
| | 25 | - | | | SW-GW | |
| | | - | | | | |
| | | - | | | | Boring terminated at 10' bgs due to water |
| 10 | | | | | | |

Total Borehole Depth: 10' bgs.

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ARM Group Inc.
Earth Resource Engineers and Consultants

# Boring ID: B4-004-SB

(page 1 of 1)

| | |
|---|---|
| Client | : EnviroAnalytics Group |
| ARM Project No. | : 150300M-7-3 |
| Project Description | : Sparrows Point - Parcel B4 |
| Site Location | : Sparrows Point, MD |
| ARM Representative | : L. Glumac |
| Checked by | : W. Mader P.G., CPSS |
| Drilling Company | : Green Services, Inc |
| Driller | : Don Marchese |
| Drilling Equipment | : Geoprobe 7822DT |

| | |
|---|---|
| Date | : 2/29/2016 |
| Weather | : 50s, cloudy |
| Northing (US ft) | : 564,599.7756 |
| Easting (US ft) | : 1,457,235.99 |

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample No/Interval | DESCRIPTION | USCS | REMARKS |
|---|---|---|---|---|---|---|
| 0 | | | | | | |
| | 87 | - | B4-004-SB-1 | (0-1.5') SILT, brown, with brownish gray SLAG, moist | ML | |
| | | 0.1 | | (1.5-2.5') CONCRETE, light brown to white, with gray SLAG, dry | N/A | |
| | | 3.0 | | (2.5-4') SILT, dark brown to black with some mustard yellow, moist | ML | |
| | | 241.7 | B4-004-SB-4 | | | |
| | | 26.0 | | (4-6') SLAG, red to black, moist | GW | |
| 5 | | 0.2 | | | | |
| | 100 | 0.1 | | (6-7.5') Sandy SILT, fine grained, reddish brown, moist | SM | Wet at 7.5' + bgs |
| | | - | | (7.5-8') SLAG, granular, white to black, wet | SW | Boring terminated at 8' bgs due to refusal and water. |
| | | | | End of Boring | | |
| 10 | | | | | | |

Total Borehole Depth: 8' bgs.

02-07-2017 P:\EnviroAnalytics Group\150300M EAG_Sparrows Point Area B\Documents\Parcel B4\Boring Logs\2_Bor Logs\B4-004-SB.bor

ARM Group Inc.
Earth Resource Engineers and Consultants

# Boring ID: B4-005-SB

(page 1 of 1)

| | |
|---|---|
| Client | : EnviroAnalytics Group |
| ARM Project No. | : 150300M-7-3 |
| Project Description | : Sparrows Point - Parcel B4 |
| Site Location | : Sparrows Point, MD |
| ARM Representative | : L. Glumac |
| Checked by | : W. Mader P.G., CPSS |
| Drilling Company | : Green Services, Inc |
| Driller | : Don Marchese |
| Drilling Equipment | : Geoprobe 7822DT |

| | |
|---|---|
| Date | : 2/29/2016 |
| Weather | : 50s, cloudy/windy |
| Northing (US ft) | : 564,621.3024 |
| Easting (US ft) | : 1,457,234.51 |

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample No/Interval | DESCRIPTION | USCS | REMARKS |
|---|---|---|---|---|---|---|
| 0 | | - | B4-005-SB-1 | (0-4') Sandy SILT, fine grained, with some CONCRETE, brown to black, moist | SM | |
| | 50 | 4.5 | | | | |
| | | 5.3 | | | | |
| | | | | (4-7') CONCRETE, gray and white and bluish green in spots | N/A | No 5' or 10' samples taken due to concrete and slag |
| 5 | | - | | | | |
| | 30 | - | | | | Wet at 7' + bgs |
| | | | | (7-10') SLAG, black with some yellowish red, wet | GW | |
| | | - | | | | |
| | | - | | | | |
| | | - | | | | |
| 10 | | | | | | Boring terminated at 10' bgs due to water |

Total Borehole Depth: 10' bgs.

ARM Group Inc.
Earth Resource Engineers and Consultants

# Boring ID: B4-006-SB

(page 1 of 1)

| | |
|---|---|
| Client | : EnviroAnalytics Group |
| ARM Project No. | : 150300M-7-3 |
| Project Description | : Sparrows Point - Parcel B4 |
| Site Location | : Sparrows Point, MD |
| ARM Representative | : L. Perrin |
| Checked by | : W. Mader P.G., CPSS |
| Drilling Company | : Green Services, Inc |
| Driller | : Tim Niblett |
| Drilling Equipment | : Geoprobe 7822DT |

| | |
|---|---|
| Date | : 3/1/2016 |
| Weather | : 40s, sunny |
| Northing (US ft) | : 564,696.7803 |
| Easting (US ft) | : 1,457,613.429 |

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample No/Interval | DESCRIPTION | USCS | REMARKS |
|---|---|---|---|---|---|---|
| 0 | | | | | | |
| | | - | B4-006-SB-1 | (0-9') SAND, with few GRAVEL, very loose, brown, moist | | |
| | | - | | | | |
| | 44 | - | | | | |
| | | 1.3 | | | | |
| | | 20.9 | B4-006-SB-5 | | SP-SW | |
| 5 | | - | | | | |
| | | - | | | | Wet at 7' + bgs |
| | 80 | 1.4 | | | | |
| | | 0.9 | | | | |
| | | | | (9-10') SAND, fine to medium grained, loose, gray, wet, no cohesion | | |
| | | 6.5 | | | SP-SW | Boring terminated at 10' bgs due to encountering groundwater |
| 10 | | | | | | |

Total Borehole Depth: 10' bgs.

ARM Group Inc.
Earth Resource Engineers and Consultants

# Boring ID: B4-007-SB

(page 1 of 1)

| | |
|---|---|
| Client | : EnviroAnalytics Group |
| ARM Project No. | : 150300M-7-3 |
| Project Description | : Sparrows Point - Parcel B4 |
| Site Location | : Sparrows Point, MD |
| ARM Representative | : L. Perrin |
| Checked by | : W. Mader P.G., CPSS |
| Drilling Company | : Green Services, Inc |
| Driller | : Tim Niblett |
| Drilling Equipment | : Geoprobe 7822DT |

| | |
|---|---|
| Date | : 3/1/2016 |
| Weather | : 40s, sunny |
| Northing (US ft) | : 564,646.6698 |
| Easting (US ft) | : 1,457,612.088 |

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample No/Interval | DESCRIPTION | USCS | REMARKS |
|---|---|---|---|---|---|---|
| 0 | | | | | | |
| | 80 | - | B4-007-SB-1 | (0-0.5') GRAVEL, hard, loose, light gray, dry | GW | |
| | | 7.5 | | (0.5-2.5') SAND, medium to coarse grained with GRAVEL, very loose, light gray, dry | SW-GW | |
| | | 18.3 | | (2.5-3.6') CONCRETE, SAND to GRAVEL sized, very loose, white | N/A | |
| | | 5.6 | | (3.6-7') SAND, medium to fine grained, very loose, dark brown, dry | SW | |
| | | 59.6 | B4-007-SB-5 | | | |
| 5 | 100 | 11.9 | | | | |
| | | 3.9 | | | | Wet at 7' + bgs |
| | | | | (7-7.5') SAND, coarse grained, dark brown, wet, no cohesion | SP | Boring terminated at 7.5' bgs due to encountering groundwater and refusal |
| | | | | End of Boring | | |
| 10 | | | | | | |

Total Borehole Depth: 7.5' bgs.

02-07-2017 P:\EnviroAnalytics Group\150300M EAG_Sparrows Point Area B\Documents\Parcel B4\Boring Logs\2_Bor Logs\B4-007-SB.bor

ARM Group Inc.
Earth Resource Engineers and Consultants

# Boring ID: B4-008-SB

(page 1 of 1)

| | |
|---|---|
| Client | : EnviroAnalytics Group |
| ARM Project No. | : 150300M-7-3 |
| Project Description | : Sparrows Point - Parcel B4 |
| Site Location | : Sparrows Point, MD |
| ARM Representative | : L. Glumac |
| Checked by | : W. Mader P.G., CPSS |
| Drilling Company | : Green Services, Inc |
| Driller | : Don Marchese |
| Drilling Equipment | : Geoprobe 7822DT |

| | |
|---|---|
| Date | : 2/29/2016 |
| Weather | : 50s, cloudy/windy |
| Northing (US ft) | : 564,846.4933 |
| Easting (US ft) | : 1,457,807.583 |

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample No/Interval | DESCRIPTION | USCS | REMARKS |
|---|---|---|---|---|---|---|
| 0 | | 1.3 | B4-008-SB-1 | (0-1') SILT, fine grained with some QUARZ, brown, moist | ML | |
| | 83 | 0.7<br>1.3<br>0.2 | | (1-4') SILTY SAND, fine to medium grained, brown, dry | ML | |
| 5 | | - | | (4-5.5') SILTY SAND, brown, fine to medium grained with some gray CONCRETE and trace SLAG, moist | SM | |
| | | 3.1 | | (5.5-7') SILTY SAND, fine to medium grained with some granular SLAG, brown | SM | |
| | | 21.6 | B4-008-SB-7 | | | |
| | 80 | - | | (7-7.5') SLAG, medium GRAVEL sized, black and brown, with some red BRICK chunks | GW | |
| | | | | (7.5-8') SLAG chunks, white | GP | |
| | | - | | (8-9') SILTY CLAY, brown, saturated | CL | Wet at 8' + bgs |
| | | - | | (9-10') SLAG, medium GRAVEL sized, black, saturated | GP | Boring terminated at 10' bgs due to water. |
| 10 | | | | | | |

Total Borehole Depth: 10' bgs.

02-07-2017 P:\EnviroAnalytics Group\150300M EAG_Sparrows Point Area B\Documents\Parcel B4\Boring Logs\2_Bor Logs\B4-008-SB.bor

ARM Group Inc.
Earth Resource Engineers and Consultants

# Boring ID: B4-009-SB

(page 1 of 1)

| | |
|---|---|
| Client | : EnviroAnalytics Group |
| ARM Project No. | : 150300M-7-3 |
| Project Description | : Sparrows Point - Parcel B4 |
| Site Location | : Sparrows Point, MD |
| ARM Representative | : L. Perrin |
| Checked by | : W. Mader P.G., CPSS |
| Drilling Company | : Green Services, Inc |
| Driller | : Tim Niblett |
| Drilling Equipment | : Geoprobe 7822DT |

| | |
|---|---|
| Date | : 3/1/2016 |
| Weather | : 40s, sunny |
| Northing (US ft) | : 564,902.9773 |
| Easting (US ft) | : 1,457,802.794 |

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample No/Interval | DESCRIPTION | USCS | REMARKS |
|---|---|---|---|---|---|---|
| 0 | | | | | | |
| | | - | B4-009-SB-1 | (0-1.5') SAND, fine grained with fill GRAVEL, loose, brown, dry, no plasticity | SP | |
| | | 1.8 | | (1.5-6') SAND, loose, light brown, dry | | |
| | 87 | 10.0 | | | | |
| | | 12.5 | | | SW | |
| | | 29.0 | B4-009-SB-5 | | | |
| 5 | | - | | | | |
| | | | | (6-7.5') SAND, medium to coarse grained, loose, brownish gray, moist, no plasticity | | |
| | 57 | 30.8 | | | SW | |
| | | 3.1 | | (7.5-8.5') SAND, coarse grained, beige, no cohesion | | |
| | | | | | SP | Wet at 8.5' bgs<br>Boring terminated at 8.5' bgs due to encountering groundwater and refusal |
| | | | | End of Boring | | |
| 10 | | | | | | |

Total Borehole Depth: 8.5' bgs.

02-07-2017 P:\EnviroAnalytics Group\150300M EAG_Sparrows Point Area B\Documents\Parcel B4\Boring Logs\2_Bor Logs\B4-009-SB.bor

ARM Group Inc.
Earth Resource Engineers and Consultants

# Boring ID: B4-010-SB

(page 1 of 1)

| | |
|---|---|
| Client | : EnviroAnalytics Group |
| ARM Project No. | : 150300M-7-3 |
| Project Description | : Sparrows Point - Parcel B4 |
| Site Location | : Sparrows Point, MD |
| ARM Representative | : L. Glumac |
| Checked by | : W. Mader P.G., CPSS |
| Drilling Company | : Green Services, Inc |
| Driller | : Don Marchese |
| Drilling Equipment | : Geoprobe 7822DT |

| | |
|---|---|
| Date | : 2/29/2016 |
| Weather | : 50s, cloudy |
| Northing (US ft) | : 564,241.6121 |
| Easting (US ft) | : 1,457,500.436 |

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample No/Interval | DESCRIPTION | USCS | REMARKS |
|---|---|---|---|---|---|---|
| 0 | | | | | | |
| | | 6.7 | B4-010-SB-1 | (0-2') SILT, brown, with some gray small to medium GRAVEL sized SLAG, dry | ML | |
| | | 10.5 | | | | |
| | 100 | 11.6 | | (2-3') SANDY SILT, fine grained with some granular SLAG, dark brown, moist | ML | |
| | | 8.3 | | (3-4') SLAG, mustard yellow to white to gray, moist | GW | |
| | | 0.5 | | (4-5') SILTY SAND, fine grained, black, moist | SM | |
| 5 | | 25.9 | B4-010-SB-6 | (5-6') SILTY SAND, fine grained, gray to black, moist | SM | |
| | | 6.6 | | (6-7.5') SILTY SAND, fine grained with granular SLAG and trace BRICK pieces, brown, dry | SM | |
| | 90 | 3.4 | | (7.5-8') SILT, bluish green, moist, possible SLAG derived | ML | |
| | | 2.3 | | (8-10') SAND, medium grained, light brown, wet | SP | Wet at 8' + bgs |
| 10 | | - | | | | Boring terminated at 10' bgs due to water. |

Total Borehole Depth: 10' bgs.

02-07-2017 P:\EnviroAnalytics Group\150300M EAG_Sparrows Point Area B\Documents\Parcel B4\Boring Logs\2_Bor Logs\B4-010-SB.bor

ARM Group Inc.
Earth Resource Engineers and Consultants

# Boring ID: B4-011-SB

(page 1 of 1)

| | |
|---|---|
| Client | : EnviroAnalytics Group |
| ARM Project No. | : 150300M-7-3 |
| Project Description | : Sparrows Point - Parcel B4 |
| Site Location | : Sparrows Point, MD |
| ARM Representative | : L. Glumac |
| Checked by | : W. Mader P.G., CPSS |
| Drilling Company | : Green Services, Inc |
| Driller | : Don Marchese |
| Drilling Equipment | : Geoprobe 7822DT |

| | |
|---|---|
| Date | : 2/29/2016 |
| Weather | : 50s, cloudy |
| Northing (US ft) | : 564,873.9603 |
| Easting (US ft) | : 1,457,226.524 |

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample No/Interval | DESCRIPTION | USCS | REMARKS |
|---|---|---|---|---|---|---|
| 0 | | - | B4-011-SB-1 | (0-1') SILT, dark brown to black, fine grained with black SLAG, moist | ML | |
| | | - | | (1-2') CONCRETE, gray to white, dry | N/A | |
| | 92 | 0.7 | | (2-2.5') SAND, light brown, with some gray CONCRETE, moist | SW | |
| | | 47.2 | | (2.5-3.5') SLAG, with some medium grained SAND, brown | GW-SW | |
| | | | B4-011-SB-4.5 | (3.5-4') SLAG, black, moist | GW | |
| | | 173.9 | | (4-4.5') SAND, medium grained, light brown, moist | SP | |
| 5 | 100 | 0.5 | | (4.5-6') SLAG, with some SAND, gray to white to bluish green, moist, wet at 5' bgs | GW-SW | Wet at 5' + bgs<br>Boring terminated at 6' bgs due to refusal and water. |
| | | | | End of Boring | | |
| 10 | | | | | | |

Total Borehole Depth: 6' bgs.

02-07-2017 P:\EnviroAnalytics Group\150300M EAG_Sparrows Point Area B\Documents\Parcel B4\Boring Logs\2_Bor Logs\B4-011-SB.bor

ARM Group Inc.
Earth Resource Engineers and Consultants

# Boring ID: B4-012-SB

(page 1 of 1)

| | |
|---|---|
| Client | : EnviroAnalytics Group |
| ARM Project No. | : 150300M-7-3 |
| Project Description | : Sparrows Point - Parcel B4 |
| Site Location | : Sparrows Point, MD |
| ARM Representative | : L. Perrin |
| Checked by | : W. Mader P.G., CPSS |
| Drilling Company | : Green Services, Inc |
| Driller | : Don Marchese |
| Drilling Equipment | : Geoprobe 7822DT |

| | |
|---|---|
| Date | : 3/1/2016 |
| Weather | : 40s, sunny |
| Northing (US ft) | : 564,454.9432 |
| Easting (US ft) | : 1,456,764.743 |

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample No/Interval | DESCRIPTION | USCS | REMARKS |
|---|---|---|---|---|---|---|
| 0 | | | | | | |
| | | - | B4-012-SB-1 | (0-0.5') SANDY GRAVEL, hard, loose, light brown, dry | GW | |
| | | | | (0.5-2.5') SILTY SAND, very loose, light brown, dry, no plasticity | | |
| | | 84.5 | | | SM | |
| | 92 | 298.2 | | (2.5-3') SAND, fine to medium grained, very loose, brown, dry, some oxidation | SW | |
| | | | | (3-4') COBBLES, purple, porphyritic, hard, loose, dry | | |
| | | 806.0 | | | GW | |
| | | | | (4-5') GRAVELLY SAND, reddish yellow and black with metallic flakes, loose, dry | | No water encountered |
| | | 1,509.4 | B4-012-SB-5 | | GW/SW | |
| 5 | | | | | | Boring terminated at 5' bgs due to refusal |

Total Borehole Depth: 5' bgs.

02-07-2017 P:\EnviroAnalytics Group\150300M EAG_Sparrows Point Area B\Documents\Parcel B4\Boring Logs\2_Bor Logs\B4-012-SB.bor

ARM Group Inc.
Earth Resource Engineers and Consultants

# Boring ID: B4-013-SB

(page 1 of 1)

| | |
|---|---|
| Client | : EnviroAnalytics Group |
| ARM Project No. | : 150300M-7-3 |
| Project Description | : Sparrows Point - Parcel B4 |
| Site Location | : Sparrows Point, MD |
| ARM Representative | : L. Glumac |
| Checked by | : W. Mader P.G., CPSS |
| Drilling Company | : Green Services, Inc |
| Driller | : Don Marchese |
| Drilling Equipment | : Geoprobe 7822DT |

| | |
|---|---|
| Date | : 2/29/2016 |
| Weather | : 50s, cloudy |
| Northing (US ft) | : 564,194.4787 |
| Easting (US ft) | : 1,457,219.774 |

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample No/Interval | DESCRIPTION | USCS | REMARKS |
|---|---|---|---|---|---|---|
| 0 | | | | | | |
| | | - | | (0-0.9') CONCRETE, light gray | N/A | |
| | | - | B4-013-SB-1 | (0.9-4.5') SILT, black with gray to white to tan to black slag, moist | | |
| | 50 | 0.9 | | | ML/GM | |
| | | 0.6 | | | | |
| | | 0.6 | | | | |
| 5 | | | | (4.5-5.5') CLAY, brownish orange, moist | CL | |
| | | 47.5 | | (5.5-7') SILT, brown to black, with gray and brown slag and chunks of metal | ML/GM | |
| | | 209.4 | B4-013-SB-7.5 | (7-7.5') Silty SAND, brown to black, fine grained, moist | SM | |
| | 87 | - | | (7.5-8') SILT, black, fine grained with some red brick, wet | ML | Wet at 7.5' + bgs |
| | | - | | (8-9') SLAG, brown to gray to white, with some brown coarse grained sand | GW | |
| | | - | | (9-10') SLAG, gray to white, saturated | GW | |
| 10 | | | | | | Boring terminated at 10' bgs due to water. |

Total Borehole Depth: 10' bgs.

02-07-2017 P:\EnviroAnalytics Group\150300M EAG_Sparrows Point Area B\Documents\Parcel B4\Boring Logs\2_Bor Logs\B4-013-SB.bor

ARM Group Inc.
Earth Resource Engineers and Consultants

# Boring ID: B4-014-SB

(page 1 of 1)

| | |
|---|---|
| Client | : EnviroAnalytics Group |
| ARM Project No. | : 150300M-7-3 |
| Project Description | : Sparrows Point - Parcel B4 |
| Site Location | : Sparrows Point, MD |
| ARM Representative | : L. Perrin |
| Checked by | : W. Mader P.G., CPSS |
| Drilling Company | : Green Services, Inc |
| Driller | : Don Marchese |
| Drilling Equipment | : Geoprobe 7822DT |

| | |
|---|---|
| Date | : 3/3/2016 |
| Weather | : 30s, sunny |
| Northing (US ft) | : 565,106.7147 |
| Easting (US ft) | : 1,457,557.483 |

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample No/Interval | DESCRIPTION | USCS | REMARKS |
|---|---|---|---|---|---|---|
| 0 | | | | | | |
| | | - | B4-014-SB-1 | (0-2.5') SAND, with metallic GRAVEL SLAG and FILL GRAVEL, loose, dark brown to brown, dry | SW | |
| | | 15.4 | | | | |
| | 80 | 15.8 | | (2.5-4') SAND, with CLAY, firm, tan, no plasticity, no cohesion | SW | |
| | | 13.1 | | | | |
| | | 11.7 | B4-014-SB-5 | (4-5') SANDY CLAY, soft, gray, moist, medium plasticity, cohesive | CL | |
| 5 | | | | (5-6.5') Sandy CLAY, soft, tan with black mottling, wet, medium plasticity, cohesive | CL | Wet at 5' bgs |
| | 100 | 9.2 | | | | |
| | | 9.7 | | | | Boring terminated at 6.5' bgs due to refusal and water. |
| | | | | End of Boring | | |
| 10 | | | | | | |

Total Borehole Depth: 6.5' bgs.

02-07-2017 P:\EnviroAnalytics Group\150300M EAG_Sparrows Point Area B\Documents\Parcel B4\Boring Logs\2_Bor Logs\B4-014-SB.bor

ARM Group Inc.
Earth Resource Engineers and Consultants

# Boring ID: B4-015-SB

(page 1 of 1)

| | |
|---|---|
| Client | : EnviroAnalytics Group |
| ARM Project No. | : 150300M-7-3 |
| Project Description | : Sparrows Point - Parcel B4 |
| Site Location | : Sparrows Point, MD |
| ARM Representative | : L. Perrin |
| Checked by | : W. Mader P.G., CPSS |
| Drilling Company | : Green Services, Inc |
| Driller | : Don Marchese |
| Drilling Equipment | : Geoprobe 7822DT |

| | |
|---|---|
| Date | : 3/3/2016 |
| Weather | : 30s, sunny |
| Northing (US ft) | : 565,106.9473 |
| Easting (US ft) | : 1,457,583.037 |

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample No/Interval | DESCRIPTION | USCS | REMARKS |
|---|---|---|---|---|---|---|
| 0 | | 18.2 | B4-015-SB-1 | (0-3') SAND, fine to medium grained with SLAG GRAVEL, loose, soft, brown, dry, more GRAVEL in top foot | SW | |
| | | 17.5 | | | | |
| | 90 | 14.0 | | | | |
| | | 19.0 | | (3-7.5') SANDY CLAY grading to CLAY with trace SAND, firm, tan with orange mottles, moist, medium plasticity, cohesive | CL | |
| | | 12.4 | B4-015-SB-5 | | | |
| 5 | | 14.4 | | | | Wet at 7.5' + bgs |
| | 100 | 15.9 | | | | Boring terminated at 7.5' bgs due to refusal and water. |
| | | | | End of Boring | | |
| 10 | | | | | | |

Total Borehole Depth: 7.5' bgs.

02-07-2017 P:\EnviroAnalytics Group\150300M EAG_Sparrows Point Area B\Documents\Parcel B4\Boring Logs\2_Bor Logs\B4-015-SB.bor

ARM Group Inc.
Earth Resource Engineers and Consultants

# Boring ID: B4-016-SB

(page 1 of 1)

| | |
|---|---|
| Client | : EnviroAnalytics Group |
| ARM Project No. | : 150300M-7-3 |
| Project Description | : Sparrows Point - Parcel B4 |
| Site Location | : Sparrows Point, MD |
| ARM Representative | : L. Glumac |
| Checked by | : W. Mader P.G., CPSS |
| Drilling Company | : Green Services, Inc |
| Driller | : Don Marchese |
| Drilling Equipment | : Geoprobe 7822DT |

| | |
|---|---|
| Date | : 3/4/2016 |
| Weather | : 30s, cloudy |
| Northing (US ft) | : 563,903.9119 |
| Easting (US ft) | : 1,456,625.045 |

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample No/Interval | DESCRIPTION | USCS | REMARKS |
|---|---|---|---|---|---|---|
| 0 | 50 | 52.3 | B4-016-SB-1 | (0-9') SAND, medium grained with trace FINES, loose, light brown, dry, increasing moisture with depth, no plasticity, no cohesion | SW | |
| 5 | | 21.1 | B4-016-SB-5 | | | |
| | 50 | 27.6 | | | | |
| 10 | | | | (9-10') SILTY GRAVEL, hard, black, wet, no plasticity, no cohesion | GM | Wet at 9' + bgs<br>Boring terminated at 10' bgs due to encountering groundwater |

Total Borehole Depth: 10' bgs.

02-07-2017 P:\EnviroAnalytics Group\150300M EAG_Sparrows Point Area B\Documents\Parcel B4\Boring Logs\2_Bor Logs\B4-016-SB.bor

ARM Group Inc.
Earth Resource Engineers and Consultants

# Boring ID: B4-017-SB

(page 1 of 1)

| | |
|---|---|
| Client | : EnviroAnalytics Group |
| ARM Project No. | : 150300M-7-3 |
| Project Description | : Sparrows Point - Parcel B4 |
| Site Location | : Sparrows Point, MD |
| ARM Representative | : L. Perrin |
| Checked by | : W. Mader P.G., CPSS |
| Drilling Company | : Green Services, Inc |
| Driller | : Don Marchese |
| Drilling Equipment | : Geoprobe 7822DT |

| | |
|---|---|
| Date | : 3/7/2016 |
| Weather | : 30s, sunny |
| Northing (US ft) | : 563,899.6368 |
| Easting (US ft) | : 1,456,691.251 |

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample No/Interval | DESCRIPTION | USCS | REMARKS |
|---|---|---|---|---|---|---|
| 0 | | 18.5 | B4-017-SB-1 | (0-4') SAND, with GRAVEL SLAG, grading to SILTY SAND, loose, soft, light brown, dry | SW-SM | |
| | | 18.3 | | | | |
| | 90 | 30.3 | | | | |
| | | 18.7 | B4-017-SB-4 | | | |
| | | 17.6 | | (4-5') SANDY SILT, soft, dark brown, dry, no plasticity, cohesive | ML | |
| 5 | | 32.3 | | (5-7') SANDY SILT, with GRAVEL, soft, dark brown, wet, low plasticity, cohesive | ML | Wet at 6' + bgs |
| | 100 | - | | | | Boring terminated at 7' bgs due to refusal |
| | | | | End of Boring | | |
| 10 | | | | | | |

Total Borehole Depth: 7' bgs.

02-07-2017 P:\EnviroAnalytics Group\150300M EAG_Sparrows Point Area B\Documents\Parcel B4\Boring Logs\2_Bor Logs\B4-017-SB.bor

ARM Group Inc.
Earth Resource Engineers and Consultants

# Boring ID: B4-018-SB

(page 1 of 1)

| | |
|---|---|
| Client | : EnviroAnalytics Group |
| ARM Project No. | : 150300M-7-3 |
| Project Description | : Sparrows Point - Parcel B4 |
| Site Location | : Sparrows Point, MD |
| ARM Representative | : L. Perrin |
| Checked by | : W. Mader P.G., CPSS |
| Drilling Company | : Green Services, Inc |
| Driller | : Don Marchese |
| Drilling Equipment | : Geoprobe 7822DT |

| | |
|---|---|
| Date | : 3/4/2016 |
| Weather | : 30s, sunny |
| Northing (US ft) | : 564,006.6299 |
| Easting (US ft) | : 1,456,610.572 |

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample No/Interval | DESCRIPTION | USCS | REMARKS |
|---|---|---|---|---|---|---|
| 0 | | | | | | |
| | 80 | - | B4-018-SB-1 | (0-4.5') SAND, with trace FINES, soft, brown, light brown at 2' bgs, dry | SW | |
| | | 25.2 | | | | |
| | | 22.7 | | | | |
| | | 23.1 | | | | |
| | | 20.9 | B4-018-SB-5 | | | |
| 5 | | | | (4.5-6') SILT, dark brown, moist, no plasticity, cohesive | ML | |
| | | - | | | | |
| | 100 | - | | (6-10') GRAVELLY SILT, soft, black, wet with sheen, low plasticity, no cohesion | ML | Wet at 7.5' + bgs<br>Petroleum odor throughout<br>Boring terminated at 10' bgs due to encountering groundwater |
| 10 | | | | | | |

Total Borehole Depth: 10' bgs.

ARM Group Inc.
Earth Resource Engineers and Consultants

# Boring ID: B4-019-SB

(page 1 of 1)

| | |
|---|---|
| Client | : EnviroAnalytics Group |
| ARM Project No. | : 150300M-7-3 |
| Project Description | : Sparrows Point - Parcel B4 |
| Site Location | : Sparrows Point, MD |
| ARM Representative | : L. Perrin |
| Checked by | : W. Mader P.G., CPSS |
| Drilling Company | : Green Services, Inc |
| Driller | : Don Marchese |
| Drilling Equipment | : Geoprobe 7822DT |

| | |
|---|---|
| Date | : 3/4/2016 |
| Weather | : 30s, sunny |
| Northing (US ft) | : 564,015.8857 |
| Easting (US ft) | : 1,456,632.493 |

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample No/Interval | DESCRIPTION | USCS | REMARKS |
|---|---|---|---|---|---|---|
| 0 | | - | B4-019-SB-1 | (0-2.5') SAND, fine grained with trace SILT, loose, brown, dry but moist in top 6 inches, no plasticity | SW | |
| | | 19.0 | | | | |
| | 80 | 20.0 | | (2.5-6.6') SILT, with trace SAND, soft, dark brown, dry, no plasticity | | |
| | | 23.0 | | | | |
| | | 46.6 | B4-019-SB-5 | | ML | |
| 5 | | - | | | | |
| | | 21.6 | | | | |
| | | | | (6.6-7.6') GRAVEL, SLAG with CONCRETE and BRICK, loose, hard, gray, dry | GP | |
| | 80 | 29.2 | | | | |
| | | | | (7.6-8') SAND, beige, with gray CONCRETE, loose, hard, moist | SW | Wet at 8' + bgs |
| | | 42.1 | | (8-10') SILTY GRAVEL, hard, loose, black, wet, no plasticity | GM | |
| | | - | | | | Boring terminated at 10' bgs due to encountering groundwater |
| 10 | | | | | | |

Total Borehole Depth: 10' bgs.

02-07-2017 P:\EnviroAnalytics Group\150300M EAG_Sparrows Point Area B\Documents\Parcel B4\Boring Logs\2_Bor Logs\B4-019-SB.bor

ARM Group Inc.
Earth Resource Engineers and Consultants

# Boring ID: B4-020-SB

(page 1 of 1)

| | |
|---|---|
| Client | : EnviroAnalytics Group |
| ARM Project No. | : 150300M-7-3 |
| Project Description | : Sparrows Point - Parcel B4 |
| Site Location | : Sparrows Point, MD |
| ARM Representative | : L. Perrin |
| Checked by | : W. Mader P.G., CPSS |
| Drilling Company | : Green Services, Inc |
| Driller | : Don Marchese |
| Drilling Equipment | : Geoprobe 7822DT |

| | |
|---|---|
| Date | : 3/4/2016 |
| Weather | : 30s, sunny |
| Northing (US ft) | : 564,247.0422 |
| Easting (US ft) | : 1,457,971.906 |

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample No/Interval | DESCRIPTION | USCS | REMARKS |
|---|---|---|---|---|---|---|
| 0 | | - | B4-020-SB-1 | (0-1.3') SANDY SILT, soft, brown with maroon tinge at bottom, moist, no plasticity, cohesive | SM | |
| | | 15.0 | | (1.3-2') SAND, brown, with metallic GRAVEL, loose, soft, moist, no plasticity, no cohesion | SW | |
| | 80 | 16.0 | | (2-3.5') SAND, light brown with trace blue flakes, loose, dry | SW | |
| | | 23.5 | | (3.5-4') SAND, medium to coarse grained, soft, loose, black, moist, no plasticity | SW | |
| | | 24.7 | B4-020-SB-5 | (4-5') SAND, brown, with tan to green GRAVEL, soft, loose, moist | SW-GP | |
| 5 | | - | | (5-8') No Recovery - 3' void space felt by drillers | VOID | 3' void space felt by drillers beginning at 5' bgs |
| | | - | | | | |
| | 40 | - | | | | |
| | | - | | (8-10') GRAVEL, hard, loose, brown, wet, no plasticity | GW | Wet at 9' + bgs |
| | | - | | | | Boring terminated at 10' bgs due to encountering groundwater |
| 10 | | | | | | |

Total Borehole Depth: 10' bgs.

02-07-2017 P:\EnviroAnalytics Group\150300M EAG_Sparrows Point Area B\Documents\Parcel B4\Boring Logs\2_Bor Logs\B4-020-SB.bor

ARM Group Inc.
Earth Resource Engineers and Consultants

# Boring ID: B4-021-SB

(page 1 of 1)

| | |
|---|---|
| Client | : EnviroAnalytics Group |
| ARM Project No. | : 150300M-7-3 |
| Project Description | : Sparrows Point - Parcel B4 |
| Site Location | : Sparrows Point, MD |
| ARM Representative | : L. Perrin |
| Checked by | : W. Mader P.G., CPSS |
| Drilling Company | : Green Services, Inc |
| Driller | : Don Marchese |
| Drilling Equipment | : Geoprobe 7822DT |

| | |
|---|---|
| Date | : 3/4/2016 |
| Weather | : 30s, cloudy |
| Northing (US ft) | : 564,236.1045 |
| Easting (US ft) | : 1,457,976.968 |

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample No/Interval | DESCRIPTION | USCS | REMARKS |
|---|---|---|---|---|---|---|
| 0 | | - | B4-021-SB-1 | (0-2') SILTY SAND, loose, soft, brown, moist, no plasticity | SM | |
| | | 16.6 | | | | |
| | 80 | 15.0 | | (2-2.5') SAND, fine grained, loose, light brown, dry, no plasticity | SP | |
| | | | | (2.5-3.6') SAND, loose, brown grading to black, dry, no plasticity | SW | |
| | | 70.8 | | (3.6-6.6') GRAVELLY SAND, soft, beige and brown, oxidized in brown spots, dry, no plasticity; no brown spots at 6' bgs | | |
| | | 71.3 | B4-021-SB-5 | | | |
| 5 | | - | | | SW | |
| | | 51.5 | | (6.6-7.5') CLAY, slightly firm, tan, very moist, high plasticity, cohesive | CH | |
| | 80 | - | | (7.5-9.3') SILTY SAND, with GRAVEL, dark brown, wet with free water in sleeve, no plasticity, cohesive | SM | Wet at 7.5' + bgs |
| | | - | | | | |
| | | - | | (9.3-10') SANDY SILT, soft, light gray to white, no plasticity, cohesive | ML | Boring terminated at 10' bgs due to encountering groundwater |
| 10 | | | | | | |

Total Borehole Depth: 10' bgs.

02-07-2017 P:\EnviroAnalytics Group\150300M EAG_Sparrows Point Area B\Documents\Parcel B4\Boring Logs\2_Bor Logs\B4-021-SB.bor

ARM Group Inc.
Earth Resource Engineers and Consultants

# Boring ID: B4-022-SB

(page 1 of 1)

| | |
|---|---|
| Client | : EnviroAnalytics Group |
| ARM Project No. | : 150300M-7-3 |
| Project Description | : Sparrows Point - Parcel B4 |
| Site Location | : Sparrows Point, MD |
| ARM Representative | : S. Kabis |
| Checked by | : W. Mader P.G., CPSS |
| Drilling Company | : Green Services, Inc |
| Driller | : Don Marchese |
| Drilling Equipment | : Geoprobe 7822DT |

| | |
|---|---|
| Date | : 3/14/2016 |
| Weather | : 50s, cloudy/ light rain |
| Northing (US ft) | : 564,024.7399 |
| Easting (US ft) | : 1,456,739.698 |

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample No/Interval | DESCRIPTION | USCS | REMARKS |
|---|---|---|---|---|---|---|
| 0 | | | | | | |
| | 70 | - | B4-022-SB-1 | (0-5') SAND, with GRAVEL, loose, brown, dry, no plasticity, no cohesion | SW | |
| | | 4.5 | | | | |
| | | 5.1 | | | | |
| | | 5.6 | | | | |
| | | 13.1 | B4-022-SB-5 | | | |
| 5 | | | | (5-8') GRAVEL, with some SAND, loose, light tan to white, dry, bottom 3" wet, no cohesion, no plasticity | GW | |
| | | 8.4 | | | | |
| | 100 | 8.0 | | | | |
| | | 7.0 | | | | Wet at 7.7' + bgs<br>Boring terminated at 8' bgs due to refusal and water. |
| | | | | End of Boring | | |
| 10 | | | | | | |

Total Borehole Depth: 8' bgs.

02-07-2017 P:\EnviroAnalytics Group\150300M EAG_Sparrows Point Area B\Documents\Parcel B4\Boring Logs\2_Bor Logs\B4-022-SB.bor

ARM Group Inc.
Earth Resource Engineers and Consultants

# Boring ID: B4-023-SB

(page 1 of 1)

| | |
|---|---|
| Client | : EnviroAnalytics Group |
| ARM Project No. | : 150300M-7-3 |
| Project Description | : Sparrows Point - Parcel B4 |
| Site Location | : Sparrows Point, MD |
| ARM Representative | : S. Kabis |
| Checked by | : W. Mader P.G., CPSS |
| Drilling Company | : Green Services, Inc |
| Driller | : Don Marchese |
| Drilling Equipment | : Geoprobe 7822DT |

| | |
|---|---|
| Date | : 3/14/2016 |
| Weather | : 50s, cloudy/ light rain |
| Northing (US ft) | : 564,027.6044 |
| Easting (US ft) | : 1,456,760.097 |

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample No/Interval | DESCRIPTION | USCS | REMARKS |
|---|---|---|---|---|---|---|
| 0 | | - | B4-023-SB-1 | (0-5') SAND, with GRAVEL, loose, dark brown, dry, no plasticity, no cohesion | | |
| | | 1.4 | | | | |
| | 70 | 1.3 | | | SW | |
| | | 1.3 | | | | |
| | | 1.5 | B4-023-SB-5 | | | |
| 5 | | - | | (5-10') GRAVEL, with some SAND, well graded, loose, light tan to white, dry, bottom 3" wet, no plasticity, no cohesion | | |
| | | 9.7 | | | | |
| | 80 | 9.5 | | | GP | |
| | | 9.2 | | | | |
| | | 8.7 | | | | Wet at 9.75' + bgs<br>Boring terminated at 10' bgs due to encountering groundwater |
| 10 | | | | | | |

Total Borehole Depth: 10' bgs.

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ARM Group Inc.
Earth Resource Engineers and Consultants

# Boring ID: B4-024-SB

(page 1 of 1)

| | |
|---|---|
| Client | : EnviroAnalytics Group |
| ARM Project No. | : 150300M-7-3 |
| Project Description | : Sparrows Point - Parcel B4 |
| Site Location | : Sparrows Point, MD |
| ARM Representative | : L. Perrin |
| Checked by | : W. Mader P.G., CPSS |
| Drilling Company | : Green Services, Inc |
| Driller | : Don Marchese |
| Drilling Equipment | : Geoprobe 7822DT |

| | |
|---|---|
| Date | : 3/2/2016 |
| Weather | : 30s, sunny |
| Northing (US ft) | : 565,379.0966 |
| Easting (US ft) | : 1,457,435.169 |

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample No/Interval | DESCRIPTION | USCS | REMARKS |
|---|---|---|---|---|---|---|
| 0 | | | | | | |
| | | - | B4-024-SB-1 | (0-2') SAND, with GRAVEL, loose, brown, dry, no plasticity | SW | |
| | | 12.8 | | | | |
| | 80 | 13.8 | | (2-3') SAND, fine grained, loose, light beige, dry | SP | |
| | | | | (3-3.5') SAND, loose, light brown, dry, no plasticity | SW | |
| | | 13.5 | B4-024-SB-4.5 | (3.5-4.5') SAND, fine grained, loose, light beige, dry | SP | |
| | | 13.2 | | (4.5-5') SAND, with GRAVEL, dark brown, wet, no cohesion | SW | Wet at 4.5' + bgs<br>Boring terminated at 5' bgs due to refusal and water |
| 5 | | | | | | |

Total Borehole Depth: 5' bgs.

-

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ARM Group Inc.
Earth Resource Engineers and Consultants

# Boring ID: B4-025-SB

(page 1 of 1)

| | |
|---|---|
| Client | : EnviroAnalytics Group |
| ARM Project No. | : 150300M-7-3 |
| Project Description | : Sparrows Point - Parcel B4 |
| Site Location | : Sparrows Point, MD |
| ARM Representative | : L. Perrin |
| Checked by | : W. Mader P.G., CPSS |
| Drilling Company | : Green Services, Inc |
| Driller | : Don Marchese |
| Drilling Equipment | : Geoprobe 7822DT |

| | |
|---|---|
| Date | : 3/2/2016 |
| Weather | : 30s, sunny |
| Northing (US ft) | : 565,328.9642 |
| Easting (US ft) | : 1,457,497.078 |

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample No/Interval | DESCRIPTION | USCS | REMARKS |
|---|---|---|---|---|---|---|
| 0 | | | | | | |
| | | - | B4-025-SB-1 | (0-3') SAND, with GRAVEL, loose, light gray, dry, no plasticity | SW | |
| | | 13.2 | | | | |
| | 80 | 12.6 | | | | |
| | | 12.1 | | (3-4') SAND, coarse grained with GRAVEL, loose, brown, dry, no plasticity | SP-GW | |
| | | | | (4-4.3') COBBLE/GRAVEL, pale white, SANDSTONE type rock with white GRAVEL sized grains, hard, loose, dry | GP | |
| | | 10.1 | B4-025-SB-5 | (4.3-5') SAND, coarse grained, loose, soft, brown, moist | SP | Wet at 5' + bgs<br>Boring terminated at 5' bgs due to refusal and water. |
| 5 | | | | | | |

Total Borehole Depth: 5' bgs.

02-07-2017 P:\EnviroAnalytics Group\150300M EAG_Sparrows Point Area B\Documents\Parcel B4\Boring Logs\2_Bor Logs\B4-025-SB.bor

ARM Group Inc.
Earth Resource Engineers and Consultants

# Boring ID: B4-026-SB

(page 1 of 1)

| | |
|---|---|
| Client | : EnviroAnalytics Group |
| ARM Project No. | : 150300M-7-3 |
| Project Description | : Sparrows Point - Parcel B4 |
| Site Location | : Sparrows Point, MD |
| ARM Representative | : L. Perrin |
| Checked by | : W. Mader P.G., CPSS |
| Drilling Company | : Green Services, Inc |
| Driller | : Don Marchese |
| Drilling Equipment | : Geoprobe 7822DT |

| | |
|---|---|
| Date | : 3/2/2016 |
| Weather | : 30s, sunny |
| Northing (US ft) | : 565,486.7143 |
| Easting (US ft) | : 1,457,231.378 |

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample No/Interval | DESCRIPTION | USCS | REMARKS |
|---|---|---|---|---|---|---|
| 0 | | | | | | |
| | | - | B4-026-SB-1 | (0-1.8') SAND, soft, brown, moist, no plasticity, no cohesion | SW | |
| | | - | | | | |
| | | | | (1.8-2') ASPHALT, GRAVEL sized, hard, loose, black, dry | N/A | |
| | 70 | 2.5 | | (2-4') GRAVELLY SAND, loose, brown, dry, no plasticity | SW-GW | |
| | | 4.2 | | | | |
| | | 1.2 | B4-026-SB-5 | (4-6.6') SAND, tan, moist, no plasticity, no cohesion | SW | Wet at 6' + bgs<br>Gaseous odor |
| 5 | | - | | | | |
| | | - | | | | |
| | | | | (6.6-10') CLAY, soft, firm, light gray with orange mottling, wet becoming drier with depth, low plasticity, cohesive | | |
| | 70 | 0.1 | | | | |
| | | 0.0 | | | CL | |
| | | - | | | | Boring terminated at 10' bgs due to encountering groundwater |
| 10 | | | | | | |

Total Borehole Depth: 10' bgs.

02-07-2017 P:\EnviroAnalytics Group\150300M EAG_Sparrows Point Area B\Documents\Parcel B4\Boring Logs\2_Bor Logs\B4-026-SB.bor

ARM Group Inc.
Earth Resource Engineers and Consultants

# Boring ID: B4-027-SB

(page 1 of 1)

| | |
|---|---|
| Client | : EnviroAnalytics Group |
| ARM Project No. | : 150300M-7-3 |
| Project Description | : Sparrows Point - Parcel B4 |
| Site Location | : Sparrows Point, MD |
| ARM Representative | : L. Perrin |
| Checked by | : W. Mader P.G., CPSS |
| Drilling Company | : Green Services, Inc |
| Driller | : Don Marchese |
| Drilling Equipment | : Geoprobe 7822DT |

| | |
|---|---|
| Date | : 3/2/2016 |
| Weather | : 30s, sunny |
| Northing (US ft) | : 565,490.0836 |
| Easting (US ft) | : 1,457,219.699 |

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample No/Interval | DESCRIPTION | USCS | REMARKS |
|---|---|---|---|---|---|---|
| 0 | | | | | | |
| | | - | B4-027-SB-1 | (0-5.5') GRAVELLY SAND, loose, soft, brown and gray, dry, grading to moist | | |
| | | 0.8 | | | | |
| | 80 | 2.2 | | | SW-GW | Gaseous odor |
| | | 3.0 | | | | |
| | | 5.2 | B4-027-SB-5 | | | |
| 5 | | | | | | |
| | | - | | (5.5-6.3') SAND, very coarse grained, soft, loose, beige, wet, no plasticity | SP | Wet at 6' + bgs |
| | | - | | (6.3-7') SAND, very coarse grained, loose, soft, dark brown, wet | SP | |
| | | | | (7-10') CLAY, soft, gray, wet, medium plasticity, cohesive; firm at dry at 9' bgs | | |
| | 80 | - | | | | |
| | | - | | | CL | |
| | | 8.6 | | | | Boring terminated at 10' bgs due to encountering groundwater |
| 10 | | | | | | |

Total Borehole Depth: 10' bgs.

ARM Group Inc.
Earth Resource Engineers and Consultants

# Boring ID: B4-028-SB

(page 1 of 1)

| | |
|---|---|
| Client | : EnviroAnalytics Group |
| ARM Project No. | : 150300M-7-3 |
| Project Description | : Sparrows Point - Parcel B4 |
| Site Location | : Sparrows Point, MD |
| ARM Representative | : L. Perrin |
| Checked by | : W. Mader P.G., CPSS |
| Drilling Company | : Green Services, Inc |
| Driller | : Don Marchese |
| Drilling Equipment | : Geoprobe 7822DT |

| | |
|---|---|
| Date | : 3/7/2016 |
| Weather | : 30s, sunny |
| Northing (US ft) | : 563,922.2251 |
| Easting (US ft) | : 1,457,513.719 |

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample No/Interval | DESCRIPTION | USCS | REMARKS |
|---|---|---|---|---|---|---|
| 0 | | | | | | |
| | | - | B4-028-SB-1 | (0-2.5') SILTY SAND, soft, brown, very moist, dry at 1.8' bgs, no plasticity, cohesive | SM | |
| | | 14.5 | | | | |
| | 94 | 15.2 | | (2.5-2.8') CONCRETE, hard, loose, gray, dry | N/A | |
| | | | | (2.8-3.5') SANDY SILT, soft, brown, moist, low plasticity, cohesive | ML | |
| | | 15.8 | B4-028-SB-4 | (3.5-4') SANDY GRAVEL, brown, with beige coarse SAND, hard, loose, dry | GP | Boring terminated at 4' bgs due to refusal |
| | | | | End of Boring | | |
| 5 | | | | | | |

Total Borehole Depth: 4' bgs.

ARM Group Inc.
Earth Resource Engineers and Consultants

# Boring ID: B4-029-SB

(page 1 of 1)

| | | | |
|---|---|---|---|
| Client | : EnviroAnalytics Group | Date | : 3/7/2016 |
| ARM Project No. | : 150300M-7-3 | Weather | : 30s, sunny |
| Project Description | : Sparrows Point - Parcel B4 | | |
| Site Location | : Sparrows Point, MD | | |
| ARM Representative | : L. Perrin | | |
| Checked by | : W. Mader P.G., CPSS | Northing (US ft) | : 563,926.6273 |
| Drilling Company | : Green Services, Inc | Easting (US ft) | : 1,457,442.749 |
| Driller | : Don Marchese | | |
| Drilling Equipment | : Geoprobe 7822DT | | |

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample No/Interval | DESCRIPTION | USCS | REMARKS |
|---|---|---|---|---|---|---|
| 0 | 100 | 32.3 | B4-029-SB-1 | (0-1.5') SILTY SAND, with metallic GRAVEL, loose, soft, brown, dry, moist at top 1", no plasticity | SM | Boring terminated at 1.5' bgs due to refusal |
| | | | | End of Boring | | |
| 5 | | | | | | |

Total Borehole Depth: 1.5' bgs.

02-07-2017 P:\EnviroAnalytics Group\150300M EAG_Sparrows Point Area B\Documents\Parcel B4\Boring Logs\2_Bor Logs\B4-029-SB.bor

ARM Group Inc.
Earth Resource Engineers and Consultants

# Boring ID: B4-030-SB

(page 1 of 1)

| | |
|---|---|
| Client | : EnviroAnalytics Group |
| ARM Project No. | : 150300M-7-3 |
| Project Description | : Sparrows Point - Parcel B4 |
| Site Location | : Sparrows Point, MD |
| ARM Representative | : L. Perrin |
| Checked by | : W. Mader P.G., CPSS |
| Drilling Company | : Green Services, Inc |
| Driller | : Don Marchese |
| Drilling Equipment | : Geoprobe 7822DT |

| | |
|---|---|
| Date | : 3/3/2016 |
| Weather | : 40s, sunny |
| Northing (US ft) | : 565,113.2404 |
| Easting (US ft) | : 1,456,245.479 |

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample No/Interval | DESCRIPTION | USCS | REMARKS |
|---|---|---|---|---|---|---|
| 0 | | - | B4-030-SB-1 | (0-2.5') SAND, brown, with little slag gravel, dry, loose, no plasticity | SW | |
| | | 7.2 | | | | |
| | 80 | 8.4 | | (2.5-7.5') Sandy SILT, black, very fine grained, dry, soft, no plasticity; moist and very soft at 4' bgs; wet at 6' bgs | | |
| | | 7.9 | | | | |
| | | 6.1 | B4-030-SB-5 | | | |
| 5 | | | | | ML | |
| | | 9.0 | | | | Wet at 6' + bgs |
| | | 10.4 | | | | |
| | 100 | 7.4 | | (7.5-9') CLAY, light gray, soft, moist, medium cohesion, medium plasticity | | |
| | | 4.5 | | | CL | |
| | | | | (9-10') CLAY, gray and orange mottled, moist, firm, medium cohesion, medium plasticity | | |
| | | 3.6 | | | CL | Boring terminated at 10' bgs due to encountering groundwater |
| 10 | | | | | | |

Total Borehole Depth: 10' bgs.

02-07-2017 P:\EnviroAnalytics Group\150300M EAG_Sparrows Point Area B\Documents\Parcel B4\Boring Logs\2_Bor Logs\B4-030-SB.bor

ARM Group Inc.
Earth Resource Engineers and Consultants

# Boring ID: B4-031-SB

(page 1 of 1)

| | |
|---|---|
| Client | : EnviroAnalytics Group |
| ARM Project No. | : 150300M-7-3 |
| Project Description | : Sparrows Point - Parcel B4 |
| Site Location | : Sparrows Point, MD |
| ARM Representative | : L. Perrin |
| Checked by | : W. Mader P.G., CPSS |
| Drilling Company | : Green Services, Inc |
| Driller | : Don Marchese |
| Drilling Equipment | : Geoprobe 7822DT |

| | |
|---|---|
| Date | : 3/3/2016 |
| Weather | : 40s, sunny |
| Northing (US ft) | : 565157.3184 |
| Easting (US ft) | : 1456219.035 |

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample No/Interval | DESCRIPTION | USCS | REMARKS |
|---|---|---|---|---|---|---|
| 0 | | | | | | |
| | 70 | - | B4-031-SB-1 | (0-2.3') SANDY CLAY, soft, tan, moist, low plasticity, cohesive | CL | |
| | | - | | | | |
| | | 3.0 | | (2.3-3.3') SILTY SAND, loose, soft, dark brown, dry, no plasticity | SM | |
| | | 7.5 | B4-031-SB-4 | (3.3-3.6') SLAG, gray, GRAVEL sized with beige SAND, hard, loose, dry | GW-SW | |
| | | | | (3.6-4.1') SAND, black, loose, moist | SW | Wet at 4.1' + bgs |
| | | | | (4.1-4.5') SAND, coarse grained with BRICK GRAVEL, beige, wet, no plasticity, no cohesion | SP | |
| | | - | | (4.5-5') SANDY SILT, firm, brown, wet, no plasticity, cohesive | ML | Boring terminated at 5' bgs due to encountering groundwater |
| 5 | | | | | | |

Total Borehole Depth: 5' bgs.

02-07-2017 P:\EnviroAnalytics Group\150300M EAG_Sparrows Point Area B\Documents\Parcel B4\Boring Logs\2_Bor Logs\B4-031-SB.bor

ARM Group Inc.
Earth Resource Engineers and Consultants

# Boring ID: B4-032-SB

(page 1 of 1)

| | | | |
|---|---|---|---|
| Client | : EnviroAnalytics Group | Date | : 3/14/2016 |
| ARM Project No. | : 150300M-7-3 | Weather | : 50s, cloudy/light rain |
| Project Description | : Sparrows Point - Parcel B4 | | |
| Site Location | : Sparrows Point, MD | | |
| ARM Representative | : S. Kabis | | |
| Checked by | : W. Mader P.G., CPSS | Northing (US ft) | : 563,816.759 |
| Drilling Company | : Green Services, Inc | Easting (US ft) | : 1,456,278.752 |
| Driller | : Don Marchese | | |
| Drilling Equipment | : Geoprobe 7822DT | | |

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample No/Interval | DESCRIPTION | USCS | REMARKS |
|---|---|---|---|---|---|---|
| 0 | 23 | 8.7 | B4-032-SB-1 | (0-2') SAND, with GRAVEL, loose, brown, dry, no plasticity, no cohesion | SW | Boring terminated at 2' bgs due to refusal |
| | | | | End of Boring | | |
| 5 | | | | | | |

Total Borehole Depth: 2' bgs.

02-07-2017 P:\EnviroAnalytics Group\150300M EAG_Sparrows Point Area B\Documents\Parcel B4\Boring Logs\2_Bor Logs\B4-032-SB.bor

ARM Group Inc.
Earth Resource Engineers and Consultants

# Boring ID: B4-033-SB

(page 1 of 1)

| | |
|---|---|
| Client | : EnviroAnalytics Group |
| ARM Project No. | : 150300M-7-3 |
| Project Description | : Sparrows Point - Parcel B4 |
| Site Location | : Sparrows Point, MD |
| ARM Representative | : S. Kabis |
| Checked by | : W. Mader P.G., CPSS |
| Drilling Company | : Green Services, Inc |
| Driller | : Don Marchese |
| Drilling Equipment | : Geoprobe 7822DT |

| | |
|---|---|
| Date | : 3/14/2016 |
| Weather | : 50s, cloudy/light rain |
| Northing (US ft) | : 563,927.7603 |
| Easting (US ft) | : 1,456,283.801 |

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample No/Interval | DESCRIPTION | USCS | REMARKS |
|---|---|---|---|---|---|---|
| 0 | 100 | 35.5 | B4-033-SB-1 | (0-0.5') SAND, with GRAVEL, loose, brown, dry, no plasticity, no cohesion | SW | |
| | | | | (0.5-1.5') CONCRETE FRAGMENTS, SAND to GRAVEL-sized, loose, white, dry, no plasticity, no cohesion | N/A | |
| | | 12.1 | | (1.5-2') SAND, with GRAVEL, loose, brown, dry, no plasticity, no cohesion | SW | Boring terminated at 2' bgs due to refusal |
| | | | | End of Boring | | |
| 5 | | | | | | |

Total Borehole Depth: 2' bgs.

02-07-2017 P:\EnviroAnalytics Group\150300M EAG_Sparrows Point Area B\Documents\Parcel B4\Boring Logs\2_Bor Logs\B4-033-SB.bor

ARM Group Inc.
Earth Resource Engineers and Consultants

# Boring ID: B4-034-SB

(page 1 of 1)

| | |
|---|---|
| Client | : EnviroAnalytics Group |
| ARM Project No. | : 150300M-7-3 |
| Project Description | : Sparrows Point - Parcel B4 |
| Site Location | : Sparrows Point, MD |
| ARM Representative | : S. Kabis |
| Checked by | : W. Mader P.G., CPSS |
| Drilling Company | : Green Services, Inc |
| Driller | : Don Marchese |
| Drilling Equipment | : Geoprobe 7822DT |

| | |
|---|---|
| Date | : 3/14/2016 |
| Weather | : 50s, cloudy/light rain |
| Northing (US ft) | : 563,951.0656 |
| Easting (US ft) | : 1,456,374.767 |

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample No/Interval | DESCRIPTION | USCS | REMARKS |
|---|---|---|---|---|---|---|
| 0 | | | | | | |
| | | - | B4-034-SB-1 | (0-1') SAND, with GRAVEL, loose, brown, dry, no plasticity, no cohesion | SW | |
| | 69 | 7.0<br>8.9 | | (1-3.5') BRICK FRAGMENTS, dense, red, wet, no plasticity, no cohesion | N/A | Boring terminated at 3.5' bgs due to refusal |
| | | | | End of Boring | | |
| 5 | | | | | | |

Total Borehole Depth: 3.5' bgs.

02-07-2017 P:\EnviroAnalytics Group\150300M EAG_Sparrows Point Area B\Documents\Parcel B4\Boring Logs\2_Bor Logs\B4-034-SB.bor

ARM Group Inc.
Earth Resource Engineers and Consultants

# Boring ID: B4-035-SB

(page 1 of 1)

| | |
|---|---|
| Client | : EnviroAnalytics Group |
| ARM Project No. | : 150300M-7-3 |
| Project Description | : Sparrows Point - Parcel B4 |
| Site Location | : Sparrows Point, MD |
| ARM Representative | : L. Perrin |
| Checked by | : W. Mader P.G., CPSS |
| Drilling Company | : Green Services, Inc |
| Driller | : Don Marchese |
| Drilling Equipment | : Geoprobe 7822DT |

| | |
|---|---|
| Date | : 3/3/2016 |
| Weather | : 30s, sunny |
| Northing (US ft) | : 565,284.0063 |
| Easting (US ft) | : 1,457,558.296 |

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample No/Interval | DESCRIPTION | USCS | REMARKS |
|---|---|---|---|---|---|---|
| 0 | | - | B4-035-SB-1 | (0-0.6') TOPSOIL, with MICA flakes and small ROOTS, soft, brown, moist, no plasticity, cohesive | ML | |
| | | | | (0.6-1') GRAVEL, fill material, hard, loose, white, dry | GW | |
| | | 11.4 | | (1-6.5') SANDY SILT, hard, tan and gray, dry, low plasticity, cohesive | ML | |
| | 90 | 10.6 | | | | |
| | | 10.0 | | | | |
| | | 9.2 | B4-035-SB-5 | | | |
| 5 | | - | | | | |
| | | 14.7 | | (6.5-7') SLAG, GRAVEL sized, hard, loose, brown, moist | GW | Wet at 7' + bgs |
| | 80 | 12.5 | | (7-10') CLAY, gray, very wet grading to moist at depth, high plasticity, cohesive | CH | |
| | | 11.0 | | | | |
| | | 10.5 | | | | Boring terminated at 10' bgs due to encountering groundwater |
| 10 | | | | | | |

Total Borehole Depth: 10' bgs.

02-07-2017 P:\EnviroAnalytics Group\150300M EAG_Sparrows Point Area B\Documents\Parcel B4\Boring Logs\2_Bor Logs\B4-035-SB.bor

ARM Group Inc.
Earth Resource Engineers and Consultants

# Boring ID: B4-036-SB

(page 1 of 1)

| | |
|---|---|
| Client | : EnviroAnalytics Group |
| ARM Project No. | : 150300M-7-3 |
| Project Description | : Sparrows Point - Parcel B4 |
| Site Location | : Sparrows Point, MD |
| ARM Representative | : L. Perrin |
| Checked by | : W. Mader P.G., CPSS |
| Drilling Company | : Green Services, Inc |
| Driller | : Tim Niblett |
| Drilling Equipment | : Geoprobe 7822DT |

| | |
|---|---|
| Date | : 3/3/2016 |
| Weather | : 40s, sunny |
| Northing (US ft) | : 564,546.4789 |
| Easting (US ft) | : 1,457,554.39 |

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample No/Interval | DESCRIPTION | USCS | REMARKS |
|---|---|---|---|---|---|---|
| 0 | | - | B4-036-SB-1 | (0-1.3') SAND, poorly graded, fine grained with GRAVEL, soft, loose, brown, dry, no plasticity | SP | |
| | | 12.3 | | (1.3-4.5') CLAY, trace sand, very firm, light gray with reddish yellow mottling, high plasticity, cohesive; grades to SANDY CLAY, very firm, light gray with reddish yellow mottling, high plasticity, cohesive | CH | |
| | 80 | 14.2 | | | | |
| | | 11.6 | | | | |
| | | 11.0 | B4-036-SB-5 | (4.5-8.1') SANDY GRAVEL, hard, loose, brown with oxidation, moist, no plasticity | GP | |
| 5 | | - | | | | |
| | | - | | | | |
| | 40 | - | | | | Wet at 8.5' + bgs |
| | | 9.4 | | (8.1-8.5') SAND, poorly graded, coarse grained with GRAVEL, loose, light beige, dry, no plasticity | SP | |
| | | | | (8.5-9') SAND, poorly graded, very coarse grained, beige, wet, no plasticity, no cohesion | SP | |
| | | 9.1 | | (9-10') CLAYEY SAND, firm, dark brown grading to gray, wet, low plasticity, cohesive | SC | Boring terminated at 10' bgs due to encountering groundwater |
| 10 | | | | | | |

Total Borehole Depth: 10' bgs.

02-07-2017 P:\EnviroAnalytics Group\150300M EAG_Sparrows Point Area B\Documents\Parcel B4\Boring Logs\2_Bor Logs\B4-036-SB.bor

ARM Group Inc.
Earth Resource Engineers and Consultants

# Boring ID: B4-037-SB

(page 1 of 1)

| | |
|---|---|
| Client | : EnviroAnalytics Group |
| ARM Project No. | : 150300M-7-3 |
| Project Description | : Sparrows Point - Parcel B4 |
| Site Location | : Sparrows Point, MD |
| ARM Representative | : L. Perrin |
| Checked by | : W. Mader P.G., CPSS |
| Drilling Company | : Green Services, Inc |
| Driller | : Don Marchese |
| Drilling Equipment | : Geoprobe 7822DT |

| | |
|---|---|
| Date | : 3/2/2016 |
| Weather | : 30s, sunny |
| Northing (US ft) | : 564,807.8356 |
| Easting (US ft) | : 1,456,369.476 |

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample No/Interval | DESCRIPTION | USCS | REMARKS |
|---|---|---|---|---|---|---|
| 0 | | - | B4-037-SB-1 | (0-4.0') SAND, with SILT, loose, brown, dry | SW | |
| | 70 | 12.5 | | | | |
| | | 12.5 | | | | |
| | | 12.2 | | | | |
| | | 11.7 | | (4-7.5') SANDY CLAY, brown to gray, gray at 6' bgs, moist, medium plasticity, cohesive | CL | Diesel smell |
| 5 | | 24.5 | B4-037-SB-6 | | | Diesel smell |
| | | 21.6 | | | | |
| | 100 | 25.1 | | (7.5-9.6') CLAYEY SILT, firm, brownish gray, moist, low plasticity, cohesive; grading to SILTY CLAY with trace SAND that is firm, moist, low plasticity, cohesive | ML/CL | |
| | | 22.0 | | | | |
| | | 22.3 | B4-037-SB-10 | (9.6-10') SILTY SAND, loose, gray, moist, cohesive | SM | |
| 10 | | | | | | Wet at 10' + bgs |
| | | 21.3 | | (10-11.5') SAND, loose, gray, wet, no cohesion | SW | |
| | 100 | 14.7 | | (11.5-13') SAND, loose, reddish yellow, wet, no cohesion | SW | Boring terminated at 13' bgs due to encountering groundwater |
| | | | | End of Boring | | |
| 15 | | | | | | |

Total Borehole Depth: 13' bgs.

02-07-2017 P:\EnviroAnalytics Group\150300M EAG_Sparrows Point Area B\Documents\Parcel B4\Boring Logs\2_Bor Logs\B4-037-SB.bor

ARM Group Inc.
Earth Resource Engineers and Consultants

# Boring ID: B4-038-SB

(page 1 of 1)

| | |
|---|---|
| Client | : EnviroAnalytics Group |
| ARM Project No. | : 150300M-7-3 |
| Project Description | : Sparrows Point - Parcel B4 |
| Site Location | : Sparrows Point, MD |
| ARM Representative | : L. Perrin |
| Checked by | : W. Mader P.G., CPSS |
| Drilling Company | : Green Services, Inc |
| Driller | : Don Marchese |
| Drilling Equipment | : Geoprobe 7822DT |

| | |
|---|---|
| Date | : 3/2/2016 |
| Weather | : 30s, sunny |
| Northing (US ft) | : 564,704.6505 |
| Easting (US ft) | : 1,456,344.519 |

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample No/Interval | DESCRIPTION | USCS | REMARKS |
|---|---|---|---|---|---|---|
| 0 | | - | B4-038-SB-1 | (0-1.5') TOPSOIL, with ROOTS present, soft, dark brown, no plasticity, cohesive | ML | |
| | | 1.4 | | | | |
| | 90 | 2.4 | | (1.5-2.6') SAND, fine grained, loose, dark brown, reddish yellow at 2.5' bgs; black at 3.1' bgs, dry, no plasticity, no cohesion | SP | |
| | | 3.2 | | (3.1-5') SAND, fine grained, loose, brown, dry grading to moist, no plasticity | SP | |
| | | 3.5 | B4-038-SB-5 | | | |
| 5 | | - | | (5-6') SANDY CLAY, soft, tan, moist, medium plasticity, cohesive | CL | |
| | | 0.0 | | (6-9') CLAYEY SAND, soft, tan, moist, no cohesion | SC | |
| | 100 | 0.0 | | | | |
| | | 0.1 | | | | |
| | | 0.0 | B4-038-SB-10 | (9-10') CLAY, with trace SAND, tan, moist, high plasticity, cohesive | CH | |
| 10 | | - | | (10-12') SANDY CLAY, soft, tan, moist, medium plasticity, cohesive | CL | |
| | | - | | | | Wet at 12' + bgs |
| | 100 | - | | (12-14.6') CLAYEY SAND, very soft, tan, wet, low plasticity, cohesive | SC | |
| | | - | | | | |
| | | - | | | | Boring terminated at 15' bgs due to encountering groundwater |
| 15 | | | | (14.6-15') CLAY, very firm, gray, moist, medium plasticity, cohesive | CL | |

Total Borehole Depth: 15' bgs.

02-07-2017 P:\EnviroAnalytics Group\150300M EAG_Sparrows Point Area B\Documents\Parcel B4\Boring Logs\2_Bor Logs\B4-038-SB.bor

ARM Group Inc.
Earth Resource Engineers and Consultants

# Boring ID: B4-039-SB

(page 1 of 1)

| | |
|---|---|
| Client | : EnviroAnalytics Group |
| ARM Project No. | : 150300M-7-3 |
| Project Description | : Sparrows Point - Parcel B4 |
| Site Location | : Sparrows Point, MD |
| ARM Representative | : L. Perrin |
| Checked by | : W. Mader P.G., CPSS |
| Drilling Company | : Green Services, Inc |
| Driller | : Don Marchese |
| Drilling Equipment | : Geoprobe 7822DT |

| | |
|---|---|
| Date | : 3/2/2016 |
| Weather | : 30s, sunny |
| Northing (US ft) | : 565,199.0932 |
| Easting (US ft) | : 1,456,711.099 |

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample No/Interval | DESCRIPTION | USCS | REMARKS |
|---|---|---|---|---|---|---|
| 0 | | - | B4-039-SB-1 | (0-2') CLAY, trace SAND, very soft, beige, moist, medium plasticity, cohesive | CL | |
| | | 11.1 | | | | |
| | 80 | 11.8 | | (2-3.5') FILL, hard, loose, dry | N/A | |
| | | 11.0 | | (3.5-5') SILT, trace SAND, soft, loose, dark brown, slightly moist, no plasticity | ML | |
| | | 10.6 | B4-039-SB-5 | | | |
| 5 | | | | | | Wet at 5' + bgs |
| | 100 | | | (5-6') SANDY SILT, very soft, black, wet, low plasticity, cohesive | ML | |
| | | | | | | Boring terminated at 6' bgs due to encountering groundwater |

Total Borehole Depth: 6' bgs.

02-07-2017 P:\EnviroAnalytics Group\150300M EAG_Sparrows Point Area B\Documents\Parcel B4\Boring Logs\2_Bor Logs\B4-039-SB.bor

ARM Group Inc.
Earth Resource Engineers and Consultants

# Boring ID: B4-040-SB

(page 1 of 1)

| | |
|---|---|
| Client | : EnviroAnalytics Group |
| ARM Project No. | : 150300M-7-3 |
| Project Description | : Sparrows Point - Parcel B4 |
| Site Location | : Sparrows Point, MD |
| ARM Representative | : L. Perrin |
| Checked by | : W. Mader P.G., CPSS |
| Drilling Company | : Green Services, Inc |
| Driller | : Don Marchese |
| Drilling Equipment | : Geoprobe 7822DT |

| | |
|---|---|
| Date | : 3/2/2016 |
| Weather | : 30s, sunny |
| Northing (US ft) | : 565,177.739 |
| Easting (US ft) | : 1,456,710.579 |

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample No/Interval | DESCRIPTION | USCS | REMARKS |
|---|---|---|---|---|---|---|
| 0 | | | | | | |
| | | - | B4-040-SB-1 | (0-2') SANDY CLAY, very soft, beige, moist, medium plasticity, cohesive | CL | |
| | | 10.3 | | | | |
| | 70 | 10.8 | | (2-3') FILL, hard, loose, dry | N/A | |
| | | 11.2 | | (3-4') SANDY GRAVEL, with SILT, hard with soft matrix, loose, dark brown, moist | GW-GM | |
| | | 9.6 | B4-040-SB-5 | (4-5') SANDY SILT, with GRAVEL, soft, loose, dark brown, moist | ML | Wet at 5' bgs<br>Boring terminated at 5' bgs due to encountering groundwater |
| 5 | | | | | | |

Total Borehole Depth: 5' bgs.

02-07-2017 P:\EnviroAnalytics Group\150300M EAG_Sparrows Point Area B\Documents\Parcel B4\Boring Logs\2_Bor Logs\B4-040-SB.bor

ARM Group Inc.
Earth Resource Engineers and Consultants

# Boring ID: B4-041-SB

(page 1 of 1)

| | |
|---|---|
| Client | : EnviroAnalytics Group |
| ARM Project No. | : 150300M-7-3 |
| Project Description | : Sparrows Point - Parcel B4 |
| Site Location | : Sparrows Point, MD |
| ARM Representative | : L. Perrin |
| Checked by | : W. Mader P.G., CPSS |
| Drilling Company | : Green Services, Inc |
| Driller | : Tim Niblett |
| Drilling Equipment | : Geoprobe 7822DT |

| | |
|---|---|
| Date | : 3/1/2016 |
| Weather | : 40s, sunny |
| Northing (US ft) | : 564,865.1204 |
| Easting (US ft) | : 1,456,829.184 |

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample No/Interval | DESCRIPTION | USCS | REMARKS |
|---|---|---|---|---|---|---|
| 0 | | - | B4-041-SB-1 | (0-3') SANDY GRAVEL, hard, loose, gray, dry | GW | |
| | | - | | | | |
| | 70 | 9.0 | | | | |
| | | 122.6 | | (3-5') SILTY SAND, loose, brown, moist | SM | |
| | | 4.1 | B4-026-SB-5 | | | |
| 5 | | 2.0 | | (5-6.5') SANDY SILT, brown, dry | ML | |
| | | 3.8 | | (6.5-7.5') SANDY GRAVEL, hard, loose, gray, wet | GW | Wet at 6.5' + bgs |
| | 100 | - | | (7.5-8') SAND, loose, brown, wet | SW | |
| | | - | | (8-10') CLAY, with trace SAND and 3" GRAVEL layer at 9' bgs, brown, high plasticity, cohesive | CH | Sulfur odor |
| | | - | | | | Boring terminated at 10' bgs due to encountering groundwater |
| 10 | | | | | | |

Total Borehole Depth: 10' bgs.

02-07-2017 P:\EnviroAnalytics Group\150300M EAG_Sparrows Point Area B\Documents\Parcel B4\Boring Logs\2_Bor Logs\B4-041-SB.bor

ARM Group Inc.
Earth Resource Engineers and Consultants

# Boring ID: B4-042-SB

(page 1 of 1)

| | |
|---|---|
| Client | : EnviroAnalytics Group |
| ARM Project No. | : 150300M-7-3 |
| Project Description | : Sparrows Point - Parcel B4 |
| Site Location | : Sparrows Point, MD |
| ARM Representative | : L. Perrin |
| Checked by | : W. Mader P.G., CPSS |
| Drilling Company | : Green Services, Inc |
| Driller | : Tim Niblett |
| Drilling Equipment | : Geoprobe 7822DT |

| | |
|---|---|
| Date | : 3/1/2016 |
| Weather | : 40s, sunny |
| Northing (US ft) | : 564,918.5082 |
| Easting (US ft) | : 1,456,833.648 |

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample No/Interval | DESCRIPTION | USCS | REMARKS |
|---|---|---|---|---|---|---|
| 0 | | | | | | |
| | | 1.0 | B4-042-SB-1 | (0-0.6') SAND, fine to medium grained with GRAVEL, loose, light reddish yellow, dry | SW-GW | |
| | | | | (0.6-1') SAND, fine grained with GRAVEL, loose, soft, light orange to yellow, dry | SW | Mothball odor |
| | | 7.2 | | (1-2.5') SANDY SILT, slightly firm, dark brown and reddish yellow, moist, cohesive | ML | |
| | 100 | 3.0 | | (2.5-5') SILT, firm, white and gray, moist, cohesive | | |
| | | 5.4 | | | ML | |
| | | 5.2 | B4-042-SB-5 | | | Boring terminated at 5' bgs due to refusal |
| 5 | | | | | | |

Total Borehole Depth: 5' bgs.

02-07-2017 P:\EnviroAnalytics Group\150300M EAG_Sparrows Point Area B\Documents\Parcel B4\Boring Logs\2_Bor Logs\B4-042-SB.bor

ARM Group Inc.
Earth Resource Engineers and Consultants

# Boring ID: B4-043-SB

(page 1 of 1)

| | |
|---|---|
| Client | : EnviroAnalytics Group |
| ARM Project No. | : 150300M-7-3 |
| Project Description | : Sparrows Point - Parcel B4 |
| Site Location | : Sparrows Point, MD |
| ARM Representative | : L. Perrin |
| Checked by | : W. Mader P.G., CPSS |
| Drilling Company | : Green Services, Inc |
| Driller | : Don Marchese |
| Drilling Equipment | : Geoprobe 7822DT |

| | |
|---|---|
| Date | : 3/7/2016 |
| Weather | : 30s, sunny |
| Northing (US ft) | : 564,167.613 |
| Easting (US ft) | : 1,457,767.731 |

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample No/Interval | DESCRIPTION | USCS | REMARKS |
|---|---|---|---|---|---|---|
| 0 | | - | B4-043-SB-1 | (0-2.5') SANDY SILT, large chunk of metal at 2.5', soft, brown, no plasticity | ML | |
| | | 9.4 | | | | |
| | 70 | 14.1 | | (2.5-5.5') SAND, with GRAVEL, loose, light brown, dry, no plasticity; firm, moist, no plasticity, and no cohesion at 4.3' bgs | SW | |
| | | 13.2 | | | | |
| | | 12.6 | B4-043-SB-5 | | | |
| 5 | | - | | (5.5-7.5') SILTY SAND, fine grained, brown, moist, no plasticity, cohesive; very moist at 7.5' and medium grained SAND | SM | |
| | | 12.2 | | | | |
| | 80 | 14.1 | | (7.5-10') GRAVEL, with SILT, hard, brown, wet, no plasticity, no cohesion | GM | Wet at 7.5' + bgs |
| | | 14.3 | | | | |
| 10 | | - | | | | Boring terminated at 10' bgs due to encountering groundwater |

Total Borehole Depth: 10' bgs.

02-07-2017 P:\EnviroAnalytics Group\150300M EAG_Sparrows Point Area B\Documents\Parcel B4\Boring Logs\2_Bor Logs\B4-043-SB.bor

ARM Group Inc.
Earth Resource Engineers and Consultants

# Boring ID: B4-044-SB

(page 1 of 1)

| | |
|---|---|
| Client | : EnviroAnalytics Group |
| ARM Project No. | : 150300M-7-3 |
| Project Description | : Sparrows Point - Parcel B4 |
| Site Location | : Sparrows Point, MD |
| ARM Representative | : L. Perrin |
| Checked by | : W. Mader P.G., CPSS |
| Drilling Company | : Green Services, Inc |
| Driller | : Don Marchese |
| Drilling Equipment | : Geoprobe 7822DT |

| | |
|---|---|
| Date | : 3/4/2016 |
| Weather | : 30s, cloudy |
| Northing (US ft) | : 564,064.3297 |
| Easting (US ft) | : 1,457,779.897 |

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample No/Interval | DESCRIPTION | USCS | REMARKS |
|---|---|---|---|---|---|---|
| 0 | | - | B4-044-SB-1 | (0-2.5') SAND, with metallic GRAVEL and SLAG, loose, brown, dry | SW | |
| | | 23.0 | | | | |
| | 80 | 27.5 | | (2.5-3.5') SAND, very fine grained, loose, dark brown, dry, no plasticity | SP | |
| | | 32.8 | B4-044-SB-4 | (3.5-8.5') SAND, coarse to very coarse grained, loose, beige, moist, no plasticity; increasing moisture with depth | | |
| | | 15.3 | | | | |
| 5 | | - | | | SW | |
| | | 15.3 | | | | |
| | 80 | 18.0 | | | | |
| | | - | | | | Wet at 8.5' + bgs |
| | | | | (8.5-10') SANDY GRAVEL, loose, hard, dark brown, wet | GW | |
| | | - | | | | Boring terminated at 10' bgs due to encountering groundwater |
| 10 | | | | | | |

Total Borehole Depth: 10' bgs.

02-07-2017 P:\EnviroAnalytics Group\150300M EAG_Sparrows Point Area B\Documents\Parcel B4\Boring Logs\2_Bor Logs\B4-044-SB.bor

ARM Group Inc.
Earth Resource Engineers and Consultants

# Boring ID: B4-045-SB

(page 1 of 1)

| | |
|---|---|
| Client | : EnviroAnalytics Group |
| ARM Project No. | : 150300M-7-3 |
| Project Description | : Sparrows Point - Parcel B4 |
| Site Location | : Sparrows Point, MD |
| ARM Representative | : L. Perrin |
| Checked by | : W. Mader P.G., CPSS |
| Drilling Company | : Green Services, Inc |
| Driller | : Don Marchese |
| Drilling Equipment | : Geoprobe 7822DT |

| | |
|---|---|
| Date | : 3/3/2016 |
| Weather | : 30s, cloudy/windy |
| Northing (US ft) | : 564,887.548 |
| Easting (US ft) | : 1,458,010.069 |

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample No/Interval | DESCRIPTION | USCS | REMARKS |
|---|---|---|---|---|---|---|
| 0 | | - | B4-045-SB-1 | (0-1.8') TOPSOIL, small ROOTS present, soft, brown, moist, cohesive | ML | |
| | | 4.9 | | (1.8-2.1') CONCRETE, GRAVEL sized, hard, loose, gray | N/A | |
| | 70 | 5.1 | | (2.1-9') SAND, loose, light brown, dry; moist at 7' bgs | | |
| | | 5.1 | | | | |
| | | 4.2 | B4-045-SB-5 | | | |
| 5 | | - | | | SW | |
| | | - | | | | |
| | 60 | 6.4 | | | | |
| | | 9.6 | | | | |
| | | 9.4 | B4-045-SB-10 | (9-11') CONCRETE, GRAVEL sized, hard, loose, dry | N/A | Sulfur odor |
| 10 | | - | | | | |
| | | 3.6 | | (11-13') SAND, loose, gray and brown, dry | SW | |
| | 60 | 5.2 | | | | |
| | | - | | (13-14.5') GRAVEL, with SAND sized CONCRETE, loose, beige and gray, dry | SW-GW | Wet at 14.5' + bgs |
| | | - | | (14.5-15') SAND, medium dense, brown, wet, no plasticity, no cohesion | SW | Boring terminated at 15' bgs due to encountering groundwater |
| 15 | | | | | | |

Total Borehole Depth: 15' bgs.

02-07-2017 P:\EnviroAnalytics Group\150300M EAG_Sparrows Point Area B\Documents\Parcel B4\Boring Logs\2_Bor Logs\B4-045-SB.bor

ARM Group Inc.
Earth Resource Engineers and Consultants

# Boring ID: B4-046-SB

(page 1 of 1)

| | |
|---|---|
| Client | : EnviroAnalytics Group |
| ARM Project No. | : 150300M-7-3 |
| Project Description | : Sparrows Point - Parcel B4 |
| Site Location | : Sparrows Point, MD |
| ARM Representative | : L. Perrin |
| Checked by | : W. Mader P.G., CPSS |
| Drilling Company | : Green Services, Inc |
| Driller | : Don Marchese |
| Drilling Equipment | : Geoprobe 7822DT |

| | |
|---|---|
| Date | : 3/4/2016 |
| Weather | : 30s, cloudy |
| Northing (US ft) | : 564,748.8154 |
| Easting (US ft) | : 1,457,983.98 |

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample No/Interval | DESCRIPTION | USCS | REMARKS |
|---|---|---|---|---|---|---|
| 0 | | - | B4-046-SB-1 | (0-5.5') SAND, fine to medium grained, loose, light brown, no plasticity | SW | |
| | 60 | 0.8 | | | | |
| | | 2.0 | | | | |
| | | 1.7 | B4-046-SB-5 | | | |
| 5 | | - | | (5.5-8') SANDY GRAVEL, hard, loose, gray, dry, no plasticity | GW | |
| | | 1.6 | | | | |
| | 80 | 1.9 | | | | |
| | | 2.2 | | (8-9') SAND, with FILL GRAVEL, loose, brown to black to maroon, dry, wet | SW | |
| | | 2.4 | | (9-9.5') SANDY SILT, firm, maroon to brown to beige, moist, no plasticity, cohesive | SM | Wet at 9.5' +bgs |
| 10 | | - | | (9.5-13') SAND, medium to coarse grained with GRAVEL, soft, loose, brown to beige, wet, no plasticity | SW | |
| | | - | | | | |
| | 10 | - | | | | |
| | | - | | (13-15') SAND, coarse grained with GRAVEL, beige, wet, no plasticity, no cohesion | SP | |
| 15 | | - | | | | Boring terminated at 15' bgs due to groundwater. |

Total Borehole Depth: 15' bgs.

02-07-2017 P:\EnviroAnalytics Group\150300M EAG_Sparrows Point Area B\Documents\Parcel B4\Boring Logs\2_Bor Logs\B4-046-SB.bor

ARM Group Inc.
Earth Resource Engineers and Consultants

# Boring ID: B4-047-SB

(page 1 of 1)

| | |
|---|---|
| Client | : EnviroAnalytics Group |
| ARM Project No. | : 150300M-7-3 |
| Project Description | : Sparrows Point - Parcel B4 |
| Site Location | : Sparrows Point, MD |
| ARM Representative | : L. Perrin |
| Checked by | : W. Mader P.G., CPSS |
| Drilling Company | : Green Services, Inc |
| Driller | : Don Marchese |
| Drilling Equipment | : Geoprobe 7822DT |

| | |
|---|---|
| Date | : 3/3/2016 |
| Weather | : 30s, sunny |
| Northing (US ft) | : 565,349.596 |
| Easting (US ft) | : 1,456,107.575 |

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample No/Interval | DESCRIPTION | USCS | REMARKS |
|---|---|---|---|---|---|---|
| 0 | | - | B4-047-SB-1 | (0-2.5') SILTY SAND, black, with green SLAG, loose, moist, no plasticity | SM | |
| | | - | | | | |
| | 70 | 1.6 | | (2.5-5') SAND, firm, brown grading to tan, moist, no plasticity, no cohesion | SW | |
| | | 1.9 | | | | |
| | | 1.4 | B4-047-SB-5 | | | |
| 5 | | 3.9 | | (5-6') SANDY CLAY, soft, tan, moist, low plasticity, cohesive | CL | |
| | | 3.4 | | (6-9.5') CLAY to SANDY CLAY, with trace SAND, tan, moist, medium plasticity, cohesive | CL | |
| | 100 | 3.2 | | | | |
| | | 3.5 | | | | Wet at 9.5' + bgs |
| | | 2.6 | | (9.5-10') SAND, with trace CLAY, brown, wet | SW | Boring terminated at 10' bgs due to encountering groundwater |
| 10 | | | | | | |

Total Borehole Depth: 10' bgs.

02-07-2017 P:\EnviroAnalytics Group\150300M EAG_Sparrows Point Area B\Documents\Parcel B4\Boring Logs\2_Bor Logs\B4-047-SB.bor

ARM Group Inc.
Earth Resource Engineers and Consultants

# Boring ID: B4-048-SB

(page 1 of 1)

| | |
|---|---|
| Client | : EnviroAnalytics Group |
| ARM Project No. | : 150300M-7-3 |
| Project Description | : Sparrows Point - Parcel B4 |
| Site Location | : Sparrows Point, MD |
| ARM Representative | : L. Perrin |
| Checked by | : W. Mader P.G., CPSS |
| Drilling Company | : Green Services, Inc |
| Driller | : Don Marchese |
| Drilling Equipment | : Geoprobe 7822DT |

| | |
|---|---|
| Date | : 3/3/2016 |
| Weather | : 30s, sunny |
| Northing (US ft) | : 565,385.501 |
| Easting (US ft) | : 1,457,903.781 |

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample No/Interval | DESCRIPTION | USCS | REMARKS |
|---|---|---|---|---|---|---|
| 0 | | | | | | |
| | | - | B4-048-SB-1 | (0-2.6') SAND, loose, brown, dry, no plasticity | SW | |
| | | - | | | | |
| | 50 | 4.0 | | | | |
| | | | | (2.6-3.3') CONCRETE, SAND to GRAVEL sized, loose, white, dry, no plasticity | N/A | |
| | | 49.4 | | (3.3-3.6') SAND, loose, beige, dry | SW | |
| | | | | (3.6-4.5') SAND, with GRAVEL, loose, grayish brown, dry | SW | |
| | | 4.7 | B4-048-SB-5 | (4.5-5') GRAVEL, hard, loose, brown, dry, no plasticity | GW | |
| 5 | | | | 5-8' No Recovery - Driller noted ~3' void | VOID | Void interval (5-8' bgs) per driller |
| | | - | | | | |
| | | - | | | | |
| | 30 | - | | | | |
| | | - | | (8-9.5') SAND, with GRAVEL, loose, grayish brown, dry | SW | Wet at 10' + bgs |
| | | 10.9 | | | | |
| 10 | | | | (9.5-10') SAND, with large GRAVEL, loose, soft, reddish yellowish brown, moist | SW | Boring terminated at 10' bgs due to encountering groundwater |

Total Borehole Depth: 10' bgs.

02-07-2017 P:\EnviroAnalytics Group\150300M EAG_Sparrows Point Area B\Documents\Parcel B4\Boring Logs\2_Bor Logs\B4-048-SB.bor

ARM Group Inc.
Earth Resource Engineers and Consultants

# Boring ID: B4-049-SB

(page 1 of 1)

| | |
|---|---|
| Client | : EnviroAnalytics Group |
| ARM Project No. | : 150300M-7-3 |
| Project Description | : Sparrows Point - Parcel B4 |
| Site Location | : Sparrows Point, MD |
| ARM Representative | : L. Perrin |
| Checked by | : W. Mader P.G., CPSS |
| Drilling Company | : Green Services, Inc |
| Driller | : Don Marchese |
| Drilling Equipment | : Geoprobe 7822DT |

| | |
|---|---|
| Date | : 3/2/2016 |
| Weather | : 30s, sunny |
| Northing (US ft) | : 565,208.986 |
| Easting (US ft) | : 1,457,005.894 |

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample No/Interval | DESCRIPTION | USCS | REMARKS |
|---|---|---|---|---|---|---|
| 0 | | | | | | |
| | | - | B4-049-SB-1 | (0-0.3') SAND, with 15% FINES, tan, moist, no plasticity, no cohesion | SW | |
| | | | | (0.3-0.6') CONCRETE, GRAVEL sized, hard, loose, dry | N/A | |
| | | | | (0.6-3') SAND, fine grained, loose, dark brown, dry | GP | |
| | 80 | 1.9 | | | | |
| | | 1.4 | | | | |
| | | | | (3-3.5') FILL, hard, loose, dry | GP | |
| | | 2.4 | B4-049-SB-4.5 | (3.5-4.5') SAND, loose, dark brown, dry | SW | |
| | | - | | (4.5-5') FILL, hard, loose, dry | N/A | |
| 5 | | | | (5-8') SAND, very coarse grained with GRAVEL, loose, brown and beige, dry | SW-GP | |
| | | - | | | | |
| | | - | | | | |
| | 60 | 1.8 | | | | |
| | | 1.5 | | (8-9.5') SAND, fine to medium grained with <10% GRAVEL FILL, loose, dark brown, dry | SW | Wet at 9.5' + bgs |
| | | 0.9 | | (9.5-10') SAND, medium to coarse grained, brown and beige, wet, no cohesion | SW | Boring terminated at 10' bgs due to encountering groundwater |
| 10 | | | | | | |

Total Borehole Depth: 10' bgs.

02-07-2017 P:\EnviroAnalytics Group\150300M EAG_Sparrows Point Area B\Documents\Parcel B4\Boring Logs\2_Bor Logs\B4-049-SB.bor

ARM Group Inc.
Earth Resource Engineers and Consultants

# Boring ID: B4-050-SB

(page 1 of 1)

| | |
|---|---|
| Client | : EnviroAnalytics Group |
| ARM Project No. | : 150300M-7-3 |
| Project Description | : Sparrows Point - Parcel B4 |
| Site Location | : Sparrows Point, MD |
| ARM Representative | : L. Perrin |
| Checked by | : W. Mader P.G., CPSS |
| Drilling Company | : Green Services, Inc |
| Driller | : Tim Niblett |
| Drilling Equipment | : Geoprobe 7822DT |

| | |
|---|---|
| Date | : 3/3/2016 |
| Weather | : 30s, sunny |
| Northing (US ft) | : 564,546.4789 |
| Easting (US ft) | : 1,457,554.39 |

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample No/Interval | DESCRIPTION | USCS | REMARKS |
|---|---|---|---|---|---|---|
| 0 | | - | B4-050-SB-1 | (0-0.7') ORGANIC SILT, GRASS and small ROOTS present, soft, brown, moist, low plasticity, cohesive | OL | |
| | | 13.5 | | (0.7-2.5') SILTY SAND, fine grained, loose, black, dry, no plasticity | SM | |
| | 80 | 14.9 | | (2.5-4.5') CLAY, hard, brown, dry, low plasticity, cohesive | CL | |
| | | 13.0 | | | | |
| | | 12.9 | B4-050-SB-5 | (4.5-5.5') SAND, poorly graded, medium grained, soft, loose, reddish yellow, moist, no plasticity | SP | |
| 5 | | - | | (5.5-7.5') SANDY CLAY, firm, tan, moist, medium plasticity, cohesive | CL | |
| | | - | | | | |
| | 70 | 2.3 | | (7.5-9') CLAY, firm, brown, moist, medium plasticity, cohesive | CL | |
| | | 12.3 | | | | |
| | | 12.9 | | (9-10') SAND, trace CLAY, loose, dark brown, wet, no plasticity, cohesive | SW | Wet at 9' + bgs<br>Boring terminated at 10' bgs due to encountering groundwater |
| 10 | | | | | | |

Total Borehole Depth: 10' bgs.

02-07-2017 P:\EnviroAnalytics Group\150300M EAG_Sparrows Point Area B\Documents\Parcel B4\Boring Logs\2_Bor Logs\B4-050-SB.bor

ARM Group Inc.
Earth Resource Engineers and Consultants

# Boring ID: B4-054-SB

(page 1 of 1)

| | |
|---|---|
| Client | : EnviroAnalytics Group |
| ARM Project No. | : 150300M-7-3 |
| Project Description | : Sparrows Point - Parcel B4 |
| Site Location | : Sparrows Point, MD |
| ARM Representative | : L. Perrin |
| Checked by | : W. Mader P.G., CPSS |
| Drilling Company | : Green Services, Inc |
| Driller | : Don Marchese |
| Drilling Equipment | : Geoprobe 7822DT |

| | |
|---|---|
| Date | : 7/22/2016 |
| Weather | : 90s, sunny |
| Northing (US ft) | : 565053.4094 |
| Easting (US ft) | : 1456898.064 |

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample No/Interval | DESCRIPTION | USCS | REMARKS |
|---|---|---|---|---|---|---|
| 0 | | - | B4-054-SB-1 | (0-4') SILT with trace SAND and GRAVEL, soft, grayish brown grading to dark brown with white SILT from 2-2.5', dry, non plastic, non cohesive | ML | |
| | 80 | 13.2 | | | | |
| | | 185.1 | | | | |
| | | 850.7 | | | | |
| | | 263.6 | | (4-4.2') SAND with SILT, fine grained, loose, reddish brown, dry, non plastic, non cohesive | SP | |
| | | | | (4.2-5') SANDY SILT with BRICK GRAVEL, soft, black and yellow, dry, non plastic, non cohesive | ML | |
| 5 | | 8,916 | B4-054-SB-6 | (5-6') BRICK, SAND and GRAVEL sized, loose, light red to reddish yellow, dry, non plastic, non cohesive | - | |
| | | 93.5 | | (6-7.5') SILTY SAND, loose, black and reddish yellow, dry, non plastic, non cohesive | SM | Lens of low plasticity SILT at 7' bgs |
| | 100 | 59.2 | | | | |
| | | | | (7.5-8') SILTY CLAY, firm, very pale brown and reddish yellow, dry, low plasticity, cohesive | CL | |
| | | - | | (8-9') SILTY SAND with GRAVEL, loose, black with few areas of red, moist to wet, non plastic, non cohesive | SM | Wet at 8.5' + bgs<br>Boring terminated due to refusal at 9' bgs. |
| | | | | End of Boring | | |
| 10 | | | | | | |

Total Borehole Depth: 9' bgs.

02-07-2017 P:\EnviroAnalytics Group\150300M EAG_Sparrows Point Area B\Documents\Parcel B4\Boring Logs\2_Bor Logs\B4-054-SB.bor

ARM Group Inc.
Earth Resource Engineers and Consultants

# Boring ID: B4-055-SB

(page 1 of 1)

| | |
|---|---|
| Client | : EnviroAnalytics Group |
| ARM Project No. | : 150300M-7-3 |
| Project Description | : Sparrows Point - Parcel B4 |
| Site Location | : Sparrows Point, MD |
| ARM Representative | : L. Perrin |
| Checked by | : W. Mader P.G., CPSS |
| Drilling Company | : Green Services, Inc |
| Driller | : Don Marchese |
| Drilling Equipment | : Geoprobe 7822DT |

| | |
|---|---|
| Date | : 7/21/2016 |
| Weather | : 90s, sunny |
| Northing (US ft) | : 565233.8545 |
| Easting (US ft) | : 1457242.763 |

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample No/Interval | DESCRIPTION | USCS | REMARKS |
|---|---|---|---|---|---|---|
| 0 | | | | | | |
| | | - | B4-055-SB-1 | (0-2') SANDY SILT with GRAVEL, soft, brown, dry, non plastic, non cohesive | ML | |
| | | 5.2 | | | | |
| | 80 | 21.3 | | (2-3') CONCRETE, loose, white, dry, non plastic, non cohesive | NA | |
| | | 24.3 | | (3-4.5') SILT with SAND, soft, brown, dry, non plastic, non cohesive | ML | |
| | | 37.8 | B4-055-SB-5 | (4.5-5') SLAG, SAND sized, medium to coarse grained, black moist, non plastic, non cohesive | SW | |
| 5 | | | | (5-5.5') SILT with SAND, hard, brown, dry, non plastic, non cohesive | ML | |
| | | - | | (5.5-6') SILTY SAND, fine grained, dark brown, wet, non plastic, non cohesive | SM | Wet at 5.5' + bgs |
| | | - | | (6-7') SLAG, SAND sized, medium to coarse grained, black wet, non plastic, non cohesive | SW | |
| | 100 | - | | (7-8') CLAYEY SILT, hard, gray, dry, cohesive, low plasticity | ML | |
| | | - | | (8-10') CLAYEY SILT, hard, reddish yellow and gray mottling grading to all reddish yellow, dry, low plasticity, cohesive | ML | |
| | | - | | | | |
| 10 | | | | | | Boring terminated due to water at 10' bgs. |

Total Borehole Depth: 10' bgs.

02-07-2017 P:\EnviroAnalytics Group\150300M EAG_Sparrows Point Area B\Documents\Parcel B4\Boring Logs\2_Bor Logs\B4-055-SB.bor

ARM Group Inc.
Earth Resource Engineers and Consultants

# Boring ID: B4-056-SB

(page 1 of 1)

| | |
|---|---|
| Client | : EnviroAnalytics Group |
| ARM Project No. | : 150300M-7-3 |
| Project Description | : Sparrows Point - Parcel B4 |
| Site Location | : Sparrows Point, MD |
| ARM Representative | : L. Perrin |
| Checked by | : W. Mader P.G., CPSS |
| Drilling Company | : Green Services, Inc |
| Driller | : Don Marchese |
| Drilling Equipment | : Geoprobe 7822DT |

| | |
|---|---|
| Date | : 7/21/2016 |
| Weather | : 90s, sunny |
| Northing (US ft) | : 565468.5779 |
| Easting (US ft) | : 1457662.793 |

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample No/Interval | DESCRIPTION | USCS | REMARKS |
|---|---|---|---|---|---|---|
| 0 | | | | (0-0.5') CONCRETE, loose, white, dry, non plastic, non cohesive | NA | |
| | | - | B4-056-SB-1.5 | (0.5-3') SILT, firm, strong brown and brown, dry, low plasticity, cohesive | ML | |
| | | - | | | | |
| | 60 | 17.0 | | | | |
| | | | | (3-6.5') SLAG GRAVEL, GRAVEL and SAND sized, loose, grayish brown, dry, non plastic, non cohesive | SP/GP | |
| | | 2.2 | | | | |
| | | 2.8 | | | | |
| 5 | | | | | | |
| | | 4.9 | | | | |
| | | 3.7 | B4-056-SB-7.5 | (6.5-7.5') SANDY SILT, soft, brown, dry, non plastic, non cohesive | ML | |
| | 100 | 12.0 | | (7.5-10') SILTY SAND with few SLAG GRAVEL, fine to medium grained, loose, brown, wet, non plastic, non cohesive, with few CLAY lenses | SM | Wet at 7.5' + bgs |
| | | - | | | | |
| | | - | | | | Boring terminated due to water at 10' bgs. |
| 10 | | | | | | |

Total Borehole Depth: 10' bgs.

ARM Group Inc.
Earth Resource Engineers and Consultants

# Boring ID: B4-057-SB

(page 1 of 1)

| | |
|---|---|
| Client | : EnviroAnalytics Group |
| ARM Project No. | : 150300M-7-3 |
| Project Description | : Sparrows Point - Parcel B4 |
| Site Location | : Sparrows Point, MD |
| ARM Representative | : L. Perrin |
| Checked by | : W. Mader P.G., CPSS |
| Drilling Company | : Green Services, Inc |
| Driller | : Don Marchese |
| Drilling Equipment | : Geoprobe 7822DT |

| | |
|---|---|
| Date | : 7/22/2016 |
| Weather | : 90s, sunny |
| Northing (US ft) | : 565074.2614 |
| Easting (US ft) | : 1457956.311 |

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample No/Interval | DESCRIPTION | USCS | REMARKS |
|---|---|---|---|---|---|---|
| 0 | | - | B4-057-SB-1 | (0-3') SILT with SLAG and metallic-like SLAG GRAVEL which increases with depth, soft, dark brown, dry, non plastic, non cohesive | | |
| | | 202.3 | | | ML | |
| | 80 | 1,134 | | | | |
| | | 4,400 | | (3-3.3') CONCRETE, loose, white, dry, non plastic, non cohesive | - | |
| | | | | (3.3-4') SILT with SAND, soft, brown, dry, non plastic, non cohesive | ML | |
| | | >15,000 | B4-057-SB-5 | (4-5') SILTY SAND with large SLAG and metallic SLAG, loose, brown, red, yellowish red and yellow, dry, non plastic, non cohesive | SM/GW | Moderate oxidation |
| 5 | | - | | (5-10') SILT with SLAG and BRICK GRAVEL, soft, brown, dry, non plastic, non cohesive | | |
| | | - | | | | |
| | | | | | | Poor recovery |
| | 20 | - | | | ML | |
| | | - | | | | |
| | | 901.6 | B4-057-SB-10 | | | |
| 10 | | - | | (10-15') BRICK, GRAVEL and SAND sized, loose, yellow, brown and red, wet, non plastic, non cohesive | | |
| | | - | | | | |
| | 20 | - | | | - | |
| | | | | | | Very poor recovery |
| | | - | | | | Wet at 14' + bgs |
| | | - | | | | Boring terminated due to water at 15' bgs. |
| 15 | | | | | | |

Total Borehole Depth: 15' bgs.

02-07-2017 P:\EnviroAnalytics Group\150300M EAG_Sparrows Point Area B\Documents\Parcel B4\Boring Logs\2_Bor Logs\B4-057-SB.bor

ARM Group Inc.
Earth Resource Engineers and Consultants

# Boring ID: B4-058-SB

(page 1 of 1)

| | |
|---|---|
| Client | : EnviroAnalytics Group |
| ARM Project No. | : 150300M-7-3 |
| Project Description | : Sparrows Point - Parcel B4 |
| Site Location | : Sparrows Point, MD |
| ARM Representative | : L. Perrin |
| Checked by | : W. Mader P.G., CPSS |
| Drilling Company | : Green Services, Inc |
| Driller | : Don Marchese |
| Drilling Equipment | : Geoprobe 7822DT |

| | |
|---|---|
| Date | : 7/22/2016 |
| Weather | : 90s, sunny |
| Northing (US ft) | : 564161.6218 |
| Easting (US ft) | : 1457575.237 |

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample No/Interval | DESCRIPTION | USCS | REMARKS |
|---|---|---|---|---|---|---|
| 0 | | - | B4-058-SB-1 | (0-0.5') SILT with SLAG GRAVEL, soft, grayish brown, dry, non plastic, non cohesive | ML | Note: SB-1 excludes asphalt material |
| | | | | (0.5-1.1') ASPHALT, hard, gray, dry, non plastic, non cohesive | - | |
| | | 1,002 | | (1.1-2.5') GRAVELLY SILT with SAND, soft, grayish brown, dry, non plastic, non cohesive | ML | |
| | 90 | 1,118 | | (2.5-5') SAND with trace SILT, fine to coarse grained, loose, brown, strong brown, light gray and yellow, dry to moist, non plastic, non cohesive | SP/SW | |
| | | 95.6 | | | | |
| | | 18.6 | | | | |
| 5 | | 0.7 | | (5-7.5') SAND, medium to coarse grained, dense, strong brown with few light gray grains, vey moist, non plastic, non cohesive | SW | |
| | | 101.2 | | | | |
| | 100 | 116.8 | B4-058-SB-8 | (7.5-8') SILT with SAND and GRAVEL, soft, brown and light gray, dry, non plastic, non cohesive | ML | |
| | | 212.0 | | (8-9.9') SLAG and BRICK with SILT, GRAVEL and SAND sized, loose, red, dark brown and gray, wet, non plastic, non cohesive | GP/SP | Wet at 8' + bgs<br>Trace bivalve shells |
| | | 120.1 | | | | Boring terminated due to water at 10' bgs. |
| 10 | | | | (9.9-10') SILT, firm, yellowish brown, moist, non plastic, non cohesive | ML | |
| | | | | End of Boring | | |

Total Borehole Depth: 10' bgs.

ARM Group Inc.
Earth Resource Engineers and Consultants

# Boring ID: B4-059-SB

(page 1 of 1)

| | |
|---|---|
| Client | : EnviroAnalytics Group |
| ARM Project No. | : 150300M-7-3 |
| Project Description | : Sparrows Point - Parcel B4 |
| Site Location | : Sparrows Point, MD |
| ARM Representative | : L. Perrin |
| Checked by | : W. Mader P.G., CPSS |
| Drilling Company | : Green Services, Inc |
| Driller | : Don Marchese |
| Drilling Equipment | : Geoprobe 7822DT |

| | |
|---|---|
| Date | : 7/22/2016 |
| Weather | : 90s, sunny |
| Northing (US ft) | : 564148.8878 |
| Easting (US ft) | : 1457427.695 |

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample No/Interval | DESCRIPTION | USCS | REMARKS |
|---|---|---|---|---|---|---|
| 0 | | 14.7 | B4-059-SB-1 | (0-2.5') SILT with SAND and GRAVEL SLAG, soft, grayish brown, dry, non plastic, non cohesive | ML | |
| | | 56.5 | | | | |
| | 100 | 265.4 | | (2.5-4.5') SILT with SAND and few GRAVEL SLAG, soft, dark brown, dry, non plastic, non cohesive | ML | |
| | | 205.3 | B4-059-SB-4 | | | |
| | | 82.2 | | (4.5-5') SAND, medium to coarse grained, loose, pale yellow to brown, dry, non plastic, non cohesive | SW | |
| 5 | | | | (5-5.5') SILT with medium grained SAND, hard, brown and pale yellow, dry, non plastic, non cohesive | ML | |
| | | 14.7 | | (5.5-5.8') SLAG, SAND sized, loose, black, dry, non plastic, non cohesive | SW | |
| | | 16.6 | | (5.8-7') SILTY SAND, loose, brown, dry, non plastic, non cohesive | SM | |
| | 100 | 108.3 | | (7-9.5') SILT grading to SILTY SAND, very firm, white to light gray, moist, non plastic, non cohesive | ML | |
| | | 126.4 | | | | |
| | | 88.4 | | | | Wet at 9.5' + bgs |
| | | | | (9.5-10') SLAG with SILT, GRAVEL and SAND sized, loose, wet, non plastic, non cohesive | GP/SP | Boring terminated due to water at 9.5' bgs. |
| 10 | | | | End of Boring | | |

Total Borehole Depth: 10' bgs.

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# APPENDIX C

## PID CALIBRATION LOG

| PROJECT NAME: Area B, Parcel B4 Phase II | SAMPLER NAME: L. Perrin and L. Glumac | |
|---|---|---|
| PROJECT NUMBER: 150300M-7 | DATE: February 29, 2016 | PAGE 1 of 1 |

| DATE/TIME | PID SERIAL # | FRESH AIR CAL | STANDARD | STANDARD CONCENTRATION | METER READING | COMMENTS |
|---|---|---|---|---|---|---|
| 2/29/2016 0912 | 592-913262 | 0.0 | Isobutylene | 100 ppm | 99.4 | - |
| 3/1/2016 0801 | 592-913262 | 0.0 | Isobutylene | 100 ppm | 95.6 | - |
| 3/2/2016 0823 | 592-902091 | 0.0 | Isobutylene | 100 ppm | 100.0 | - |
| 3/3/2016 0745 | 592-902091 | 0.0 | Isobutylene | 100 ppm | 100.0 | - |
| 3/4/2016 0922 | 592-902091 | 0.0 | Isobutylene | 100 ppm | 100.0 | - |
| 3/7/2016 0931 | 592-902091 | 0.0 | Isobutylene | 100 ppm | 100.1 | - |
| 7/21/2016 0800 | 592-913262 | 0.0 | Isobutylene | 100 ppm | 100.0 | - |
| 7/22/2016 0810 | 592-913262 | 0.0 | Isobutylene | 100 ppm | 101.2 | - |
| | | | 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 B4 - IDW Drum Log

| Drum Identification Number | Designation | Activity/Phase | Parcel | Contents | Open Date |
|---|---|---|---|---|---|
| 335-Soil-2/29/16-B4 | Non-haz. | Parcel B4 | Parcel B4 | Soil | 2/29/2016 |
| 336-PPE-2/29/16-B4 | Non-haz. | Parcel B4 | Parcel B4 | PPE | 2/29/2016 |
| 337-Liners-2/29/16-B4 | Non-haz. | Parcel B4 | Parcel B4 | Liners | 2/29/2016 |
| 338-Decon water-2/29/16-B4 | Non-haz. | Parcel B4 | Parcel B4 | Decon water | 2/29/2016 |
| 339-Nitric Acid-2/29/16-B4 | Non-haz. | Parcel B4 | Parcel B4 | Nitric Acid | 2/29/2016 |
| 340-PPE-3/3/16-B4 | Non-haz. | Parcel B4 | Parcel B4 | PPE | 3/3/2016 |
| 342-Soil-3/4/16-B4 | Non-haz. | Parcel B4 | Parcel B4 | Soil | 3/4/2016 |
| 343-PPE-3/8/16-B4 | Non-haz. | Parcel B4 | Parcel B4 | PPE | 3/8/2016 |
| 194-S-12/17/15-B4 | Non-haz. | Parcel B4 | Parcel B4 | Soil | 12/17/2015 |
| 263-GW-1/12/16-B4 | Non-haz. | Parcel B4 | Parcel B4 | Purge water | 1/12/2016 |
| 264-S-1/13/16-B4 | Non-haz. | Parcel B4 | Parcel B4 | Soil | 1/13/2016 |
| 265-S-1/14/16-B4 | Non-haz. | Parcel B4 | Parcel B4 | Soil | 1/14/2016 |
| 284-GW-1/19/16-B4 | Non-haz. | Parcel B4 | Parcel B4 | Decon water | 1/19/2016 |
| 298-S-1/27/16-B4 | Non-haz. | Parcel B4 | Parcel B4 | Soil/Slag | 1/27/2016 |
| 299-S-1/27/16-B4 | Non-haz. | Parcel B4 | Parcel B4 | Soil/Slag | 1/27/2016 |
| 404-S-1/28/16-B4 | Non-haz. | Parcel B4 | Parcel B4 | Soil | 1/28/2016 |
| 411-S-2/4/16-B4 | Non-haz. | Parcel B4 | Parcel B4 | Soil | 2/4/2016 |
| 425-GW-2/2/16-B4 | Non-haz. | Parcel B4 | Parcel B4 | Ground water | 2/2/2016 |
| 426-GW-1/29/16-B4 | Non-haz. | Parcel B4 | Parcel B4 | Ground water | 1/29/2016 |
| 455-GW-2/9/16-B4 | Non-haz. | Parcel B4 | Parcel B4 | Purge water | 2/9/2016 |
| 471-GW-2/18/16-B4 | Non-haz. | Parcel B4 | Parcel B4 | Ground water | 2/18/2016 |
| 480-GW-2/26/16-B4 | Non-haz. | Parcel B4 | Parcel B4 | Ground water | 2/26/2016 |
| 728-Liners-10/12/16-B4 | Non-Haz | B4 | B4 | Liners | 10/10/2016 |
| 729-Soil-10/12/16-B4 | Non-Haz | B4 | B4 | Soil | 10/12/2016 |
| 740-PPE-10/27/16-B4 | Non-Haz | B4 | B4 | PPE | 10/26/2016 |

# APPENDIX E

# QA/QC Tracking Log

| Date: | | Sample IDs | |
|---|---|---|---|
| 2/29/2016 | 1) | B4-010-SB-1 | |
| | 2) | B4-010-SB-6 | |
| | 3) | B4-013-SB-1 | |
| | 4) | B4-013-SB-7.5 | |
| | 5) | B4-004-SB-1 | |
| | 6) | B4-004-SB-4 | |
| | 7) | B4-003-SB-1 | Duplicate: B4-003-SB-5 |
| | 8) | B4-003-SB-5 | Date: 2/29/2016 |
| | 9) | B4-005-SB-1 | MS/MSD: B4-008-SB-1 |
| | 10) | B4-011-SB-1 | Date: 2/29/19 |
| | 11) | B4-011-SB-4.5 | Field Blank: |
| | 12) | B4-008-SB-1 | Date: 2/29/2016 |
| | 13) | B4-008-SB-7 | Eq. Blank: |
| 3/1/2016 | 14) | B4-009-SB-1 | Date: 2/29/2016 |
| | 15) | B4-009-SB-5 | |
| | 16) | B4-007-SB-1 | |
| | 17) | B4-007-SB-5 | |
| | 18) | B4-006-SB-1 | |
| | 19) | B4-006-SB-5 | |
| | 20) | B4-002-SB-1 | |

| Date: | | Sample IDs | |
|---|---|---|---|
| 3/2/2016 | 1) | B4-038-SB-10 | |
| | 2) | B4-050-SB-1 | |
| | 3) | B4-050-SB-5 | |
| | 4) | B4-027-SB-1 | |
| | 5) | B4-027-SB-5 | |
| | 6) | B4-026-SB-1 | |
| | 7) | B4-026-SB-5 | Duplicate: B4-030-SB-5 |
| | 8) | B4-024-SB-1 | Date: 3/3/2016 |
| | 9) | B4-024-SB-4.5 | MS/MSD: B4-047-SB-5 |
| | 10) | B4-025-SB-1 | Date: 3/3/2016 |
| | 11) | B4-025-SB-5 | Field Blank: |
| 3/3/2016 | 12) | B4-047-SB-1 | Date: 3/2/2016 |
| | 13) | B4-047-SB-5 | Eq. Blank: |
| | 14) | B4-031-SB-1 | Date: 3/2/2016 |
| | 15) | B4-031-SB-4 | |
| | 16) | B4-030-SB-1 | |
| | 17) | B4-030-SB-5 | |
| | 18) | B4-036-SB-1 | |
| | 19) | B4-036-SB-5 | |
| | 20) | B4-035-SB-1 | |

| | | | |
|---|---|---|---|
| 3/1/2016 | 1) | B4-002-SB-5 | |
| | 2) | B4-001-SB-1 | |
| | 3) | B4-001-SB-4 | |
| | 4) | B4-012-SB-1 | |
| | 5) | B4-012-SB-5 | |
| | 6) | B4-041-SB-1 | |
| | 7) | B4-041-SB-4 | Duplicate: B4-039-SB-5 |
| | 8) | B4-042-SB-1 | Date: 3/2/2016 |
| | 9) | B4-042-SB-5 | MS/MSD: B4-037-SB-6 |
| 3/2/2016 | 10) | B4-049-SB-1 | Date: 3/2/2016 |
| | 11) | B4-049-SB-4.5 | Field Blank: |
| | 12) | B4-040-SB-1 | Date: 3/1/2016 |
| | 13) | B4-040-SB-5 | Eq. Blank: |
| | 14) | B4-039-SB-1 | Date: 3/1/2016 |
| | 15) | B4-039-SB-5 | |
| | 16) | B4-037-SB-1 | |
| | 17) | B4-037-SB-6 | |
| | 18) | B4-037-SB-10 | |
| | 19) | B4-038-SB-1 | |
| | 20) | B4-038-SB-5 | |

| | | | |
|---|---|---|---|
| 3/3/2016 | 1) | B4-035-SB-5 | |
| | 2) | B4-014-SB-1 | |
| | 3) | B4-014-SB-5 | |
| | 4) | B4-015-SB-1 | |
| | 5) | B4-015-SB-5 | |
| | 6) | B4-048-SB-1 | |
| | 7) | B4-048-SB-5 | Duplicate: B4-015-SB-5 |
| | 8) | B4-048-SB-10 | Date: 3/3/2016 |
| | 9) | B4-045-SB-1 | MS/MSD: B4-021-SB-1 |
| | 10) | B4-045-SB-5 | Date: 3/4/2016 |
| | 11) | B4-045-SB-10 | Field Blank: |
| 3/4/2016 | 12) | B4-046-SB-1 | Date: 3/3/2016 |
| | 13) | B4-046-SB-5 | Eq. Blank: |
| | 14) | B4-021-SB-1 | Date: 3/3/2016 |
| | 15) | B4-021-SB-5 | |
| | 16) | B4-020-SB-1 | |
| | 17) | B4-020-SB-5 | |
| | 18) | B4-044-SB-1 | |
| | 19) | B4-044-SB-4 | |
| | 20) | B4-016-SB-1 | |

Trip Blanks: 2/29/2016, 3/1/2016, 3/2/2016, 3/3/2016, 3/4/2016

# QA/QC Tracking Log

| Date: | | Sample IDs | |
|---|---|---|---|
| 3/4/2016 | 1) | B4-016-SB-5 | |
| | 2) | B4-019-SB-1 | |
| | 3) | B4-019-SB-5 | |
| | 4) | B4-018-SB-1 | |
| | 5) | B4-018-SB-5 | |
| 3/7/2016 | 6) | B4-043-SB-1 | |
| | 7) | B4-043-SB-5 | Duplicate: B4-043-SB-5 |
| | 8) | B4-028-SB-1 | Date: 3/7/2016 |
| | 9) | B4-028-SB-4 | MS/MSD: B4-017-SB-4 |
| | 10) | B4-029-SB-1 | Date: 3/7/2016 |
| | 11) | B4-017-SB-1 | Field Blank: |
| | 12) | B4-017-SB-4 | Date: 3/4/2016 |
| 3/14/2016 | 13) | B4-022-SB-1 | Eq. Blank: |
| | 14) | B4-022-SB-5 | Date: 3/4/2016 |
| | 15) | B4-023-SB-1 | Notes: |
| | 16) | B4-023-SB-5 | |
| | 17) | B4-032-SB-1 | |
| | 18) | B4-033-SB-1 | |
| | 19) | B4-034-SB-1 | |
| 7/21/2016 | 20) | B4-056-SB-1.5 | |

| Date: | | Sample IDs | |
|---|---|---|---|
| 4/20/2016 | 1) | B4-051-SG | |
| | 2) | B4-052-SG | |
| | 3) | B4-053-SB | |
| | 4) | | |
| | 5) | | |
| | 6) | | |
| | 7) | | Duplicate: B4-052-SG |
| | 8) | | Date: 4/20/2016 |
| | 9) | | MS/MSD: |
| | 10) | | Date: |
| | 11) | | Field Blank: |
| | 12) | | Date: |
| | 13) | | Eq. Blank: |
| | 14) | | Date: 4/20/2016 |
| | 15) | | |
| | 16) | | |
| | 17) | | |
| | 18) | | |
| | 19) | | |
| | 20) | | |

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|---|---|---|---|
| 7/21/2016 | 1) | B4-056-SB-7.5 | |
| | 2) | B4-055-SB-1 | |
| | 3) | B4-055-SB-5 | |
| 7/22/2016 | 4) | B4-054-SB-1 | |
| | 5) | B4-054-SB-6 | |
| | 6) | B4-057-SB-1 | |
| | 7) | B4-057-SB-5 | Duplicate: B4-022-SB-1 |
| | 8) | B4-059-SB-1 | Date: 3/14/2016 |
| | 9) | B4-059-SB-4 | MS/MSD: B4-054-SB-6 |
| | 10) | B4-058-SB-1 | Date: 7/22/2016 |
| | 11) | B4-058-SB-8 | Field Blank: |
| | 12) | | Date: 7/22/2016 |
| | 13) | | Eq. Blank: |
| | 14) | | Date: 7/22/2016 |
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| | 1) | | |
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| | 5) | | |
| | 6) | | |
| | 7) | | Duplicate: |
| | 8) | | Date: |
| | 9) | | MS/MSD: |
| | 10) | | Date: |
| | 11) | | Field Blank: |
| | 12) | | Date: |
| | 13) | | Eq. Blank: |
| | 14) | | Date: |
| | 15) | | |
| | 16) | | |
| | 17) | | |
| | 18) | | |
| | 19) | | |
| | 20) | | |

Trip Blanks: 3/7/2016, 3/14/2016, TB1 7/21/2016, TB1 7/22/2016

# APPENDIX F

EVALUATION OF DATA COMPLETENESS
Percentage of Non-rejected Results vs. Total Results

| 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 | 99 | 87 | 0 | 99 | 100.0% |
| Aluminum | Metal | Soil | mg/kg | 99 | 99 | 0 | 99 | 100.0% |
| Antimony | Metal | Soil | mg/kg | 99 | 3 | 0 | 99 | 100.0% |
| Arsenic | Metal | Soil | mg/kg | 99 | 82 | 0 | 99 | 100.0% |
| Barium | Metal | Soil | mg/kg | 99 | 99 | 0 | 99 | 100.0% |
| Beryllium | Metal | Soil | mg/kg | 99 | 88 | 0 | 99 | 100.0% |
| Cadmium | Metal | Soil | mg/kg | 99 | 90 | 0 | 99 | 100.0% |
| Chromium | Metal | Soil | mg/kg | 99 | 99 | 0 | 99 | 100.0% |
| Chromium VI | Metal | Soil | mg/kg | 99 | 46 | 8 | 91 | 91.9% |
| Cobalt | Metal | Soil | mg/kg | 99 | 99 | 0 | 99 | 100.0% |
| Copper | Metal | Soil | mg/kg | 99 | 99 | 0 | 99 | 100.0% |
| Iron | Metal | Soil | mg/kg | 99 | 99 | 0 | 99 | 100.0% |
| Lead | Metal | Soil | mg/kg | 99 | 95 | 0 | 99 | 100.0% |
| Manganese | Metal | Soil | mg/kg | 99 | 99 | 0 | 99 | 100.0% |
| Mercury | Metal | Soil | mg/kg | 99 | 82 | 4 | 95 | 96.0% |
| Nickel | Metal | Soil | mg/kg | 99 | 98 | 0 | 99 | 100.0% |
| Selenium | Metal | Soil | mg/kg | 99 | 19 | 0 | 99 | 100.0% |
| Silver | Metal | Soil | mg/kg | 99 | 33 | 0 | 99 | 100.0% |
| Thallium | Metal | Soil | mg/kg | 99 | 4 | 0 | 99 | 100.0% |
| Vanadium | Metal | Soil | mg/kg | 99 | 99 | 0 | 99 | 100.0% |
| Zinc | Metal | Soil | mg/kg | 99 | 99 | 0 | 99 | 100.0% |
| Aroclor 1016 | PCB | Soil | mg/kg | 46 | 0 | 0 | 46 | 100.0% |
| Aroclor 1221 | PCB | Soil | mg/kg | 46 | 1 | 0 | 46 | 100.0% |
| Aroclor 1232 | PCB | Soil | mg/kg | 46 | 0 | 0 | 46 | 100.0% |
| Aroclor 1242 | PCB | Soil | mg/kg | 46 | 1 | 0 | 46 | 100.0% |
| Aroclor 1248 | PCB | Soil | mg/kg | 46 | 6 | 0 | 46 | 100.0% |
| Aroclor 1254 | PCB | Soil | mg/kg | 46 | 15 | 0 | 46 | 100.0% |
| Aroclor 1260 | PCB | Soil | mg/kg | 46 | 18 | 0 | 46 | 100.0% |
| Aroclor 1262 | PCB | Soil | mg/kg | 46 | 0 | 0 | 46 | 100.0% |
| Aroclor 1268 | PCB | Soil | mg/kg | 46 | 2 | 0 | 46 | 100.0% |
| PCBs (total) | PCB | Soil | mg/kg | 46 | 25 | 0 | 46 | 100.0% |
| 1,1-Biphenyl | SVOC | Soil | mg/kg | 99 | 40 | 0 | 99 | 100.0% |
| 1,2,4,5-Tetrachlorobenzene | SVOC | Soil | mg/kg | 99 | 0 | 0 | 99 | 100.0% |
| 2,3,4,6-Tetrachlorophenol | SVOC | Soil | mg/kg | 99 | 0 | 22 | 77 | 77.8% |
| 2,4,5-Trichlorophenol | SVOC | Soil | mg/kg | 99 | 0 | 22 | 77 | 77.8% |
| 2,4,6-Trichlorophenol | SVOC | Soil | mg/kg | 99 | 0 | 22 | 77 | 77.8% |
| 2,4-Dichlorophenol | SVOC | Soil | mg/kg | 99 | 0 | 22 | 77 | 77.8% |
| 2,4-Dimethylphenol | SVOC | Soil | mg/kg | 99 | 2 | 22 | 77 | 77.8% |
| 2,4-Dinitrophenol | SVOC | Soil | mg/kg | 99 | 1 | 25 | 74 | 74.7% |
| 2,4-Dinitrotoluene | SVOC | Soil | mg/kg | 99 | 0 | 0 | 99 | 100.0% |
| 2,6-Dinitrotoluene | SVOC | Soil | mg/kg | 99 | 1 | 0 | 99 | 100.0% |
| 2-Chloronaphthalene | SVOC | Soil | mg/kg | 99 | 0 | 0 | 99 | 100.0% |
| 2-Chlorophenol | SVOC | Soil | mg/kg | 99 | 0 | 22 | 77 | 77.8% |
| 2-Methylnaphthalene | SVOC | Soil | mg/kg | 99 | 89 | 0 | 99 | 100.0% |
| 2-Methylphenol | SVOC | Soil | mg/kg | 99 | 2 | 22 | 77 | 77.8% |
| 2-Nitroaniline | SVOC | Soil | mg/kg | 99 | 0 | 0 | 99 | 100.0% |
| 3&4-Methylphenol(m&p Cresol) | SVOC | Soil | mg/kg | 99 | 7 | 22 | 77 | 77.8% |
| 3,3'-Dichlorobenzidine | SVOC | Soil | mg/kg | 99 | 0 | 0 | 99 | 100.0% |
| 4-Chloroaniline | SVOC | Soil | mg/kg | 99 | 1 | 0 | 99 | 100.0% |
| 4-Nitroaniline | SVOC | Soil | mg/kg | 99 | 0 | 0 | 99 | 100.0% |
| Acenaphthene | SVOC | Soil | mg/kg | 99 | 79 | 0 | 99 | 100.0% |
| Acenaphthylene | SVOC | Soil | mg/kg | 99 | 90 | 0 | 99 | 100.0% |
| Acetophenone | SVOC | Soil | mg/kg | 99 | 25 | 0 | 99 | 100.0% |
| Anthracene | SVOC | Soil | mg/kg | 99 | 90 | 0 | 99 | 100.0% |
| Benzaldehyde | SVOC | Soil | mg/kg | 99 | 27 | 67 | 32 | 32.3% |
| Benzo[a]anthracene | SVOC | Soil | mg/kg | 99 | 92 | 0 | 99 | 100.0% |
| Benzo[a]pyrene | SVOC | Soil | mg/kg | 99 | 93 | 0 | 99 | 100.0% |
| Benzo[b]fluoranthene | SVOC | Soil | mg/kg | 99 | 93 | 0 | 99 | 100.0% |

EVALUATION OF DATA COMPLETENESS
Percentage of Non-rejected Results vs. Total Results

| 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 | 99 | 90 | 0 | 99 | 100.0% |
| Benzo[k]fluoranthene | SVOC | Soil | mg/kg | 99 | 93 | 0 | 99 | 100.0% |
| bis(2-chloroethoxy)methane | SVOC | Soil | mg/kg | 99 | 0 | 0 | 99 | 100.0% |
| bis(2-Chloroethyl)ether | SVOC | Soil | mg/kg | 99 | 0 | 0 | 99 | 100.0% |
| bis(2-Chloroisopropyl)ether | SVOC | Soil | mg/kg | 99 | 0 | 0 | 99 | 100.0% |
| bis(2-Ethylhexyl)phthalate | SVOC | Soil | mg/kg | 99 | 20 | 0 | 99 | 100.0% |
| Caprolactam | SVOC | Soil | mg/kg | 99 | 2 | 0 | 99 | 100.0% |
| Carbazole | SVOC | Soil | mg/kg | 99 | 43 | 0 | 99 | 100.0% |
| Chrysene | SVOC | Soil | mg/kg | 99 | 96 | 0 | 99 | 100.0% |
| Dibenz[a,h]anthracene | SVOC | Soil | mg/kg | 99 | 84 | 0 | 99 | 100.0% |
| Diethylphthalate | SVOC | Soil | mg/kg | 99 | 0 | 0 | 99 | 100.0% |
| Di-n-butylphthalate | SVOC | Soil | mg/kg | 99 | 5 | 0 | 99 | 100.0% |
| Di-n-ocytlphthalate | SVOC | Soil | mg/kg | 99 | 1 | 0 | 99 | 100.0% |
| Fluoranthene | SVOC | Soil | mg/kg | 99 | 99 | 0 | 99 | 100.0% |
| Fluorene | SVOC | Soil | mg/kg | 99 | 83 | 0 | 99 | 100.0% |
| Hexachlorobenzene | SVOC | Soil | mg/kg | 99 | 1 | 0 | 99 | 100.0% |
| Hexachlorobutadiene | SVOC | Soil | mg/kg | 99 | 0 | 0 | 99 | 100.0% |
| Hexachlorocyclopentadiene | SVOC | Soil | mg/kg | 99 | 0 | 1 | 98 | 99.0% |
| Hexachloroethane | SVOC | Soil | mg/kg | 99 | 1 | 0 | 99 | 100.0% |
| Indeno[1,2,3-c,d]pyrene | SVOC | Soil | mg/kg | 99 | 91 | 0 | 99 | 100.0% |
| Isophorone | SVOC | Soil | mg/kg | 99 | 0 | 0 | 99 | 100.0% |
| Naphthalene | SVOC | Soil | mg/kg | 99 | 90 | 0 | 99 | 100.0% |
| Nitrobenzene | SVOC | Soil | mg/kg | 99 | 1 | 0 | 99 | 100.0% |
| N-Nitroso-di-n-propylamine | SVOC | Soil | mg/kg | 99 | 0 | 0 | 99 | 100.0% |
| N-Nitrosodiphenylamine | SVOC | Soil | mg/kg | 99 | 1 | 0 | 99 | 100.0% |
| Pentachlorophenol | SVOC | Soil | mg/kg | 99 | 0 | 22 | 77 | 77.8% |
| Phenanthrene | SVOC | Soil | mg/kg | 99 | 97 | 0 | 99 | 100.0% |
| Phenol | SVOC | Soil | mg/kg | 99 | 11 | 22 | 77 | 77.8% |
| Pyrene | SVOC | Soil | mg/kg | 99 | 99 | 0 | 99 | 100.0% |
| Diesel Range Organics | TPH | Soil | mg/kg | 99 | 98 | 0 | 99 | 100.0% |
| Gasoline Range Organics | TPH | Soil | mg/kg | 99 | 8 | 0 | 99 | 100.0% |
| 1,1,1-Trichloroethane | VOC | Soil | mg/kg | 99 | 0 | 0 | 99 | 100.0% |
| 1,1,2,2-Tetrachloroethane | VOC | Soil | mg/kg | 99 | 0 | 1 | 98 | 99.0% |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | VOC | Soil | mg/kg | 99 | 0 | 0 | 99 | 100.0% |
| 1,1,2-Trichloroethane | VOC | Soil | mg/kg | 99 | 0 | 0 | 99 | 100.0% |
| 1,1-Dichloroethane | VOC | Soil | mg/kg | 99 | 0 | 0 | 99 | 100.0% |
| 1,1-Dichloroethene | VOC | Soil | mg/kg | 99 | 0 | 0 | 99 | 100.0% |
| 1,2,3-Trichlorobenzene | VOC | Soil | mg/kg | 99 | 4 | 0 | 99 | 100.0% |
| 1,2,4-Trichlorobenzene | VOC | Soil | mg/kg | 99 | 3 | 0 | 99 | 100.0% |
| 1,2-Dibromo-3-chloropropane | VOC | Soil | mg/kg | 99 | 0 | 0 | 99 | 100.0% |
| 1,2-Dibromoethane | VOC | Soil | mg/kg | 99 | 0 | 0 | 99 | 100.0% |
| 1,2-Dichlorobenzene | VOC | Soil | mg/kg | 99 | 0 | 0 | 99 | 100.0% |
| 1,2-Dichloroethane | VOC | Soil | mg/kg | 99 | 0 | 0 | 99 | 100.0% |
| 1,2-Dichloroethene (Total) | VOC | Soil | mg/kg | 99 | 0 | 0 | 99 | 100.0% |
| 1,2-Dichloropropane | VOC | Soil | mg/kg | 99 | 0 | 0 | 99 | 100.0% |
| 1,3-Dichlorobenzene | VOC | Soil | mg/kg | 99 | 0 | 0 | 99 | 100.0% |
| 1,4-Dichlorobenzene | VOC | Soil | mg/kg | 99 | 2 | 0 | 99 | 100.0% |
| 2-Butanone (MEK) | VOC | Soil | mg/kg | 99 | 19 | 0 | 99 | 100.0% |
| 2-Hexanone | VOC | Soil | mg/kg | 99 | 3 | 0 | 99 | 100.0% |
| 4-Methyl-2-pentanone (MIBK) | VOC | Soil | mg/kg | 99 | 4 | 0 | 99 | 100.0% |
| Acetone | VOC | Soil | mg/kg | 99 | 89 | 0 | 99 | 100.0% |
| Benzene | VOC | Soil | mg/kg | 99 | 18 | 0 | 99 | 100.0% |
| Bromodichloromethane | VOC | Soil | mg/kg | 99 | 0 | 0 | 99 | 100.0% |
| Bromoform | VOC | Soil | mg/kg | 99 | 0 | 0 | 99 | 100.0% |
| Bromomethane | VOC | Soil | mg/kg | 99 | 0 | 81 | 18 | 18.2% |
| Carbon disulfide | VOC | Soil | mg/kg | 99 | 0 | 0 | 99 | 100.0% |
| Carbon tetrachloride | VOC | Soil | mg/kg | 99 | 0 | 0 | 99 | 100.0% |
| Chlorobenzene | VOC | Soil | mg/kg | 99 | 0 | 0 | 99 | 100.0% |

EVALUATION OF DATA COMPLETENESS
Percentage of Non-rejected Results vs. Total Results

| Parameter | Parameter Group | Matrix | Unit | Number of Validated Results | Detections | Number of Rejected Results | Number of Non-rejected Results | Completeness |
|---|---|---|---|---|---|---|---|---|
| Chloroethane | VOC | Soil | mg/kg | 99 | 0 | 0 | 99 | 100.0% |
| Chloroform | VOC | Soil | mg/kg | 99 | 1 | 0 | 99 | 100.0% |
| Chloromethane | VOC | Soil | mg/kg | 99 | 0 | 0 | 99 | 100.0% |
| cis-1,2-Dichloroethene | VOC | Soil | mg/kg | 99 | 0 | 0 | 99 | 100.0% |
| cis-1,3-Dichloropropene | VOC | Soil | mg/kg | 99 | 0 | 0 | 99 | 100.0% |
| Cyclohexane | VOC | Soil | mg/kg | 99 | 1 | 0 | 99 | 100.0% |
| Dibromochloromethane | VOC | Soil | mg/kg | 99 | 0 | 0 | 99 | 100.0% |
| Dichlorodifluoromethane | VOC | Soil | mg/kg | 99 | 0 | 0 | 99 | 100.0% |
| Ethylbenzene | VOC | Soil | mg/kg | 99 | 11 | 0 | 99 | 100.0% |
| Isopropylbenzene | VOC | Soil | mg/kg | 99 | 1 | 0 | 99 | 100.0% |
| Methyl Acetate | VOC | Soil | mg/kg | 99 | 2 | 1 | 98 | 99.0% |
| Methyl tert-butyl ether (MTBE) | VOC | Soil | mg/kg | 99 | 0 | 0 | 99 | 100.0% |
| Methylene Chloride | VOC | Soil | mg/kg | 99 | 0 | 0 | 99 | 100.0% |
| Styrene | VOC | Soil | mg/kg | 99 | 1 | 0 | 99 | 100.0% |
| Tetrachloroethene | VOC | Soil | mg/kg | 99 | 0 | 0 | 99 | 100.0% |
| Toluene | VOC | Soil | mg/kg | 99 | 75 | 0 | 99 | 100.0% |
| trans-1,2-Dichloroethene | VOC | Soil | mg/kg | 99 | 0 | 0 | 99 | 100.0% |
| trans-1,3-Dichloropropene | VOC | Soil | mg/kg | 99 | 0 | 0 | 99 | 100.0% |
| Trichloroethene | VOC | Soil | mg/kg | 99 | 0 | 0 | 99 | 100.0% |
| Trichlorofluoromethane | VOC | Soil | mg/kg | 99 | 0 | 0 | 99 | 100.0% |
| Vinyl chloride | VOC | Soil | mg/kg | 99 | 0 | 0 | 99 | 100.0% |
| Xylenes | VOC | Soil | mg/kg | 99 | 10 | 0 | 99 | 100.0% |
| 1,4-Dioxane | VOC/SVOC | Soil | mg/kg | 99 | 0 | 83 | 16 | 16.2% |
| 1,4-Dioxane | VOC/SVOC | Air | ug/m3 | 3 | 0 | 0 | 3 | 100.0% |
| 1,1,1-Trichloroethane | VOC | Air | ug/m3 | 3 | 2 | 0 | 3 | 100.0% |
| 1,1,2,2-Tetrachloroethane | VOC | Air | ug/m3 | 3 | 0 | 0 | 3 | 100.0% |
| 1,1,2-Trichloroethane | VOC | Air | ug/m3 | 3 | 0 | 0 | 3 | 100.0% |
| 1,1-Dichloroethane | VOC | Air | ug/m3 | 3 | 0 | 0 | 3 | 100.0% |
| 1,1-Dichloroethene | VOC | Air | ug/m3 | 3 | 0 | 0 | 3 | 100.0% |
| 1,2,3-Trichlorobenzene | VOC | Air | ug/m3 | 3 | 3 | 0 | 3 | 100.0% |
| 1,2,4-Trichlorobenzene | VOC | Air | ug/m3 | 3 | 0 | 0 | 3 | 100.0% |
| 1,2-Dibromo-3-chloropropane | VOC | Air | ug/m3 | 3 | 3 | 0 | 3 | 100.0% |
| 1,2-Dibromoethane | VOC | Air | ug/m3 | 3 | 0 | 0 | 3 | 100.0% |
| 1,2-Dichlorobenzene | VOC | Air | ug/m3 | 3 | 0 | 0 | 3 | 100.0% |
| 1,2-Dichloroethane | VOC | Air | ug/m3 | 3 | 0 | 0 | 3 | 100.0% |
| 1,2-Dichloroethene (Total) | VOC | Air | ug/m3 | 3 | 0 | 0 | 3 | 100.0% |
| 1,2-Dichloropropane | VOC | Air | ug/m3 | 3 | 0 | 0 | 3 | 100.0% |
| 1,4-Dichlorobenzene | VOC | Air | ug/m3 | 3 | 0 | 0 | 3 | 100.0% |
| 2-Butanone (MEK) | VOC | Air | ug/m3 | 3 | 3 | 0 | 3 | 100.0% |
| 4-Methyl-2-pentanone (MIBK) | VOC | Air | ug/m3 | 3 | 3 | 0 | 3 | 100.0% |
| Acetone | VOC | Air | ug/m3 | 3 | 3 | 0 | 3 | 100.0% |
| Benzene | VOC | Air | ug/m3 | 3 | 3 | 0 | 3 | 100.0% |
| Bromodichloromethane | VOC | Air | ug/m3 | 3 | 3 | 0 | 3 | 100.0% |
| Bromoform | VOC | Air | ug/m3 | 3 | 0 | 0 | 3 | 100.0% |
| Bromomethane | VOC | Air | ug/m3 | 3 | 0 | 0 | 3 | 100.0% |
| Carbon disulfide | VOC | Air | ug/m3 | 3 | 3 | 0 | 3 | 100.0% |
| Carbon tetrachloride | VOC | Air | ug/m3 | 3 | 0 | 0 | 3 | 100.0% |
| Chlorobenzene | VOC | Air | ug/m3 | 3 | 0 | 0 | 3 | 100.0% |
| Chloroethane | VOC | Air | ug/m3 | 3 | 0 | 0 | 3 | 100.0% |
| Chloroform | VOC | Air | ug/m3 | 3 | 3 | 0 | 3 | 100.0% |
| Chloromethane | VOC | Air | ug/m3 | 3 | 3 | 0 | 3 | 100.0% |
| cis-1,2-Dichloroethene | VOC | Air | ug/m3 | 3 | 0 | 0 | 3 | 100.0% |
| cis-1,3-Dichloropropene | VOC | Air | ug/m3 | 3 | 0 | 0 | 3 | 100.0% |
| Dibromochloromethane | VOC | Air | ug/m3 | 3 | 0 | 0 | 3 | 100.0% |
| Ethylbenzene | VOC | Air | ug/m3 | 3 | 3 | 0 | 3 | 100.0% |
| Isopropylbenzene | VOC | Air | ug/m3 | 3 | 0 | 0 | 3 | 100.0% |
| Methyl tert-butyl ether (MTBE) | VOC | Air | ug/m3 | 3 | 0 | 0 | 3 | 100.0% |
| Methylene Chloride | VOC | Air | ug/m3 | 3 | 3 | 0 | 3 | 100.0% |

EVALUATION OF DATA COMPLETENESS
Percentage of Non-rejected Results vs. Total Results

| Parameter | Parameter Group | Matrix | Unit | Number of Validated Results | Detections | Number of Rejected Results | Number of Non-rejected Results | Completeness |
|---|---|---|---|---|---|---|---|---|
| Styrene | VOC | Air | ug/m3 | 3 | 2 | 0 | 3 | 100.0% |
| Tetrachloroethene | VOC | Air | ug/m3 | 3 | 3 | 0 | 3 | 100.0% |
| Toluene | VOC | Air | ug/m3 | 3 | 3 | 0 | 3 | 100.0% |
| trans-1,2-Dichloroethene | VOC | Air | ug/m3 | 3 | 0 | 0 | 3 | 100.0% |
| trans-1,3-Dichloropropene | VOC | Air | ug/m3 | 3 | 0 | 0 | 3 | 100.0% |
| Trichloroethene | VOC | Air | ug/m3 | 3 | 1 | 0 | 3 | 100.0% |
| Vinyl chloride | VOC | Air | ug/m3 | 3 | 0 | 0 | 3 | 100.0% |
| Xylenes | VOC | Air | ug/m3 | 3 | 3 | 0 | 3 | 100.0% |

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

# APPENDIX G

**Construction Worker Soil Screening Levels**
**250 Work Day Exposure**
**Calculation Spreadsheet - Parcel B4**

| Description | Variable | Value |
|---|---|---|
| Days worked per week | DW | 5 |
| Exposure duration (yr) | ED | 1 |
| Hours worked per day | ET | 8 |
| A/constant (unitless) - particulate emission factor | Aconst | 12.9351 |
| B/constant (unitless) - particulate emission factor | Bconst | 5.7383 |
| C/constant (unitless) - particulate emission factor | Cconst | 71.7711 |
| Dispersion correction factor (unitless) | FD | 0.185 |
| Days per year with at least .01" precipitation | P | 130 |
| Target hazard quotient (unitless) | THQ | 1 |
| Body weight (kg) | BW | 80 |
| Averaging time - noncancer (yr) | ATnc | 1 |
| Soil ingestion rate (mg/d) | IR | 330 |
| Skin-soil adherence factor (mg/cm2) | AF | 0.3 |
| Skin surface exposed (cm2) | SA | 3300 |
| Event frequency (ev/day) | EV | 1 |
| Target cancer risk (unitless) | TR | 01E-06 |
| Averaging time - cancer (yr) | ATc | 70 |
| A/constant (unitless) - volatilization | Aconstv | 2.4538 |
| B/constant (unitless) - volatilization | Bconstv | 17.566 |
| C/constant (unitless) - volatilization | Cconstv | 189.0426 |
| Dry soil bulk density (kg/L) | Pb | 1.5 |
| Average source depth (m) | ds | 3 |
| Soil particle density (g/cm3) | Ps | 2.65 |
| Total soil porosity | Lpore/Lsoil | 0.43 |
| Air-filled soil porosity | Lair/Lsoil | 0.28 |

| | | |
|---|---|---|
| Area of site (ac) | Ac | 51.1 |
| Overall duration of construction (wk/yr) | EW | 50 |
| Exposure frequency (day/yr) | EF | **250** |
| Cars per day | Ca | 5 |
| Tons per car | CaT | 2 |
| Trucks per day | Tru | 5 |
| Tons per truck | TrT | 20 |
| Mean vehicle weight (tons) | w | **11** |
| Derivation of dispersion factor - particulate emission factor (g/m2-s per kg/m3) | Q/Csr | **13.5** |
| Overall duration of construction (hr) | tc | **8,400** |
| Overall duration of traffic (s) | Tt | **7,200,000** |
| Surface area (m2) | AR | **206,795** |
| Length (km) | LR | **455** |
| Distance traveled (km) | ΣVKT | **1,137** |
| Particulate emission factor (m3/kg) | PEFsc | **159,186,340** |
| Derivation of dispersion factor - volatilization (g/m2-s per kg/m3) | Q/Csa | **6.56** |
| Total time of construction (s) | Tcv | **30,240,000** |

Exposure Unit 1

Exposure Unit 2

Input

**Calculation**

| Chemical | ^Ingestion SF (mg/kg-day)$^{-1}$ | ^Inhalation Unit Risk (ug/m$^3$)$^{-1}$ | ^Subchronic RfD (mg/kg-day) | ^Subchronic RfC (mg/m$^3$) | ^GIABS | Dermally Adjusted RfD (mg/kg-day) | ^ABS | ^RBA | *Dia | *Diw | *Henry's Law Constant (atm-m$^3$/mol) | *Kd | *Koc | DA | Volatilization Factor - Unlimited Reservoir (m$^3$/kg) | Carcinogenic Ingestion/ Dermal SL (SLing/der) | Carcinogenic Inhalation SL (SLinh) | Carcinogenic SL (mg/kg) | Non-Carcinogenic Ingestion/ Dermal SL (SLing/der) | Non-Carcinogenic Inhalation SL (SLinh) | Non-Carcinogenic SL (mg/kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ~/+Arsenic, Inorganic | 1.50E+00 | 4.30E-03 | 3.00E-04 | 1.50E-05 | 1 | 3.00E-04 | 0.03 | 0.6 | | | - | 2.90E+01 | | | | 15.2 | 11,350 | 15.1 | 97 | 10,459 | 96.5 |
| ~Chromium(VI) | 5.00E-01 | 8.40E-02 | 5.00E-03 | 3.00E-04 | 0.025 | 1.25E-04 | **0.01** | 1 | | | - | 1.90E+01 | | | | 22.5 | 581 | 21.7 | 804 | 209,171 | 801 |
| ^^Cobalt | - | 9.00E-03 | 3.00E-03 | 2.00E-05 | 1 | 3.00E-03 | **0.01** | 1 | | | - | 4.50E+01 | | | | | 5,423 | 5,423 | 1,031 | 13,945 | 960 |
| ^/~Cyanide (CN-) | - | - | 2.00E-02 | 8.00E-04 | 1 | 2.00E-02 | **0.01** | 1 | 2.10E-01 | 2.50E-05 | 4.15E-03 | 9.90E+00 | | 4.68E-06 | 5.32E+3 | | | | 6,873 | 19 | 18.6 |
| ^^Iron | - | - | 7.00E-01 | - | 1 | 7.00E-01 | **0.01** | 1 | | | - | 2.50E+01 | | | | | | | 240,541 | | 240,541 |
| ~Manganese (Non-diet) | - | - | 2.40E-02 | 5.00E-05 | 0.04 | 9.60E-04 | **0.01** | 1 | | | - | 6.50E+01 | | | | | | | 4,854 | 34,862 | 4,261 |
| ~Mercuric Chloride (and other salts) | - | - | 2.00E-03 | 3.00E-04 | 0.07 | 1.40E-04 | **0.01** | 1 | | | - | | | | | | | | 496 | 209,171 | 494 |
| **Vanadium and Compounds | - | - | 1.00E-02 | 1.00E-04 | 0.026 | 2.60E-04 | **0.01** | 1 | | | - | 1.00E+03 | | | | | | | 1,643 | 69,724 | 1,605 |
| ~Zinc | - | - | 3.00E-01 | - | 1 | 3.00E-01 | **0.01** | 1 | | | - | 6.20E+01 | | | | | | | 103,089 | | 103,089 |
| PCB Total | 2.00E+00 | 5.71E-04 | - | - | 1 | | 0.14 | 1 | 2.40E-02 | 6.30E-06 | 1.70E-02 | 4.68E+02 | 7.80E+04 | 4.66E-08 | 5.33E+4 | 8.7 | 29 | 6.7 | | | |
| Benz[a]anthracene | 1.00E-01 | 6.00E-05 | - | - | 1 | | 0.13 | 1 | 2.60E-02 | 6.70E-06 | 4.91E-04 | 1.08E+03 | 1.80E+05 | 6.71E-10 | 4.44E+5 | 178.2 | 2,264 | 165.2 | | | |
| ~~Benzo[a]pyrene | 1.00E+00 | 6.00E-04 | 3.00E-04 | 2.00E-06 | 1 | 3.00E-04 | 0.13 | 1 | 4.80E-02 | 5.60E-06 | 1.87E-05 | 3.54E+03 | 5.90E+05 | 2.37E-11 | 2.37E+6 | 17.8 | 1,192 | 17.6 | 76 | 20 | 16.1 |
| Benzo[b]fluoranthene | 1.00E-01 | 6.00E-05 | - | - | 1 | | 0.13 | 1 | 4.80E-02 | 5.60E-06 | 2.69E-05 | 3.60E+03 | 6.00E+05 | 2.91E-11 | 2.13E+6 | 178.2 | 10,758 | 175.3 | | | |
| Dibenz[a,h]anthracene | 1.00E+00 | 6.00E-04 | - | - | 1 | | 0.13 | 1 | 4.50E-02 | 5.20E-06 | 5.76E-06 | 1.14E+04 | 1.90E+06 | 4.13E-12 | 5.66E+6 | 17.8 | 2,795 | 17.7 | | | |
| **/~Naphthalene | - | 3.40E-05 | 6.00E-01 | 3.00E-03 | 1 | 6.00E-01 | 0.13 | 1 | 6.00E-02 | 8.40E-06 | 1.80E-02 | 9.00E+00 | 1.50E+03 | 6.35E-06 | 4.57E+3 | | 41 | 41.2 | 152,780 | 60 | 60.0 |

*chemical specific parameters found in Chemical Specific Parameters Spreadsheet at https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-may-2016

^chemical specific parameters found in Unpaved Road Traffic calculator at https://epa-prgs.ornl.gov/cgi-bin/chemicals/csl_search

**chemical specific parameters found in Agency for Toxic Substances and Disease Reegistry Minimal Risk Levels (MRLs) at https://www.atsdr.cdc.gov/mrls/pdfs/atsdr_mrls.pdf

^^chemical specific parameters found in the Database of EPA PPRTVs at https://hhpprtv.ornl.gov/quickview/pprtv.php

~chemical specific parameters found in the IRIS at https://www.epa.gov/iris

+chemical specific parameters found in Cal EPA at https://www.dtsc.ca.gov/AssessingRisk/upload/HHRA-Note-3-2016-01.pdf

~~chemical specific parameters found in the IRIS 2017 Recent Additions at https://www.epa.gov/iris/iris-recent-additions ; in addition, PAH compounds were adjusted based on the relative potency factor

| | | |
|---|---|---|
| Area of site (ac) | Ac | 21 |
| Overall duration of construction (wk/yr) | EW | 50 |
| Exposure frequency (day/yr) | EF | **250** |
| Cars per day | Ca | 5 |
| Tons per car | CaT | 2 |
| Trucks per day | Tru | 5 |
| Tons per truck | TrT | 20 |
| Mean vehicle weight (tons) | w | **11** |
| Derivation of dispersion factor - particulate emission factor (g/m2-s per kg/m3) | Q/Csr | **14.3** |
| Overall duration of construction (hr) | tc | **8,400** |
| Overall duration of traffic (s) | Tt | **7,200,000** |
| Surface area (m2) | AR | **84,984** |
| Length (km) | LR | **292** |
| Distance traveled (km) | ΣVKT | **729** |
| Particulate emission factor (m3/kg) | PEFsc | **107,897,254** |
| Derivation of dispersion factor - volatilization (g/m2-s per kg/m3) | Q/Csa | **7.49** |
| Total time of construction (s) | Tcv | **30,240,000** |

Exposure Unit 1

Exposure Unit 2

Input

**Calculation**

| Chemical | ^Ingestion SF (mg/kg-day)$^{-1}$ | ^Inhalation Unit Risk (ug/m$^3$)$^{-1}$ | ^Subchronic RfD (mg/kg-day) | ^Subchronic RfC (mg/m$^3$) | ^GIABS | Dermally Adjusted RfD (mg/kg-day) | ^ABS | ^RBA | *Dia | *Diw | *Henry's Law Constant (atm-m$^3$/mol) | *Kd | *Koc | DA | Volatilization Factor - Unlimited Reservoir (m$^3$/kg) | Carcinogenic Ingestion/ Dermal SL (SLing/der) | Carcinogenic Inhalation SL (SLinh) | Carcinogenic SL (mg/kg) | Non-Carcinogenic Ingestion/ Dermal SL (SLing/der) | Non-Carcinogenic Inhalation SL (SLinh) | Non-Carcinogenic SL (mg/kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ~/+Arsenic, Inorganic | 1.50E+00 | 4.30E-03 | 3.00E-04 | 1.50E-05 | 1 | 3.00E-04 | 0.03 | 0.6 | | | - | 2.90E+01 | | | | 15.2 | 7,693 | 15.1 | 97 | 7,089 | 96.1 |
| ~Chromium(VI) | 5.00E-01 | 8.40E-02 | 5.00E-03 | 3.00E-04 | 0.025 | 1.25E-04 | **0.01** | 1 | | | - | 1.90E+01 | | | | 22.5 | 394 | 21.3 | 804 | 141,777 | 800 |
| ^^Cobalt | - | 9.00E-03 | 3.00E-03 | 2.00E-05 | 1 | 3.00E-03 | **0.01** | 1 | | | - | 4.50E+01 | | | | | 3,676 | 3,676 | 1,031 | 9,452 | 930 |
| ^/~Cyanide (CN-) | - | - | 2.00E-02 | 8.00E-04 | 1 | 2.00E-02 | **0.01** | 1 | 2.10E-01 | 2.50E-05 | 4.15E-03 | 9.90E+00 | | 4.68E-06 | 6.08E+3 | | | | 6,873 | 21 | 21.2 |
| ^^Iron | - | - | 7.00E-01 | - | 1 | 7.00E-01 | **0.01** | 1 | | | - | 2.50E+01 | | | | | | | 240,541 | | 240,541 |
| ~Manganese (Non-diet) | - | - | 2.40E-02 | 5.00E-05 | 0.04 | 9.60E-04 | **0.01** | 1 | | | - | 6.50E+01 | | | | | | | 4,854 | 23,629 | 4,027 |
| ~Mercuric Chloride (and other salts) | - | - | 2.00E-03 | 3.00E-04 | 0.07 | 1.40E-04 | **0.01** | 1 | | | - | | | | | | | | 496 | 141,777 | 494 |
| **Vanadium and Compounds | - | - | 1.00E-02 | 1.00E-04 | 0.026 | 2.60E-04 | **0.01** | 1 | | | - | 1.00E+03 | | | | | | | 1,643 | 47,259 | 1,588 |
| ~Zinc | - | - | 3.00E-01 | - | 1 | 3.00E-01 | **0.01** | 1 | | | - | 6.20E+01 | | | | | | | 103,089 | | 103,089 |
| PCB Total | 2.00E+00 | 5.71E-04 | - | - | 1 | | 0.14 | 1 | 2.40E-02 | 6.30E-06 | 1.70E-02 | 4.68E+02 | 7.80E+04 | 4.66E-08 | 6.09E+4 | 8.7 | 33 | 6.9 | | | |
| Benz[a]anthracene | 1.00E-01 | 6.00E-05 | - | - | 1 | | 0.13 | 1 | 2.60E-02 | 6.70E-06 | 4.91E-04 | 1.08E+03 | 1.80E+05 | 6.71E-10 | 5.07E+5 | 178.2 | 2,580 | 166.7 | | | |
| ~~Benzo[a]pyrene | 1.00E+00 | 6.00E-04 | 3.00E-04 | 2.00E-06 | 1 | 3.00E-04 | 0.13 | 1 | 4.80E-02 | 5.60E-06 | 1.87E-05 | 3.54E+03 | 5.90E+05 | 2.37E-11 | 2.70E+6 | 17.8 | 1,347 | 17.6 | 76 | 23 | 17.7 |
| Benzo[b]fluoranthene | 1.00E-01 | 6.00E-05 | - | - | 1 | | 0.13 | 1 | 4.80E-02 | 5.60E-06 | 2.69E-05 | 3.60E+03 | 6.00E+05 | 2.91E-11 | 2.44E+6 | 178.2 | 12,171 | 175.7 | | | |
| Dibenz[a,h]anthracene | 1.00E+00 | 6.00E-04 | - | - | 1 | | 0.13 | 1 | 4.50E-02 | 5.20E-06 | 5.76E-06 | 1.14E+04 | 1.90E+06 | 4.13E-12 | 6.47E+6 | 17.8 | 3,118 | 17.7 | | | |
| **/~Naphthalene | - | 3.40E-05 | 6.00E-01 | 3.00E-03 | 1 | 6.00E-01 | 0.13 | 1 | 6.00E-02 | 8.40E-06 | 1.80E-02 | 9.00E+00 | 1.50E+03 | 6.35E-06 | 5.22E+3 | | 47 | 47.0 | 152,780 | 69 | 68.5 |

*chemical specific parameters found in Chemical Specific Parameters Spreadsheet at https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-may-2016

^chemical specific parameters found in Unpaved Road Traffic calculator at https://epa-prgs.ornl.gov/cgi-bin/chemicals/csl_search

**chemical specific parameters found in Agency for Toxic Substances and Disease Reegistry Minimal Risk Levels (MRLs) at https://www.atsdr.cdc.gov/mrls/pdfs/atsdr_mrls.pdf

^^chemical specific parameters found in the Database of EPA PPRTVs at https://hhpprtv.ornl.gov/quickview/pprtv.php

~chemical specific parameters found in the IRIS at https://www.epa.gov/iris

+chemical specific parameters found in Cal EPA at https://www.dtsc.ca.gov/AssessingRisk/upload/HHRA-Note-3-2016-01.pdf

~~chemical specific parameters found in the IRIS 2017 Recent Additions at https://www.epa.gov/iris/iris-recent-additions ; in addition, PAH compounds were adjusted based on the relative potency factor