PHASE II
INVESTIGATION REPORT

AREA A: PARCEL A4
TRADEPOINT ATLANTIC
SPARROWS POINT, MARYLAND

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1.0 INTRODUCTION

ARM Group Inc. (ARM), on behalf of EnviroAnalytics Group (EAG), has completed a Phase II Investigation of a portion of the Tradepoint Atlantic property (formerly Sparrows Point Terminal, LLC) that has been designated as Area A: Parcel A4 (the Site). Parcel A4 is comprised of 61.4 acres of the approximately 3,100-acre former steel making facility (**Figure 1**). The Site is bounded to the south by the former Billet Building (Parcel B8) and Humphrey's Impoundment (Parcel B14), to the north by I-695, to the west by the former Pipe Mill (Parcel A1), and to the east by the former mud reservoir (Parcel A6) and open vegetated areas (Parcel B6). Parcel A4 includes an 800,000 square foot building that was the former New Cold Mill Complex (NCMC) and 10 acres of existing pavement and laydown areas. The NCMC building interior was previously investigated by a Building Occupancy Assessment – New Cold Mill Complex dated April 13, 2015 (the BOA), and is not covered by this Phase II Investigation. The complete BOA report for the NCMC is included as **Appendix A**.

The Phase II Investigation was performed in accordance with procedures outlined in the approved Phase II Investigation Work Plan – Parcel A4. This Work Plan (dated October 29, 2015) was approved by the Maryland Department of the Environment (MDE) and the United States Environmental Protection Agency (USEPA) on October 30, 2015 in compliance with requirements pursuant to the following:

- Administrative Consent Order (ACO) between Tradepoint Atlantic (formerly Sparrows Point Terminal, LLC) and the MDE (effective September 12, 2014); and

- Settlement Agreement and Covenant Not to Sue (SA) between Tradepoint Atlantic (formerly Sparrows Point Terminal, LLC) and USEPA (effective November 25, 2014).

Parcel A4 is part of the acreage that was removed (Carveout Area) from inclusion in the Multimedia Consent Decree between Bethlehem Steel Corporation, the USEPA, and the MDE (effective October 8, 1997) as documented in correspondence received from USEPA on September 12, 2014. Based on this agreement, USEPA determined that no further investigation or corrective measures will be required under the terms of the Consent Decree for the Carveout Area. However, the SA reflects that the property within the Carveout Area will remain subject to the USEPA's Resource Conservation and Recovery Act (RCRA) Corrective Action authorities.

An application to enter the full Tradepoint Atlantic property (3,100 acres) into the Maryland Department of the Environment Voluntary Cleanup Program (MDE-VCP) was submitted to the MDE and delivered on June 27, 2014. The property's current and anticipated future use is Tier 3 (Industrial), and plans for the property include demolition and redevelopment over the next several years.

This revised Phase II Investigation Report is being submitted in response to comments received from the MDE and USEPA regarding the Screening Level Risk Assessment (SLRA) procedure presented in Section 6.0. The original Phase II Investigation Report (Revision 0) was previously submitted to the agencies dated October 13, 2016. Revision 1 of the Phase II Investigation Report was submitted on January 4, 2017. Revision 2 of the Phase II Investigation Report was submitted on November 6, 2017. A transmittal letter listing the updates made to the Phase II Investigation Report (from Revision 2 to Revision 3) accompanies this document.

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 western portion of Parcel A4 historically operated as a pipe production facility (Pipe Mill) beginning in the 1940s. In May 1984, the Pipe Mill was closed under a Closure Plan approved by the MDE on December 12, 1983. Closure activities occurred on the Site and surrounding area through the 1980s and 1990s. In 1998, the Pipe Mill was demolished. The NCMC was constructed in 2000. Operations at the NCMC included steel semi-finishing and finishing processes at the NCMC that delivered cold flat-rolled sheeting for either sale or further coating operations conducted elsewhere on the Sparrows Point land. The NCMC, housed an in-line continuous pickler, which cleaned steel prior to rolling. The pickler was linked to a sheet steel cold reduction section that consisted of a five-stand Tandem Mill. Additionally, the NCMC contained a hydrogen batch annealing facility, a combination Skin Pass Mill and tension leveling line, a coil build-up and inspection line, a packaging line, cranes, storage areas and offices. All steel finishing equipment has been removed and the building is currently in use for warehousing of materials.

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 number, if applicable, and the analyses performed is provided as **Appendix B**. A human health SLRA was prepared to identify constituents and pathways of potential concern and to evaluate the significance of any observed impacts or elevated concentrations with respect to the potential future use of the Site.

2.0 ENVIRONMENTAL SETTING

2.1. LAND USE AND SURFACE FEATURES

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

According to topographic maps provided by EAG, the Site is at an elevation of approximately 12 feet above mean sea level (amsl). Elevations at the Site range from 8 to 19 feet across the parcel area. In the northwestern corner of the parcel, the ground slopes sharply upward from 11 to 19 feet. Across most of the Site, elevations are fairly uniform with no clear surface discharge location for stormwater. Parcel A4 includes stormwater sewer infrastructure that directs runoff to the Humphrey Creek Wastewater Treatment Plant (HCWWTP). Surface waters which are collected and treated at the HCWWTP ultimately flow through a National Pollution Discharge Elimination System (NPDES) permitted outfall (Outfall 014), which discharges to Bear Creek.

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.

2.3. SITE GEOLOGY/HYDROGEOLOGY

Groundcover at the Site is comprised of 74% natural soils and 26% slag fill based on the approximate shoreline of the Sparrows Point Peninsula in 1916, as shown on **Figure 2** (adapted from Figure 2-20 in the Description of Current Conditions (DCC) Report prepared by Rust Environment and Infrastructure, dated January 1998).

In general, the encountered subsurface geology included slag fill materials overlying natural soils, which included fine-grained sediments (clays and silts) and coarse-grained sediments (sands). Slag fill materials were encountered at depths of up to 11 feet below the ground surface (bgs), although typical thicknesses ranged from 1.5 to 4 feet bgs (often underlying paved cover). In several cases a perched water table was indicated by the observation of two wet intervals with a dry (or moist) clay zone between the water bearing units. Shallow groundwater was observed in soil cores from 2 to 23 feet bgs across the Site. Soil boring logs are provided in **Appendix C**.

Temporary groundwater sample collection points (commonly referred to as piezometers) were installed at eight locations across the Site to investigate shallow groundwater conditions. The locations of the groundwater sampling points are indicated on **Figure 3**. Piezometer A4-002-PZ was initially proposed in the Work Plan; however, this groundwater sample point was relocated to soil boring location A4-001-PZ due to refusal at 12.5 feet below ground surface (bgs). The original A4-002-PZ was abandoned. SW04-PZM001 was initially proposed to be sampled, but it could not be located in the field. In accordance with the approved Work Plan, this groundwater sample location was replaced with an additional piezometer (A4-019-PZ) at a nearby soil boring location. The temporary groundwater sample collection points were surveyed by a Maryland-licensed surveyor. Supporting documentation from the surveys is included in **Appendix D**.

A synoptic round of groundwater level measurements was collected on April 8, 2016 from each of the groundwater points included in the parcel-specific sampling plan. Surveyed top of casing (TOC) and ground surface elevations for all applicable locations can be found in **Table 1**, along with the depth to water (DTW) measurements from this date.

A groundwater potentiometric surface map was constructed for the shallow hydrogeologic zone based on the field measurements. The potentiometric map for shallow groundwater has been included on **Figure 3**. As seen on **Figure 3**, groundwater flows from the northeast corner of the Site (groundwater elevation of 10 feet amsl) diagonally to the southwest corner of the Site (groundwater elevation of 4 feet amsl). The localized groundwater flow direction appears to be uniform across the Site.

3.0 SITE INVESTIGATION

A total of 76 soil samples (from 28 boring locations) and 8 groundwater samples were collected for analysis between November 2, 2015 and April 12, 2016 as part of the Parcel A4 Phase II Investigation. The 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 A4 Work Plan dated October 29, 2015, and the QAPP.

All site characterization activities were conducted under the site-specific health and safety plan (HASP) provided as Appendix D of the approved Work Plan.

3.1. SAMPLE TARGET IDENTIFICATION

Previous activities within and around the buildings and facilities located on the Tradepoint Atlantic property may have been historical sources of environmental contamination. If present, source areas were identified as targets for sampling through a careful review of historical documents. When a sampling target was identified, a boring was placed at or next to its location using Geographic Information Systems (GIS) software (ArcMap Version 10.2.2).

Sampling targets included, as applicable, 1) Recognized Environmental Conditions (RECs) shown on the REC Location Map provided in Weaver Boos' Phase I ESA, 2) additional findings (non-RECs) from the Phase I ESA which were identified as potential environmental concerns, and 3) Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs) identified from the DCC Report prepared by Rust Environment and Infrastructure. There were no RECs (or non-REC findings) identified at the Site based on the Phase I report. The following SWMUs and AOCs were identified from the DCC Report in the Parcel A4 Work Plan but were not listed as RECs or non-REC findings in the Phase I report: Pipe Mill Trenches/Sump (SWMU 49) and a Hydraulic Oil Storage Area (AOC O). The location of AOC O is now occupied by the NCMC building.

Four sets of historical drawings were also reviewed to identify potential sampling targets for the Site. These drawings included the 5000 Set (Plant Arrangement), the 5100 Set (Plant Index), the 5500 Set (Plant Sewer Lines), and a set of drawings indicating coke oven gas distribution drip leg locations. Drip legs are points throughout the distribution system where coke oven gas condensate was removed from the gas pipelines. The condensate from the drip legs was typically discharged to drums, although it is possible some spilled out of the drums and on to the

ground. There were no drip legs identified inside the boundary of Parcel A4. A summary of the specific drawings covering the Site is presented in **Table 2**. Sampling target locations were identified if the historical drawings depicted industrial activities or a specific feature at a location that may have been a source of environmental contamination that potentially impacted the Site.

Based on the review of plant drawings, sampling targets were identified at the Site that included the following: Acid Storage Tanks and a Waste Oil Tank. A summary of the areas that were investigated, along with the applicable boring identification numbers and the analyses performed, has been provided as **Appendix B**.

Additional sample locations were then added to fill in large spatial gaps between proposed borings to provide complete coverage of the Site. The density of soil borings met the requirements set forth in QAPP Worksheet 17 – Sampling Design and Rationale. Parcel A4 contained a total of 33.3 acres without engineered barriers. Of the 28.1 acres containing engineered barriers, 18.1 acres are covered by the NCMC (sampling covered by sub-slab soil gas), and 10.0 acres consist of roads and parking areas. In accordance with the relevant sampling density requirements for the areas outside of the NCMC building, a minimum of 23 soil borings were required to cover the area without engineered barriers, and a minimum of 5 soil borings were required to cover areas with barriers. A total of 28 soil boring locations were completed during the field investigation.

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 3** provides the identification numbers of the field adjusted borings, the rationale for field adjustment, the coordinates of the proposed and final locations, and the distance/direction of the field shifts.

3.2. SOIL INVESTIGATION

Continuous core soil borings were advanced at 28 locations across the Site to assess the presence or absence of soil contamination, and to assess the vertical distribution of any encountered contamination (**Figure 4**). The continuous core soil borings were advanced to depths between 5 and 25 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 photoionization detector (PID) prior to logging soil types. Soil boring logs have been included as **Appendix C,** and the PID calibration log has been included as **Appendix E**. 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.

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 clean surface cover materials (such as paving or gravel) were present, the first 1-foot of soil material beneath this layer was collected as the surface sample. If the PID or other field observations indicated contamination to exist at a depth greater than 3 feet bgs but less than 9 feet bgs, and 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 Standard Operating Procedure (SOP) Numbers 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, Oil & Grease via USEPA Method 9071, Target Analyte List (TAL) Metals via 6010C and 7471C, hexavalent chromium via USEPA Method 7196A, and cyanide via USEPA Method 9012. Based on the standard field procedures at the time of Work Plan approval, select locations were analyzed for total petroleum hydrocarbon (TPH) diesel range organics (DRO) and gasoline range organics (GRO) via USEPA Methods 8015B and 8015D. The agencies have specified the requirements for analysis of TPH-DRO/GRO and/or Oil & Grease throughout the investigation process. During the implementation of the Parcel A4 Work Plan, Oil & Grease analysis was required at every soil location, and sampling targets with potential petroleum contamination were also required to be analyzed for TPH-DRO/GRO. 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. GROUNDWATER INVESTIGATION

Eight shallow temporary groundwater sample collection points were installed to facilitate the collection of groundwater samples, and to support the definition of the potentiometric surface. Temporary piezometer A4-019-PZ was installed to replace SW04-PZM001. The soil boring locations where shallow temporary groundwater sample collection points were installed during the investigation included A4-001-PZ, A4-005-PZ, A4-007-PZ, A4-010-PZ, A4-012-PZ, A4-

013-PZ, A4-014-PZ, and A4-019-PZ (**Figure 3**). The temporary groundwater sample collection point construction logs have been included as **Appendix F**.

At each location the Geoprobe® DT22 Dual Tube sampling system was advanced to a depth approximately 10 feet below where groundwater was identified in the associated soil cores, the 1.25-inch inner rod string was removed, and the temporary, 1-inch PVC groundwater sample collection point was installed through the outer casing. Following the installation of each sample collection point, the 0-hour depth to water was documented and the collection point was checked for the presence of non-aqueous phase liquid (NAPL) using an oil-water interface probe in accordance with the methods referenced in **Field SOP Number 019** provided in Appendix A of the QAPP.

After the installation of each temporary groundwater sample collection point, down-hole equipment was decontaminated according to the procedures and methods referenced in **Field SOP Number 016** provided in Appendix A of the QAPP.

Groundwater samples were collected in accordance with methods referenced in **Field SOP Number 006** provided in Appendix A of the QAPP; which employed the use of laboratory supplied sample containers and preservatives, a peristaltic pump, dedicated polyethylene tubing, and a YSI water quality meter with a flow-through cell. Groundwater samples submitted for analysis of TAL-Dissolved Metals were filtered in the field with an in-line 0.45 micron filter. The sampling and purge logs have been included in **Appendix G**. Calibration of the YSI meter was performed before the start of each day of the sampling event, and a calibration post-check was completed at the end of the day. Appropriate documentation of the YSI calibration has also been included in **Appendix G**.

Groundwater samples were submitted to PACE, and analyzed for TCL-VOCs via USEPA Method 8260B, TCL-SVOCs via USEPA Methods 8270D and 8270D SIM, Oil & Grease via USEPA Method 1664A, TAL-Dissolved Metals via 6010C and 7470A, hexavalent chromium via USEPA Method 7196A, and cyanide (total) via USEPA Method 9012A. Additionally, sample A4-007-PZ was also analyzed for TPH-DRO/GRO via USEPA Methods 8015B and 8015D. The agencies have specified the requirements for analysis of TPH-DRO/GRO and/or Oil & Grease throughout the investigation process. During the implementation of the Parcel A4 Work Plan, Oil & Grease analysis was required at every groundwater sample collection point, and groundwater sampling targets with potential petroleum contamination (in this case one sample) were additionally required to be analyzed for TPH-DRO/GRO. Sample containers, preservatives, and holding times for the sample analyses are listed in the QAPP Worksheet 19 & 30 – Sample Containers, Preservation, and Holding Times.

3.4. MANAGEMENT OF INVESTIGATION-DERIVED WASTE (IDW)

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

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

Following the completion of field activities, a composite sample was gathered from the Parcel A4 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 three individual drums that were chosen from a set of 30 drums being staged on-site at the date of collection. A total of eight aqueous composite samples were collected for TCLP analysis. 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 H**. All IDW procedures were carried out in accordance with methods referenced in the QAPP Worksheet 21 – Field SOPs and Appendix A of the QAPP.

4.0 ANALYTICAL RESULTS

4.1. SOIL CONDITIONS

Soil analytical results were screened against Project Action Limits (PALs) established in the site-wide Quality Assurance Project Plan (QAPP) (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 work day 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 6** (Organics) and **Table 7** (Inorganics). The laboratory Certificates of Analysis (including Chains of Custody) and Data Validation Reports (DVRs) have been included as electronic attachments. The DVRs contain a glossary of qualifiers for the final flags assigned to individual results in the attached summary tables.

4.1.1. Soil Conditions: Organic Compounds

As provided on **Table 6**, several VOCs were identified above the laboratory's method detection limits (MDLs) in the soil samples collected from across the Site. There were no VOCs detected above their respective PALs.

Table 6 provides a summary of SVOCs detected above the laboratory's MDLs in the soil samples collected from across the Site. Six SVOCs, all polynuclear aromatic hydrocarbons (PAHs), were detected above their respective PALs. These SVOCs were benz[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, dibenz[a,h]anthracene, indeno[1,2,3-c,d]pyrene, and naphthalene. Exceedances were noted at over half 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 PAHs published in the USEPA RSL Composite Worker Soil Table. 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. RSL adjustments were made for the PAH compounds when they were evaluated in the human health risk assessment (Section 6.0).

Shallow soil samples collected across the Site from the 0 to 1 foot bgs interval were analyzed for PCBs. **Table 6** provides a summary of the PCBs detected above the laboratory's MDLs. No individual PCB mixtures (or total PCBs) were detected above the specified PALs.

Table 6 provides a summary of the Oil & Grease detections in the parcel. There were detections of Oil & Grease at numerous locations across the Site; two locations exceeded the PAL (6,200 mg/kg). The highest detection of Oil & Grease (17,600 mg/kg) was identified in boring A4-002-SB; which targeted the Pipe Mill Trenches/Sump. The table also provides a summary of TPH-DRO/GRO detections. Four locations were selected for TPH-DRO/GRO analysis, due to the specific sampling targets at the boring locations (Hydraulic Oil Storage Area and Waste Oil Tank). Neither DRO nor GRO were detected above their respective PALs in Parcel A4. There were no soil borings in Parcel A4 where physical evidence of possible NAPL contamination (sheen or free product) was noted in the soil core. A summary of the TPH/Oil & Grease PAL exceedance locations and results has been provided on **Figure S-2**.

4.1.2. Soil Conditions: Inorganic Constituents

Table 7 provides a summary of inorganic constituents detected above the laboratory's MDLs in the soil samples collected from across the Site. Six inorganic compounds (arsenic, manganese, lead, thallium, cadmium, and hexavalent chromium) were detected above their respective PALs. Arsenic was by far the most common inorganic exceedance, and was detected above the PAL in 47 (approximately 70%) of the soil samples analyzed for this compound. In comparison, manganese, lead, hexavalent chromium, thallium, and cadmium accounted for only 16 total exceedances. A summary of the inorganic PAL exceedance locations and results has been provided on **Figure S-3**.

4.1.3. Soil Conditions: Results Summary

Table 6 and **Table 7** provide a summary of the detected organic compounds and inorganics in the soil samples submitted for laboratory analysis, and **Figures S-1** through **S-3** present a summary of the soil sample results that exceeded the PALs. **Table 8** provides a summary of results for all PAL exceedances in soil, including detection frequencies and maximum results. **Table 9** indicates which soil impacts (PAL exceedances) were associated with the specific targets listed in the Parcel A4 Work Plan. There were no detections of VOCs or PCBs above the applicable PALs. PAL exceedances in soil within Parcel A4 consisted of six inorganics (arsenic, manganese, lead, thallium, cadmium, and hexavalent chromium), six SVOCs (benz[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, dibenz[a,h]anthracene, indeno[1,2,3-c,d]pyrene, and naphthalene), and Oil & Grease. Arsenic was detected above the PAL in most soil samples, although only one sample had a concentration greater than 11.8 mg/kg (A4-015-SB-5 at 85.5 J mg/kg). Manganese and hexavalent chromium were detected above the PALs in a few samples each, all located in the outdoor storage yard areas in the southwestern portion of the Site. Cadmium was only detected above the PAL in one sample (A4-013-SB-4). Thallium was also only detected above the PAL in one sample (A4-005-SB-5) which targeted the Acid Storage Tanks. The maximum detections for each of the PAH compounds were associated with a single sample (A4-021-SB-1). Four locations were selected for TPH-DRO/GRO analysis, due to the

specific sampling targets at the boring locations (Hydraulic Oil Storage Area and Waste Oil Tank) and the standard sampling protocol at the time of Work Plan approval. The highest detection of Oil & Grease (17,600 mg/kg) in soil was in sample A4-002-SB-5, which targeted the Pipe Mill Trenches/Sump (AOC O).

4.2. GROUNDWATER CONDITIONS

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

4.2.1. Groundwater Conditions: Organic Compounds

There were few VOCs identified above the laboratory's MDLs in groundwater samples collected from across the Site, and no individual sample results exceeded the specified PALs.

Table 10 provides a summary of SVOCs reported in groundwater above the laboratory's MDLs. Four SVOCs (1,4-dioxane, benz[a]anthracene, naphthalene, and pentachlorophenol) were detected above their respective PALs. Pentachlorophenol was only detected above its PAL at one location, A4-012-PZ, with a detection of 2.6 µg/L. The other three SVOCs were identified above their respective PALs in at least two locations each. A summary of the PAL exceedance locations and results has been provided as **Figure GW-1**. Similar to the analysis of soil data, the exceedances indicated for PAHs are based on the PALs specified in the approved QAPP, which have not been adjusted based on recent updates to the USEPA RSL Resident Tapwater Table. Therefore, the number of PAL exceedances for benz[a]anthracene would not be as great using the new toxicity data, and the exceedances shown overstate the significance of these PAH detections.

Table 10 provides a summary of the TPH/Oil & Grease detections in groundwater at the Site. One location (A4-007-PZ) was selected for TPH-DRO/GRO analysis, due to the specific sampling target at the piezometer location (Waste Oil Tank). The maximum detection of Oil & Grease was 1,500 µg/L ("J" flagged) at A4-007-PZ, which exceeded the PAL of 47 µg/L specified by the agencies. GRO was also detected above its PAL at groundwater location A4-007-PZ, with the result (1,560 µg/L) flagged with the "J" qualifier. DRO was not detected at this sample location. A summary of the TPH/Oil & Grease PAL exceedance locations and results has been provided on **Figure GW-2**.

4.2.2. Groundwater Conditions: Inorganic Constituents

Table 11 provides a summary of inorganic constituents detected above the MDLs in the groundwater samples collected from across the Site. A total of four inorganic compounds

(cobalt, iron, manganese, and vanadium) were detected above their respective PALs. Vanadium was only detected above its PAL at one location, A4-012-PZ, with a detection of 630 µg/L. The other three inorganic compounds were identified above their respective PALs in at least two locations each. A summary of the PAL exceedance locations and results has been provided as **Figure GW-3**.

4.2.3. Groundwater Conditions: Results Summary

Groundwater data were screened to determine whether individual sample results may exceed the USEPA Vapor Intrusion (VI) Screening Levels (Target Cancer Risk (TCR) of 1E-5 and Target Hazard Quotient (THQ) of 1) as determined by the Vapor Intrusion Screening Level (VISL) Calculator version 3.5.1 (https://www.epa.gov/vaporintrusion/vapor-intrusion-screening-levels-visls). The PALs specified in the QAPP are based upon drinking water use, which is not a potential exposure pathway for groundwater at the Site. The results of the sample screening against the VI criteria are summarized in **Table 12**.

The only parameter which exceeded the individual VI THQ criteria was total cyanide, which was detected above the acceptable VI limit (3.5 µg/L) at two of the eight applicable shallow groundwater locations, with the highest detection (20.6 µg/L) observed at sample location A4-012-PZ. None of the sample results exceeded the VI TCR criteria for individual compounds. The piezometer locations which exceeded the individual VI criteria due to elevated total cyanide are shown in **Figure GW-4**. Following the initial screening, a cumulative risk assessment was also performed for each individual sample location, with the results separated by cancer versus non-cancer risk. All compounds with detections were included in the computation of the cumulative cancer risk, and all compounds with detections exceeding 10% of the THQ level were included in the evaluation of non-cancer hazard. None of the cumulative VI cancer risks were greater than or equal to 1E-5 when the results were summed by sample location. There was one location where the screening level estimate of cumulative VI non-cancer hazard exceeded 1 (rounded to one significant digit), caused by the maximum individual detection of total cyanide. The results of the cumulative VI comparisons are provided in **Table 13**, with the exceedance highlighted.

Naphthalene was also reported at elevated levels in groundwater sample A4-012-PZ (below the VI screening criterion of 200 ug/L). This location had a detection (63.9 µg/L) in excess of 100 times the applicable PAL specified in the QAPP (0.17 µg/L). In addition to naphthalene, pentachlorophenol was also detected in A4-012-PZ at a low level, with no detections of this compound at other locations in the parcel. Based on the lack of elevated detections of naphthalene at surrounding sample locations, and the apparent insignificant risk for vapor intrusion, a continuing source of naphthalene is not suspected at the Site.

The presence and absence of groundwater impacts within the Site boundaries have been adequately described. Groundwater is not used on the Tradepoint Atlantic property (and is not

proposed to be utilized) and there is no direct discharge of groundwater to surface water on Parcel A4. VI risks were evaluated and identified two locations which may be impacted by elevated cyanide. However, the detected levels of cyanide did not suggest that sources of continuing releases of contaminant mass to the groundwater are present. The VI risks were conservatively screened using total cyanide rather than free cyanide or cyanide amenable to chlorination. The concentrations of free cyanide that could contribute to VI risks would be expected to be significantly lower than the total cyanide. Based on the sporadic and relatively low-level results identified during this investigation, significant ongoing sources of groundwater contamination have not been identified within the Site boundaries.

4.2.4. Non-Aqueous Phase Liquid

Immediately after the installation of each temporary groundwater sampling point (A4-001-PZ, A4-005-PZ, A4-007-PZ, A4-010-PZ, A4-012-PZ, A4-013-PZ, A4-014-PZ and A4-019-PZ), an oil-water interface probe was used to check for the presence of NAPL in accordance with the methods referenced in **Field SOP Number 019** provided in Appendix A of the QAPP. During the initial check, NAPL was not detected in any temporary groundwater sampling point. Additional NAPL checks were completed 24 hours after installation, and again prior to groundwater sampling (November 9 to November 11, 2016). NAPL was not detected in any temporary groundwater sample collection point during these checks, and no delineation activities were warranted.

5.0 DATA USABILITY ASSESSMENT

The approved property-wide QAPP specified a process for evaluating data usability in the context of meeting project goals. Specifically, the goal of the Phase II Investigation is to determine if potentially hazardous substances or petroleum products (VOCs, SVOCs, PCBs, TAL-Metals, cyanide, Oil & Grease, or TPH-DRO/GRO) are present in Site media (soil and groundwater) at concentrations that could pose an unacceptable risk to Site receptors. Individual results are compared to the Project Action Limits established in the QAPP (i.e., the most current USEPA RSLs) or based on other direct guidance from the agencies, to identify the presence of exceedances in each environmental medium.

Quality assurance and quality control (QA/QC) samples were collected during field studies to evaluate field/laboratory variability. A summary of QA/QC samples associated with this investigation has been included as **Appendix I**. The following QA/QC samples were submitted for analysis to support the data validation:

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

The QA/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 E** (PID calibration log) and **Appendix G** (YSI 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 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 the Parcel A4 data. The 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 DVRs provided as electronic attachments. Where appropriate, potential limitations in the results have been indicated through final data flags. These flags indicate whether particular data points were quantitative estimates, biased high/low, associated with blank contamination, etc. Individual data flags are provided with the results in the detection summary tables. A qualifier code glossary is included with each DVR provided by EDQI. Particular results may have been marked with the "R" flag if the result was deemed to be unreliable and was not included in any further data evaluation. A summary of the results that were rejected during data validation has been provided on **Table 14** (soil) and **Table 15** (groundwater). A discussion of data completeness (the proportion of valid data) is included below.

Representativeness is a measure of how accurately and precisely the data describe the Site conditions. Representativeness of the samples submitted for analysis was ensured by adherence to standard sampling techniques and protocols, as well as appropriate sample preservation prior to analysis. Sampling was conducted in accordance with the QAPP Worksheet 21 – Field SOPs and Appendix A of the QAPP. Specific Field SOPs applicable to the assessment of representativeness include **Field SOP Numbers 006, 007, 009, 010, 011, 017, and 024**. Review of the field notes and laboratory sample receipt records indicated that collection of soil and groundwater at the Site was representative, with no significant deviations from the SOPs.

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

Sensitivity is a determination of whether the analytical methods and quantitation limits will satisfy the requirements of the project. The laboratory reports were reviewed to verify that reporting limits met the quantitation limits for specific analytes provided in QAPP Worksheet #15 – Project Action Limits and Laboratory-Specific Detection/Quantitation Limits. In general the laboratory reporting limits met the detection and quantitation limits specified in the QAPP.

Completeness is expressed as a ratio of the number of valid data points to the total number of analytical data results. Non-usable ("R" flagged) data results were determined through the data validation process. The approved QAPP specifies that the completeness of data is assessed by professional judgement, but should be greater than or equal to 90%. Data completeness for each compound is provided in **Appendix J**. As a result of dilutions due to matrix interferences, some of the initial soil samples had limited value for characterization of SVOCs. As a corrective

measure, and to improve the accuracy and precision of the dataset, an additional round of soil samples were collected and analyzed for SVOCs at each of the affected boring locations and the results of the second round of samples was used in lieu of the original results for SVOCs. This resampling event is further described in detail in the SVOC Soil Resample Analysis Clarification Letter: Parcels A3, A4, A8, B5, and B8 which was submitted to the agencies dated June 1, 2017.

A total of 11 acid extractable SVOCs had completeness values of 89.4% in soil analyses. These compounds (2,4-dinitrophenol, 2,3,4,6-tetrachlorophenol, 2,4,5-trichlorophenol, 2,4,6-trichlorophenol, 2,4-dichlorophenol, 2,4-dimethylphenol, 2-chlorophenol, 2-methylphenol, 3&4-methylphenol (m&p Cresol), pentachlorophenol, and phenol) were rejected due to poor recoveries, which is believed to be due to the highly alkaline conditions typical of slag fill. These compounds are generally not expected to be site-related contaminants. Since each of these compounds had completeness ratios very close to the 90% goal, and are unlikely to be site-related contaminants, these are not considered to be significant data gaps.

Additional limitations identified in the soil data were the number of rejected sample results for methyl acetate, acetone, benzaldehyde, 1,4-dioxane, bromomethane, and chloroethane. The limited soil data for methyl acetate (75%) is not considered to be a significant data gap as this compound had only one low soil detection and is not expected to be a site-related contaminant. Since acetone had a completeness ratio of 87.5% in soil and all detections were very low (0.17 mg/kg maximum) in comparison to the PAL (670,000 mg/kg), the lack of soil data for acetone is not considered to be a data gap. Of the remaining four compounds with reduced completeness percentages in soil (benzaldehyde, 1,4-dioxane, bromomethane, and chloroethane), only benzaldehyde had any detections in soil, and the maximum benzaldehyde detection (0.15 mg/kg) was well below the PAL (120,000 mg/kg). Of these compounds, 1,4-dioxane is the only analyte that was detected in groundwater. The groundwater data for 1,4-dioxane should allow for an adequate evaluation of this compound. The limited soil data for methyl acetate, acetone, benzaldehyde, 1,4-dioxane, bromomethane, and chloroethane are not considered to be significant data gaps.

In the groundwater samples, only methyl acetate, 3,3'-dichlorobenzidine, and acetone were below the goal of 90% completeness. Adequate soil data was available to determine that methyl acetate does not appear to be a significant concern at the Site. The groundwater completeness ratio for 3,3'-dichlorobenzidine was 87.5%, with only one rejected analytical result, and adequate data for soil was available to determine that 3,3'-dichlorobenzidine is not a significant concern at the Site. The only additional limitation in the groundwater data was the number of rejected sample results for acetone. Since none of the rejected groundwater results were detections, and all soil detections were very low "J" flagged values, the limited acetone data in groundwater is not a significant data gap.

6.0 HUMAN HEALTH SCREENING LEVEL RISK ASSESSMENT (SLRA)

6.1. ANALYSIS PROCESS

A human health SLRA has been conducted for soils to further evaluate the Site conditions in support of the design of necessary response measures. The SLRA accounted for the removal of cadmium-impacted material which has already been completed in the vicinity of A4-013-SB, as described in Section 6.2. The SLRA included the following evaluation process:

Identification of Exposure Units (EUs): A single EU including the entire parcel exclusive of the existing NCMC building footprint was identified for Parcel A4. The site-wide EU is comprised of 43.3 acres, with the remaining 18.1 acres occupied by the building. Conditions under the building were addressed by a separate BOA completed prior to the Phase II Investigation (with results presented in **Appendix A**).

Identification of Constituents of Potential Concern (COPCs): Compounds that are present at concentrations at or above the USEPA RSLs set at a target cancer risk of 1E-6 or target non-cancer Hazard Quotient (HQ) of 0.1 were identified as COPCs to be included in the SLRA. Although the PALs (discussed in preceding sections) remain unchanged, the COPC screening levels for relevant PAHs were modified for the SLRA based on the updated USEPA RSL Composite Worker Soil Table. A COPC screening analysis is provided in **Table 16** to identify compounds above the relevant screening levels in Parcel A4.

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

Risk Ratios: The surface soil EPCs, subsurface soil EPCs, and pooled soil EPCs were compared to the USEPA RSLs for the Composite Industrial Worker and to site-specific Soil Screening Levels (SSLs) for the Construction Worker based on equations derived in the USEPA Supplemental Guidance for Developing Soil Screening Levels for Superfund

Sites (OSWER 9355.4-24, December 2002). The risk ratios were calculated with a cancer risk of 1E-6 and a non-cancer HQ of 1. Site-specific risk-based evaluations for the Construction Worker were completed for a range of potential exposure frequencies. For each exposure frequency, risk ratios for the carcinogens were summed to develop a screening level estimate of the 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 cumulative non-cancer hazard. These calculated risk ratios were used to determine the maximum exposure frequency that would result in risk ratios equivalent to a cumulative cancer risk of 1E-5 or Hazard Index (HI) of 1 for any individual target organ. This analysis indicated that an exposure frequency of 80 days (16 weeks) would be allowable in the site-wide EU before additional worker protections or more detailed job safety evaluations might be needed.

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

Assessment of TPH-DRO/GRO and Oil & Grease: EPCs were not calculated for TPH-DRO/GRO or Oil & Grease. Instead, the individual results were compared to the PAL set to a HQ of 1 (6,200 mg/kg). Of the four locations sampled for DRO/GRO, the highest detection was 2,310 mg/kg for DRO in sample A4-004-SB-5, which did not exceed the PAL. Oil & Grease was detected above 6,200 mg/kg in two analytical

samples: A4-002-SB-5 (17,600 mg/kg) and A4-008-SB-1 (12,400 mg/kg). 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 the site-wide 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 the exceedance and other factors such as bioavailability of the COPC. Similarly, for lead, if the ALM results indicate that the mean concentrations would present a 5% to 10% probability of a blood concentration of 10 ug/dL for the EU, then capping of the EU would be an acceptable presumptive remedy. The mean soil lead concentrations corresponding to ALM probabilities of 5% and 10% are 2,518 mg/kg, and 3,216 mg/kg, respectively. If capping of the identified area is not proposed, additional more detailed quantitative evaluation of risk will be required for the EU. This supplemental risk evaluation may include a selective removal (excavation) remedy to reduce site-wide 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 lead 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. CADMIUM DELINEATION AND EXCAVATION RESPONSE

This Phase II investigation identified an elevated concentration of cadmium (33,600 mg/kg) within the subsurface soil sample collected from the 3 to 4 feet bgs interval from A4-013-SB. Excavation of the soil containing elevated concentrations of cadmium was selected as the preferred remedial response action to address the impacts in the vicinity of A4-013-SB.

To delineate the elevated cadmium impacts at location A4-013-SB, a total of 67 supplemental borings (including resampling at the original location) were completed between December 8, 2016 and December 20, 2016. Following the delineation, a remedial excavation was implemented on October 3, 2019 in accordance with the approved Work Plan entitled Delineation Activities and Proposed Excavation of Cadmium Impacted Soil for Parcel A4 (dated April 21, 2017). Cadmium-impacted material associated with A4-013-SB was removed, and post-excavation sidewall and bottom samples were collected to confirm removal above the excavation criterion (determined through preliminary risk screening) of 550 mg/kg. This SLRA excludes the delineation samples that were removed by excavation (including the original Phase II Investigation results from A4-013-SB) and includes the post-excavation sidewall and bottom confirmation samples.

Appendix K contains pertinent information related to the cadmium delineation and excavation activities at A4-013-SB. The delineation activities were thoroughly described in the Work Plan for Delineation Activities and Proposed Excavation of Cadmium Impacted Soil (dated April 21, 2017). The completed excavation activities will be documented in a separate comprehensive report outside of the scope of this Phase II Investigation. However, relevant tables and figures which describe these delineation and excavation activities are included in **Appendix K** for ease of reference. *Table K-1* provides the analytical results from the cadmium delineation activities, as well as the results from the post-excavation confirmation samples. The table includes an indication of specifically which data were included or excluded from the SLRA. *Figure K-1* shows the soil boring locations completed during the cadmium delineation. *Figure K-2* and *Figure K-3* both show the final excavation boundaries, with *Figure K-2* showing the delineation locations and results which defined the excavation boundary, and *Figure K-3* showing the confirmation sample locations and results which followed excavation. The laboratory Certificates of Analysis (including Chains of Custody) for the delineation phase as well as the post-excavation confirmation samples have been included as electronic attachments.

6.3. PARCEL A4 SLRA RESULTS AND RISK CHARACTERIZATION

Soil data were divided into three datasets (surface, subsurface, and pooled) for the Parcel A4 EU to evaluate potential current and future exposure scenarios. The current Composite Worker will be exposed only to surface soils. However, if construction activities were to result in the placement of subsurface material over existing surface soils, a future Composite Worker could be exposed to a mixture of surface and subsurface soils. The Construction Worker may be

exposed only to surface soils, but subsurface soils would be encountered for development activities that involve soil disturbances such as excavations or other intrusive earth-moving activities. The pooled data may be applicable for development work that involves disturbances through the surface soil, since workers would likely not be exposed solely to the subsurface soil.

The results for thallium were removed from the overall soil dataset for risk assessment because this compound was very infrequently detected in Parcel A4 (evaluated based on frequency of detection for the entire Parcel A4 soil dataset). Thallium was only detected in 1.8% of the samples analyzed for this compound (1 sample). If the detection frequency of an analyte is less than 5% in a dataset with a minimum of 20 samples, the COPC can be eliminated from the risk assessment assuming the detections are not extremely high (based on agency discretion). A single detection that is extremely high could require delineation rather than elimination. In this case it is reasonable to remove thallium from the risk assessment based on the relatively low magnitude of the isolated detection. All remaining COPCs listed in **Table 16** have been retained for the risk assessment.

EPCs were calculated for each soil dataset (i.e., surface, subsurface, and pooled surface/subsurface) in the site-wide EU. ProUCL output tables (with computed UCLs) derived from the data for each COPC in soils are provided as electronic attachments, with computations presented and EPCs calculated for COPCs within each of the three datasets. The ProUCL input tables are also included as electronic attachments. The results were evaluated to identify any samples that may require additional assessment or special management based on the risk characterization approach. The calculated site-wide EPCs for the surface and subsurface exposure scenarios are provided in **Table 18**. The supplemental EPCs generated from the pooled surface and subsurface soils are also included in the EPC table. These EPCs were used for both the Composite Worker and Construction Worker risk assessments.

As indicated above, the EPCs for lead are the average (i.e., arithmetic mean) values for each dataset. A lead evaluation spreadsheet, providing the computations used to determine lead averages for each dataset in the site-wide EU, is also included as an electronic attachment. The average lead concentrations are presented for each dataset in **Table 17**, which indicates that neither surface, subsurface, nor pooled soils exceeded an average lead value of 800 mg/kg. The screening criterion for lead was set at an EU arithmetic mean of 800 mg/kg based on the RSL, with a secondary limit of 2,518 mg/kg based on the May 2017 updated ALM developed by the USEPA (corresponding to a 5% probability of a blood lead level of 10 ug/dL). There were no locations where detections of lead exceeded 10,000 mg/kg, the designated threshold at which delineation would be required.

None of the detections of PCBs at the Site exceeded the mandatory excavation criterion of 50 mg/kg or any of the applicable PALs.

Composite Worker Assessment:

Risk ratios for the estimates of potential EPCs for the Composite Worker scenario are shown in **Table 19** (surface), **Table 20** (subsurface), and **Table 21** (pooled surface and subsurface soils). The results are summarized as follows:

Worker Scenario	Medium	Hazard Index (>1)	Total Cancer Risk
Composite Worker	Surface Soil	none	6E-6
	Subsurface Soil	none	5E-6
	Surface & Subsurface Soil	none	4E-6

The current Composite Worker will be exposed only to surface soils. The risk ratios indicated that the cumulative cancer risk for a potential Composite Worker exposure to surface soils was equal to 6E-6, below the acceptable limit for no further action (1E-5). When the non-cancer risks were segregated and summed by target organ for cumulative 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 scenario were equal to 5E-6 and 4E-6 for subsurface soils and pooled soils, respectively. No target organs exceeded a cumulative HI of 1 in subsurface or pooled soils.

The calculated total cancer risks and cumulative non-cancer hazards for a Composite Worker exposure to surface, subsurface, and pooled soils did not exceed the acceptable cancer risk level of 1E-5 or non-cancer hazard of 1. Based on this assessment, the potential current and future risks to a Composite Worker are acceptable without further action. With the completed selective removal of cadmium-impacted soil, the Site is suitable for occupancy and use by Composite Workers without further corrective remedies to be implemented in a Response and Development Work Plan.

Construction Worker Assessment:

Construction Worker risk ratios were evaluated for several exposure scenarios to determine the maximum exposure frequency for the site-wide EU that would result in risk ratios equivalent to a cumulative cancer risk of 1E-5 or HI of 1 for any individual target organ. Risk ratios for the Construction Worker scenario using the selected exposure duration (80 work days) are shown in

Table 22 (surface), **Table 23** (subsurface), and **Table 24** (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 spreadsheet used for computation of the site-specific SSLs is included as **Appendix L**. The results for the site-wide 80-day exposure scenario are summarized as follows:

Worker Scenario	Medium	Hazard Index (>1)	Total Cancer Risk
Construction Worker (80 work day schedule)	Surface Soil	none	4E-7
	Subsurface Soil	none	3E-7
	Surface & Subsurface Soil	none	3E-7

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. Using the 80-day exposure duration, the screening level estimates of Construction Worker cancer risk for exposures to surface soils, subsurface soils, and pooled soils in the parcel-wide EU were all less than the acceptable risk level of 1E-5. In addition, no elevated non-cancer hazards above the HI of 1 were calculated for any target organ for surface soils, subsurface soils, or pooled soils. Based on the site-specific 80-day Construction Worker risk assessment, there are no potentially unacceptable risks/hazards resulting from exposures to on-site soils.

Since the allowable exposure duration (80 days) is less than the default baseline exposure scenario for a Construction Worker (which would be evaluated using a duration of 250 days), institutional controls should be implemented to ensure proper oversight and management of any future construction activity that would include disturbances of the existing soil for more than 80 intrusive work days. These controls will be protective of future Construction Workers by limiting potential exposures to surface and subsurface soils which may be impacted above the acceptable risk criteria. Potential risks and hazards will be re-evaluated in a Response and Development Work Plan if the proposed duration of intrusive work will exceed 80 days for any future construction project.

7.0 FINDINGS AND RECOMMENDATIONS

The objective of this Phase II Investigation was to fully characterize the nature and extent of contamination at the Site. During the Phase II Investigation, a total of eight groundwater samples and 76 soil samples (all locations/depths) were collected and analyzed to define the nature and extent of contamination in Parcel A4. 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. Groundwater samples were analyzed for TCL-VOCs, TCL-SVOCs, Oil & Grease, TAL-Dissolved Metals, hexavalent chromium, and cyanide. Soil samples were analyzed for TCL-VOCs, TCL-SVOCs, Oil & Grease, TAL-Metals, hexavalent chromium, and cyanide. Shallow soil samples (0 to 1 foot bgs) were analyzed for PCBs. Select soil and groundwater samples were also analyzed for TPH-DRO/GRO.

7.1. SOIL

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

Lead and PCB concentrations are well below the levels that would warrant evaluation of a removal remedy. The average lead concentrations in the surface, subsurface, and pooled (surface and subsurface) soils are below the 800 mg/kg RSL, indicating that further action is not needed with respect to lead. In addition, there were no locations where detections of lead exceeded 10,000 mg/kg, the designated threshold at which delineation would be required. There were no PCB concentrations identified in Parcel A4 above the PALs, indicating that further action is not needed with respect to PCBs. There were no soil PAL exceedances for VOCs, indicating that VOCs are not significant contaminants in soil at the Site.

SVOCs and inorganics in soil were responsible for the majority of PAL exceedances at the Site. The maximum detections for each of the six PAHs with PAL exceedances were associated with a single sample (A4-021-SB-1) which provided general site coverage. Manganese, lead, hexavalent chromium, thallium, and cadmium contributed a relatively low number of PAL exceedances across the parcel (16 total), and the thallium and cadmium exceedances were limited to single locations. The cadmium exceedance has since been addressed by a remedial excavation. Arsenic exceeded its PAL in the largest proportion of the samples analyzed site-wide; however, all results were relatively low (less than 10 times the PAL) with the exception of one sample (A4-015-SB-5).

7.2. NON-AQUEOUS PHASE LIQUID

Elevated Oil & Grease was identified above the PAL (6,200 mg/kg) in two soil samples collected from Parcel A4 (A4-002-SB-5 at 17,600 mg/kg and A4-008-SB-1 at 12,400 mg/kg). TPH-DRO and GRO were analyzed at four soil boring locations including A4-008-SB, with no detections

above the PAL of 6,200 mg/kg. The potential mobility of NAPL to groundwater was investigated via the installation of two temporary screening piezometers at location A4-002-SB (the most heavily impacted boring with a detection of 17,600 mg/kg). These piezometers were installed with the same specifications as temporary groundwater sample collection points, with screen intervals from 18 to 28 and 5 to 20 feet bgs. During the 0-hour, 48-hour, and 30-day measurements, groundwater accumulated in the screening piezometers but NAPL was not identified and it was determined that free petroleum product (NAPL) is not present at quantities that are likely to migrate. The potentiometric surface fluctuated between 7 and 10 feet bgs during the gauging measurements at each piezometer (excluding the 0-hour measurement in the shallower piezometer screened from 5 to 20 feet bgs).

No additional investigation is recommended with regard to elevated detections of Oil & Grease. A4-002-SB was identified as the most likely source area where NAPL could potentially be present at quantities that could migrate, and the two screening piezometers installed at this location indicated that this was not the case. Soils potentially impacted by Oil & Grease 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 piezometers installed in Parcel A4 for groundwater sampling showed any evidence of NAPL. However, the proximity of potential future utilities to both A4-008-SB and A4-002-SB should be evaluated in any future development planning for Parcel A4. Appropriate protocols should be documented in a Response and Development Work Plan (as necessary) to prevent the mobilization of any product if future utilities are proposed in the vicinity of these borings.

7.3. GROUNDWATER

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

There were no VOCs that exceeded their respective PALs, and these contaminant groups were determined to not be significant groundwater contaminants at the Site. None of the temporary groundwater sample collection points showed any detections of NAPL during mandatory gauging events. The single groundwater sample selected for TPH-DRO/GRO analysis (based on the sample target) contained a PAL exceedance for GRO. This elevated detection was at sample location A4-007-PZ, which targeted Waste Oil Tanks. The detection (1,560 µg/L) was flagged with a "J" qualifier, indicating that it is an estimated value. The highest Oil & Grease concentration (1,500 µg/L) was identified in the same groundwater sample (A4-007-PZ) flagged with the "J" qualifier. Based on the lack of elevated Oil & Grease elsewhere on the Site, DRO and GRO are not suspected to be significant contaminants in Site groundwater.

Analysis of the groundwater samples identified concentrations of four inorganic compounds that exceeded their PALs. There was only one PAL exceedance of vanadium in groundwater (A4-012-PZ), and only two exceedances of cobalt (A4-010-PZ and A4-014-PZ). Iron and manganese

were responsible for four and six PAL exceedances, respectively. Cobalt was the only compound which exceeded its applicable PAL in groundwater by greater than a factor of 10. This detection (243 µg/L) in A4-014-PZ exceeded the PAL by approximately a factor of 40.

Four SVOC compounds were identified with exceedances, with individual exceedances noted in six groundwater sample locations. Benz[a]anthracene had PAL exceedances in half of the samples collected at the Site, all located toward the southern end of the parcel. The highest detection of benz[a]anthracene was 0.067 µg/L (A4-012-PZ), and all exceedances of this compound were flagged with "J" qualifiers. There was only one PAL exceedance of pentachlorophenol (A4-012-PZ), and the exceedance was less than three times the PAL. There were only two exceedances each of 1,4-dioxane (A4-005-PZ and A4-010-PZ) and naphthalene (A4-012-PZ and A4-013-PZ). These compounds exceeded PALs by the highest ratios of any SVOCs, with maximum detections of 19.2 ug/L and 63.9 ug/L observed for 1,4-dioxane and naphthalene, respectively.

7.4. HUMAN HEALTH SCREENING LEVEL RISK ASSESSMENT

Groundwater is not used on the Tradepoint Atlantic property (and is not proposed to be utilized), therefore there is no potential for direct human exposure for a Composite Worker. In the event that future construction/excavation leads to a potential Construction Worker exposure to groundwater, health and safety plans should be implemented to limit exposure risk. The groundwater data were screened to determine whether any cumulative (or individual) sample results exceeded the USEPA VI TCR (carcinogen) or THQ (non-carcinogen) Screening Levels. None of the individual sample results exceeded the VI TCR criteria, and none of the cumulative VI cancer risks were greater than or equal to 1E-5 when the results were summed by sample location. There was one location where the screening level estimate of cumulative VI non-cancer hazard exceeded 1 (rounded to one significant digit), caused by the individual detection of total cyanide. However, detected levels of cyanide across the parcel did not suggest that sources of continuing releases of contaminant mass to the groundwater are present. The VI risks were conservatively screened using total cyanide rather than free cyanide or cyanide amenable to chlorination, and the fraction of free cyanide that could contribute to VI risks would be expected to be significantly lower than the total cyanide.

The current Composite Worker may be exposed to surface soils. The risk ratios indicated that the cumulative cancer risk for the Composite Worker scenario was equal to 6E-6 for surface soils. A non-cancer cumulative HI of 1 was not exceeded for any organ system evaluated for Composite Worker exposure to surface soils. The cumulative carcinogenic risk for the potential Composite Worker exposure to subsurface soils was equal to 5E-6. Following the removal (via excavation and off-site disposal) of cadmium-impacted soil conducted during the implementation of the approved Work Plan entitled Delineation Activities and Proposed Excavation of Cadmium Impacted Soil (dated April 21, 2017), non-cancer hazards for the Composite Worker have been

reduced to an acceptable level. There were no HI values above 1 for any target organ evaluated for subsurface soil conditions. Since the cumulative HI values did not exceed 1 for any target organ and the cumulative cancer risk estimates were below 1E-5 for both surface and subsurface soils, no additional action is required to address potential Composite Worker risks.

The Construction Worker risk assessment for a maximum potential exposure of 80 work days indicated that the cumulative cancer risks were equal to 4E-7 for surface soils and 3E-7 for subsurface soils in the parcel. A non-cancer cumulative HI of 1 was not exceeded for any organ system evaluated for Construction Worker exposures to surface or subsurface soils. Based on these values, the risks/hazards to a future Construction Worker are in the acceptable range for exposure durations limited to 80 work days. Since the allowable exposure duration (80 days) is less than the default baseline Construction Worker scenario (250 days), institutional controls should be implemented to ensure proper oversight and management of any future construction activity that would include disturbances of the existing soil for more than 80 intrusive work days. These controls will be protective of future Construction Workers by limiting potential exposures to surface and subsurface soils which may be impacted above the acceptable risk criteria. Potential risks and hazards will be re-evaluated in a Response and Development Work Plan if the proposed duration of intrusive work will exceed 80 days for any future construction project.

7.5. RECOMMENDATIONS

Sufficient remedial investigation data has been collected to evaluate the nature and extent of possible constituents of concern in Parcel A4. The presence and absence of soil and groundwater impacts within Parcel A4 have been adequately described and further investigation is not warranted. Cadmium-impacted soil was removed from the southern portion of the Site during a remedial excavation conducted on October 3, 2019. Based on the evaluation of risk presented in the SLRA (which accounted for the completed selective removal of cadmium-impacted soil), the Site is suitable for use by Composite Workers; additional remedial action is not required to support occupancy and use of the parcel in its current condition. Recommendations for the parcel are as follows:

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

- Although the SLRA did not indicate any unacceptable risks for future Composite Workers, institutional controls should be implemented for the protection of Construction Workers to ensure proper oversight and management of any future construction activity that includes disturbances of the existing soil. These institutional controls will need to include a written notice to the MDE of any future soil disturbance activities, proper management and characterization of any material disturbed at the Site, and health and safety requirements for any excavations of substantial time periods (exceeding 80 intrusive work days). Construction Worker risks for any proposed exposure durations exceeding 80 intrusive work days will be re-evaluated in site-specific Response and Development Work Plans, as necessary. Health and safety requirements for periods exceeding 80 days may include upgrading to modified Level D Personal Protective Equipment (PPE). Notification to the USEPA will be required if the allowable exposure frequency of 80 days is exceeded and upgraded PPE will not be used.

- Soil boring locations with elevated detections of Oil & Grease (A4-002-SB and A4-008-SB) should be considered for proximity to proposed utilities in any future development planning. If future utilities are proposed in the vicinity of these borings, appropriate protocols for the mitigation of potential product (NAPL) mobility should be addressed in a Response and Development Work Plan, as applicable.

8.0 REFERENCES

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FIGURES

Tradepoint Atlantic
Area A and Area B Parcels

July 25, 2017

Figure 1

ARM Group Inc.
Earth Resource Engineers and Consultants

0 500 1,000 2,000 Feet

Tradepoint Atlantic

Baltimore County, MD

EnviroAnalytics Group

Area A: Project 150298M
Area B: Project 150300M
Development: Project 160443M

Site Boundary
Parcel Boundaries
1916 Shoreline:
Land
Marsh
Water

Parcel A9
Parcel A5
Parcel A7
Greys Creek
Bear Creek
Parcel A12
Parcel A11
Parcel A8
Parcel A2
Parcel A6
Parcel A3
Parcel A4
Parcel A1
Parcel A10
Parcel B6
Humphrey Creek
Parcel B8
Parcel B14
Parcel B22
Parcel B16
Parcel B15
Parcel B21
Parcel B24
Parcel B23
Parcel B7
Old Road Bay
Block House Cove
Jones Creek
Parcel B1
Parcel B2
Parcel B3
Parcel B17
Parcel B19
Parcel B4
Parcel B5
Parcel B9
Parcel B18
Parcel B10
Parcel B13
Parcel B20
Parcel B11
Parcel B12
Patapsco River

bing

Approximate Shoreline 1916

July 25, 2017

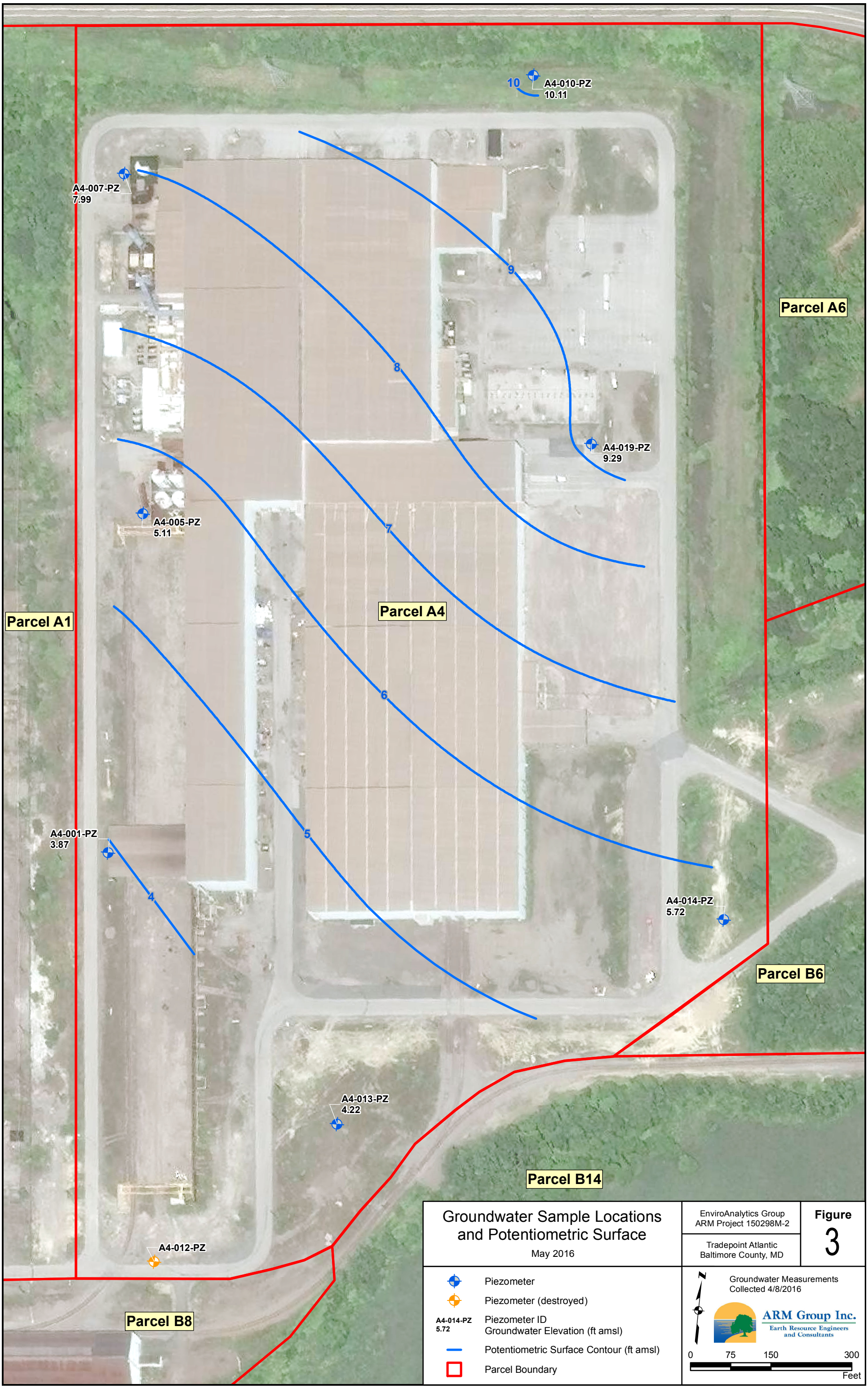
Adapted from Figure 2-20 of the Description of Current Conditions Report prepared by Rust Environmental and Infrastructure, dated January 1998

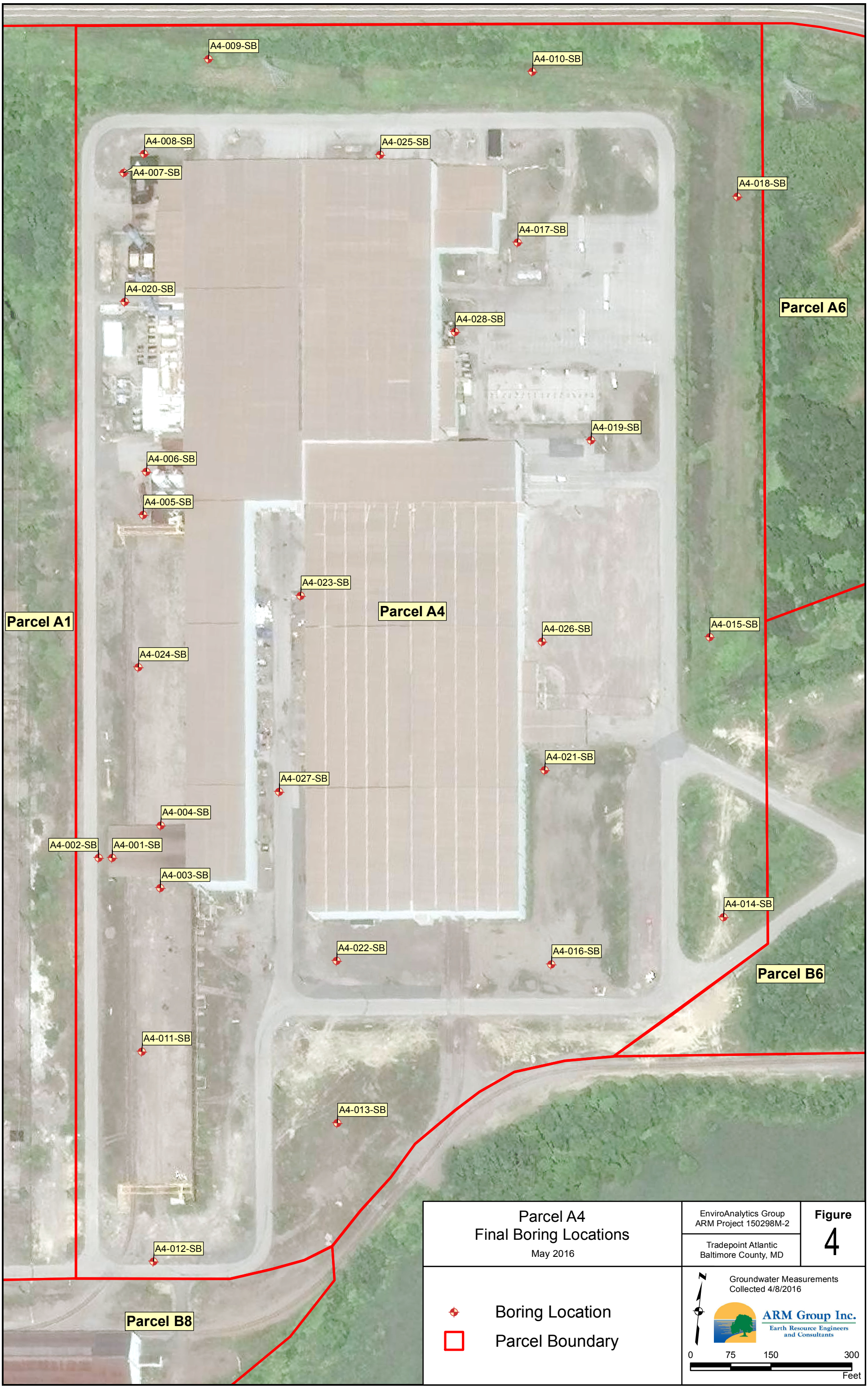
Figure 2

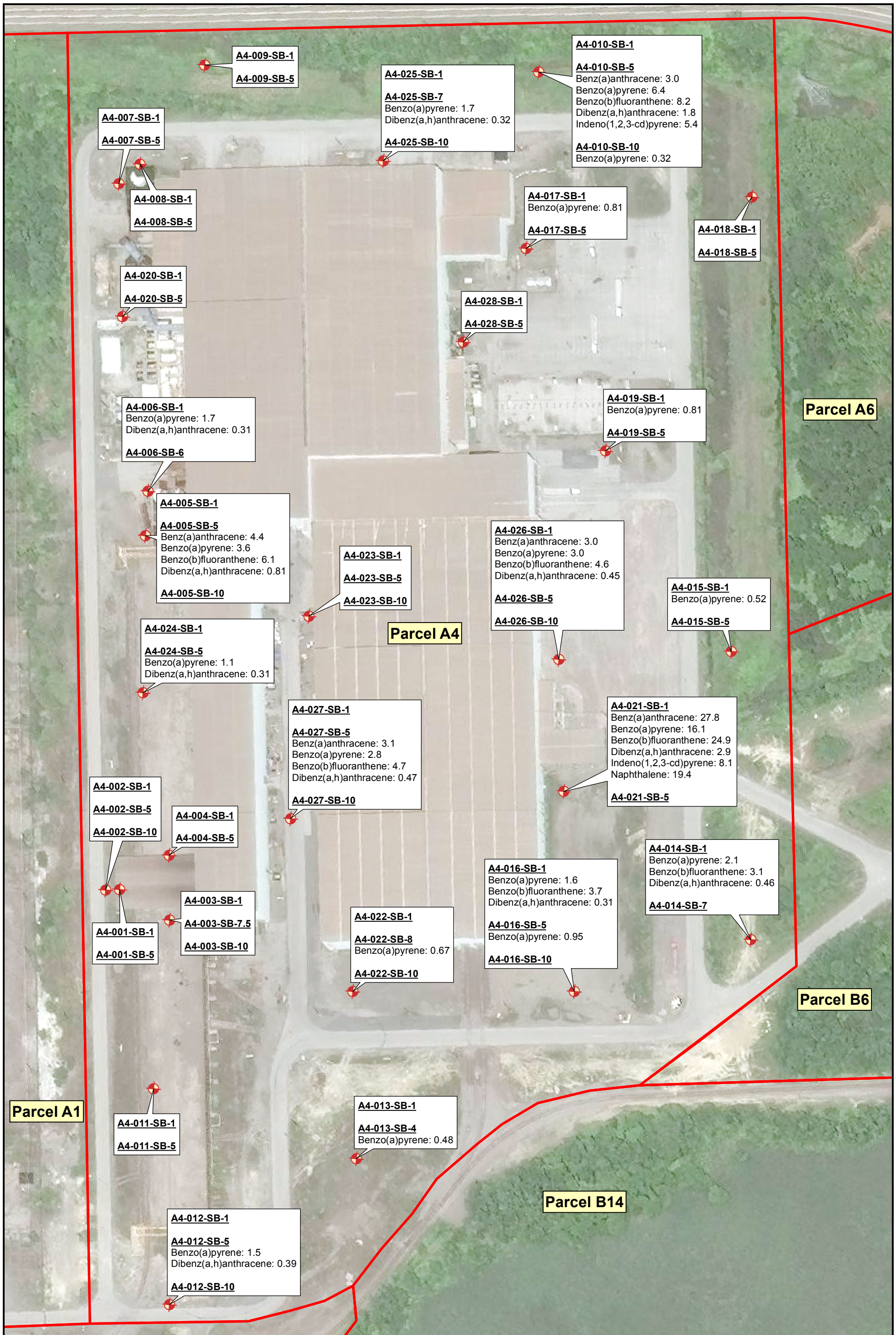
ARM Group Inc.
Earth Resource Engineers and Consultants

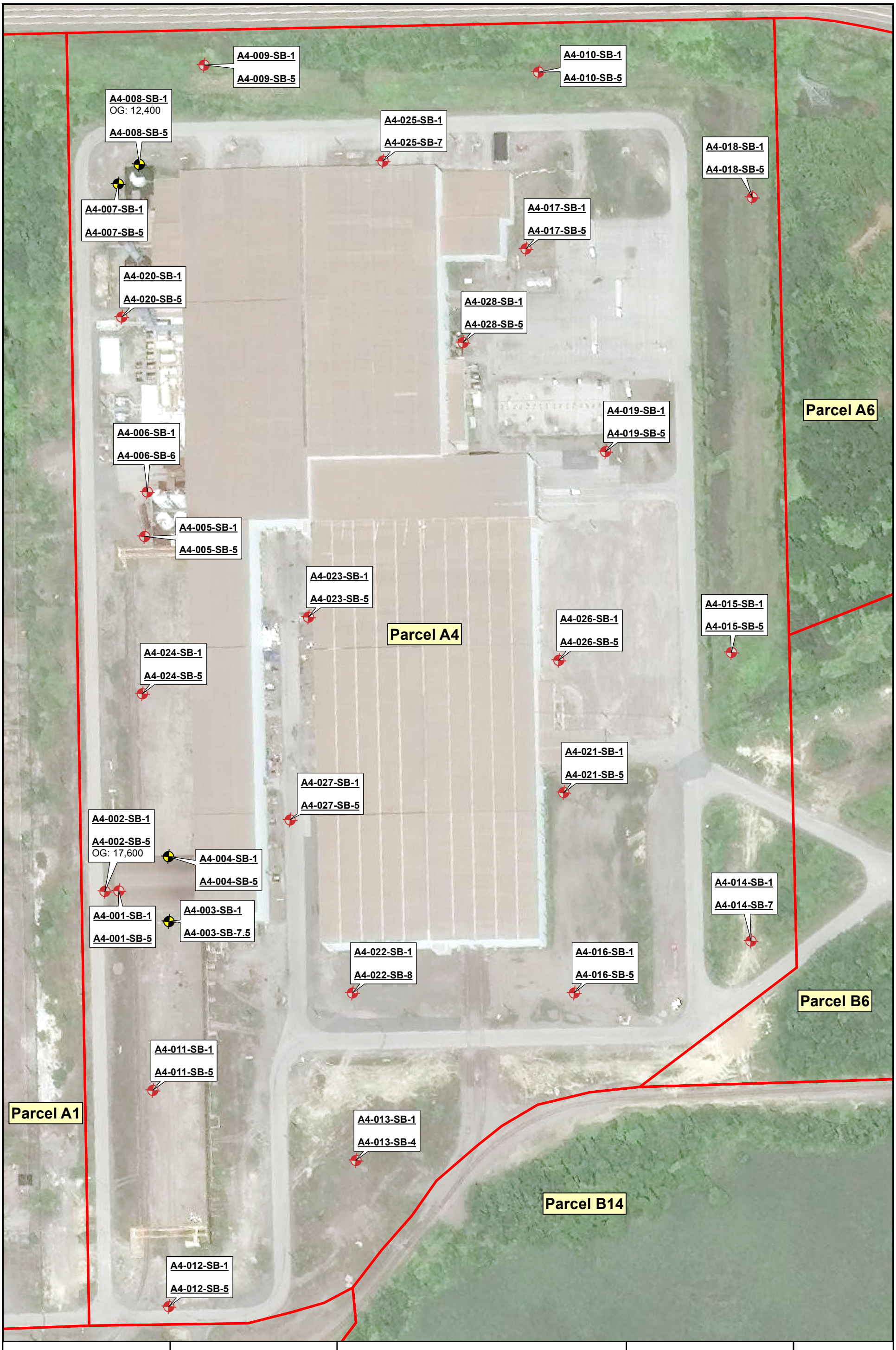
0 500 1,000 2,000 Feet

Tradepoint Atlantic
Baltimore County, MD
EnviroAnalytics Group
Area A: Project 150298M
Area B: Project 150300M
Development: Project 160443M


A4-010-PZ
10.11
A4-007-PZ
7.99
A4-019-PZ
9.29
A4-005-PZ
5.11
A4-001-PZ
3.87
A4-014-PZ
5.72
A4-013-PZ
4.22
A4-012-PZ
Parcel A6
Parcel A1
Parcel A4
Parcel B6
Parcel B14
Parcel B8
10
9
8
7
6
5
4
Groundwater Sample Locations and Potentiometric Surface
May 2016
EnviroAnalytics Group
ARM Project 150298M-2
Tradepoint Atlantic
Baltimore County, MD
Figure
3
Piezometer
Piezometer (destroyed)
A4-014-PZ 5.72
Piezometer ID
Groundwater Elevation (ft amsl)
Potentiometric Surface Contour (ft amsl)
Parcel Boundary
Groundwater Measurements Collected 4/8/2016
ARM Group Inc.
Earth Resource Engineers and Consultants
0
75
150
300
Feet


A4-009-SB
A4-010-SB
A4-008-SB
A4-025-SB
A4-007-SB
A4-018-SB
A4-017-SB
A4-020-SB
Parcel A6
A4-028-SB
A4-019-SB
A4-006-SB
A4-005-SB
A4-023-SB
Parcel A1
Parcel A4
A4-026-SB
A4-015-SB
A4-024-SB
A4-021-SB
A4-027-SB
A4-004-SB
A4-002-SB
A4-001-SB
A4-003-SB
A4-014-SB
A4-022-SB
A4-016-SB
Parcel B6
A4-011-SB
A4-013-SB
A4-012-SB
Parcel B8
Parcel A4
Final Boring Locations
May 2016
EnviroAnalytics Group
ARM Project 150298M-2
Tradepoint Atlantic
Baltimore County, MD
Figure
4
Boring Location
Parcel Boundary
Groundwater Measurements
Collected 4/8/2016
ARM Group Inc.
Earth Resource Engineers
and Consultants
0
75
150
300
Feet


A4-009-SB-1
A4-009-SB-5
A4-025-SB-1
A4-025-SB-7
Benzo(a)pyrene: 1.7
Dibenz(a,h)anthracene: 0.32
A4-025-SB-10
A4-010-SB-1
A4-010-SB-5
Benz(a)anthracene: 3.0
Benzo(a)pyrene: 6.4
Benzo(b)fluoranthene: 8.2
Dibenz(a,h)anthracene: 1.8
Indeno(1,2,3-cd)pyrene: 5.4
A4-010-SB-10
Benzo(a)pyrene: 0.32
A4-007-SB-1
A4-007-SB-5
A4-008-SB-1
A4-008-SB-5
A4-017-SB-1
Benzo(a)pyrene: 0.81
A4-017-SB-5
A4-018-SB-1
A4-018-SB-5
A4-020-SB-1
A4-020-SB-5
A4-028-SB-1
A4-028-SB-5
A4-019-SB-1
Benzo(a)pyrene: 0.81
A4-019-SB-5
Parcel A6
A4-006-SB-1
Benzo(a)pyrene: 1.7
Dibenz(a,h)anthracene: 0.31
A4-006-SB-6
A4-005-SB-1
A4-005-SB-5
Benz(a)anthracene: 4.4
Benzo(a)pyrene: 3.6
Benzo(b)fluoranthene: 6.1
Dibenz(a,h)anthracene: 0.81
A4-005-SB-10
A4-023-SB-1
A4-023-SB-5
A4-023-SB-10
A4-026-SB-1
Benz(a)anthracene: 3.0
Benzo(a)pyrene: 3.0
Benzo(b)fluoranthene: 4.6
Dibenz(a,h)anthracene: 0.45
A4-026-SB-5
A4-026-SB-10
A4-015-SB-1
Benzo(a)pyrene: 0.52
A4-015-SB-5
Parcel A4
A4-024-SB-1
A4-024-SB-5
Benzo(a)pyrene: 1.1
Dibenz(a,h)anthracene: 0.31
A4-027-SB-1
A4-027-SB-5
Benz(a)anthracene: 3.1
Benzo(a)pyrene: 2.8
Benzo(b)fluoranthene: 4.7
Dibenz(a,h)anthracene: 0.47
A4-027-SB-10
A4-021-SB-1
Benz(a)anthracene: 27.8
Benzo(a)pyrene: 16.1
Benzo(b)fluoranthene: 24.9
Dibenz(a,h)anthracene: 2.9
Indeno(1,2,3-cd)pyrene: 8.1
Naphthalene: 19.4
A4-021-SB-5
A4-002-SB-1
A4-002-SB-5
A4-002-SB-10
A4-004-SB-1
A4-004-SB-5
A4-014-SB-1
Benzo(a)pyrene: 2.1
Benzo(b)fluoranthene: 3.1
Dibenz(a,h)anthracene: 0.46
A4-014-SB-7
A4-016-SB-1
Benzo(a)pyrene: 1.6
Benzo(b)fluoranthene: 3.7
Dibenz(a,h)anthracene: 0.31
A4-016-SB-5
Benzo(a)pyrene: 0.95
A4-016-SB-10
A4-003-SB-1
A4-003-SB-7.5
A4-003-SB-10
A4-001-SB-1
A4-001-SB-5
A4-022-SB-1
A4-022-SB-8
Benzo(a)pyrene: 0.67
A4-022-SB-10
Parcel B6
Parcel A1
A4-011-SB-1
A4-011-SB-5
A4-013-SB-1
A4-013-SB-4
Benzo(a)pyrene: 0.48
Parcel B14
A4-012-SB-1
A4-012-SB-5
Benzo(a)pyrene: 1.5
Dibenz(a,h)anthracene: 0.39
A4-012-SB-10
ARM Group Inc.
Earth Resource Engineers and Consultants
0 50 100 200
Feet
Soil Boring
Parcel Boundary
Parcel A4 Soil Borings
Phase II SVOC Exceedances (mg/kg)
August 14, 2017
EnviroAnalytics Group
ARM Project 150298M-2
Tradepoint Atlantic
Baltimore County, MD
Figure
S-1



ARM Group Inc.
Earth Resource Engineers and Consultants

0 50 100 200 Feet

Soil Boring (O&G)
Soil Boring (TPH/O&G)
Parcel Boundary

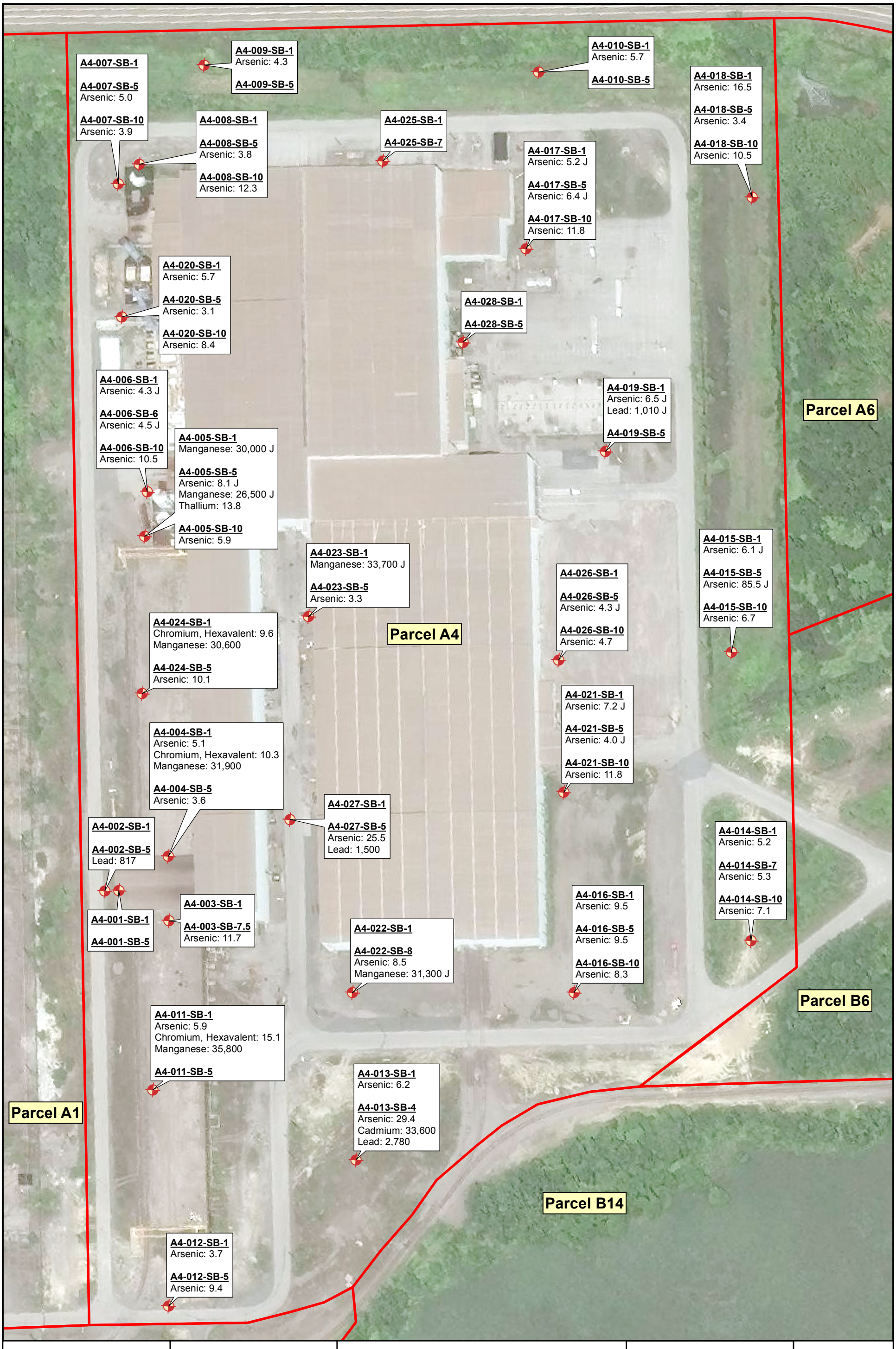
Parcel A4 Soil Borings
Phase II TPH/O&G Exceedances (mg/kg)

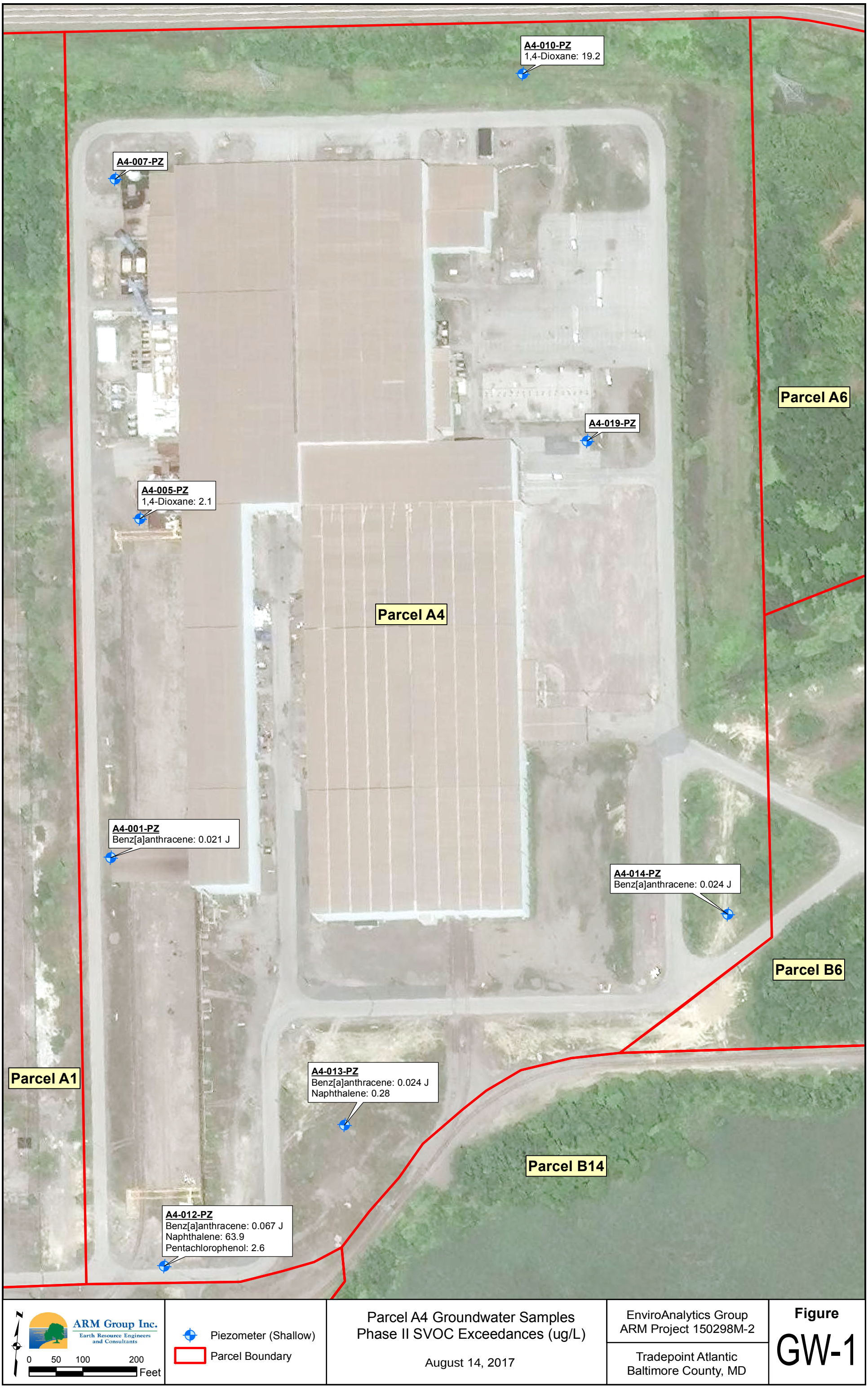
December 16, 2016

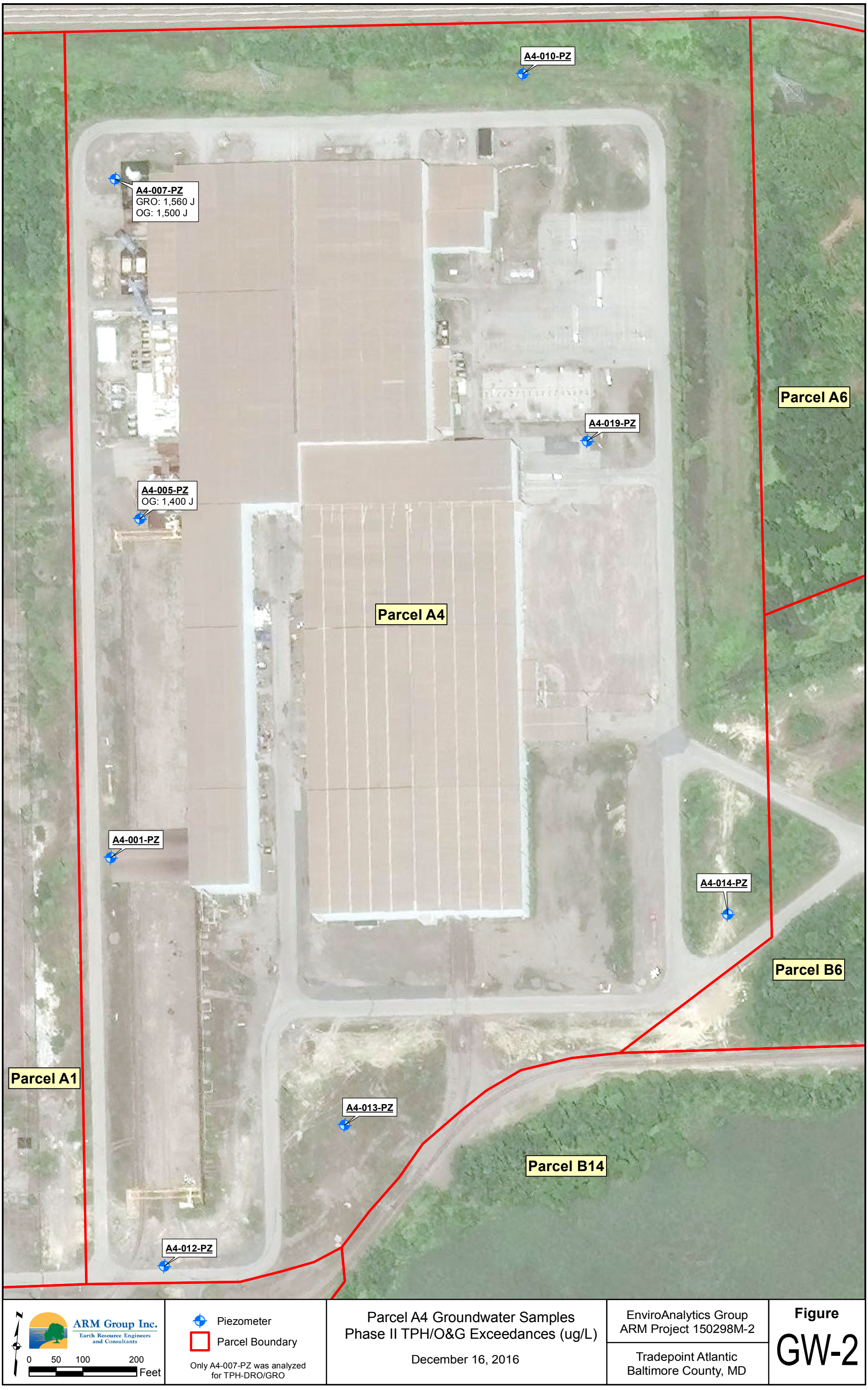
EnviroAnalytics Group
ARM Project 150298M-2

Tradepoint Atlantic
Baltimore County, MD

Figure
S-2


A4-007-SB-1
A4-007-SB-5
Arsenic: 5.0
A4-007-SB-10
Arsenic: 3.9
A4-009-SB-1
Arsenic: 4.3
A4-009-SB-5
A4-008-SB-1
A4-008-SB-5
Arsenic: 3.8
A4-008-SB-10
Arsenic: 12.3
A4-025-SB-1
A4-025-SB-7
A4-010-SB-1
Arsenic: 5.7
A4-010-SB-5
A4-018-SB-1
Arsenic: 16.5
A4-018-SB-5
Arsenic: 3.4
A4-018-SB-10
Arsenic: 10.5
A4-017-SB-1
Arsenic: 5.2 J
A4-017-SB-5
Arsenic: 6.4 J
A4-017-SB-10
Arsenic: 11.8
A4-020-SB-1
Arsenic: 5.7
A4-020-SB-5
Arsenic: 3.1
A4-020-SB-10
Arsenic: 8.4
A4-028-SB-1
A4-028-SB-5
A4-006-SB-1
Arsenic: 4.3 J
A4-006-SB-6
Arsenic: 4.5 J
A4-006-SB-10
Arsenic: 10.5
A4-019-SB-1
Arsenic: 6.5 J
Lead: 1,010 J
A4-019-SB-5
Parcel A6
A4-005-SB-1
Manganese: 30,000 J
A4-005-SB-5
Arsenic: 8.1 J
Manganese: 26,500 J
Thallium: 13.8
A4-005-SB-10
Arsenic: 5.9
A4-023-SB-1
Manganese: 33,700 J
A4-023-SB-5
Arsenic: 3.3
A4-026-SB-1
A4-026-SB-5
Arsenic: 4.3 J
A4-026-SB-10
Arsenic: 4.7
A4-015-SB-1
Arsenic: 6.1 J
A4-015-SB-5
Arsenic: 85.5 J
A4-015-SB-10
Arsenic: 6.7
Parcel A4
A4-024-SB-1
Chromium, Hexavalent: 9.6
Manganese: 30,600
A4-024-SB-5
Arsenic: 10.1
A4-021-SB-1
Arsenic: 7.2 J
A4-021-SB-5
Arsenic: 4.0 J
A4-021-SB-10
Arsenic: 11.8
A4-004-SB-1
Arsenic: 5.1
Chromium, Hexavalent: 10.3
Manganese: 31,900
A4-004-SB-5
Arsenic: 3.6
A4-027-SB-1
A4-027-SB-5
Arsenic: 25.5
Lead: 1,500
A4-014-SB-1
Arsenic: 5.2
A4-014-SB-7
Arsenic: 5.3
A4-014-SB-10
Arsenic: 7.1
A4-002-SB-1
A4-002-SB-5
Lead: 817
A4-001-SB-1
A4-001-SB-5
A4-003-SB-1
A4-003-SB-7.5
Arsenic: 11.7
A4-022-SB-1
A4-022-SB-8
Arsenic: 8.5
Manganese: 31,300 J
A4-016-SB-1
Arsenic: 9.5
A4-016-SB-5
Arsenic: 9.5
A4-016-SB-10
Arsenic: 8.3
Parcel B6
A4-011-SB-1
Arsenic: 5.9
Chromium, Hexavalent: 15.1
Manganese: 35,800
A4-011-SB-5
A4-013-SB-1
Arsenic: 6.2
A4-013-SB-4
Arsenic: 29.4
Cadmium: 33,600
Lead: 2,780
Parcel A1
Parcel B14
A4-012-SB-1
Arsenic: 3.7
A4-012-SB-5
Arsenic: 9.4
ARM Group Inc.
Earth Resource Engineers and Consultants
0 50 100 200
Feet
Soil Boring
Parcel Boundary
Parcel A4 Soil Borings
Phase II Inorganic Exceedances (mg/kg)
July 7, 2016
EnviroAnalytics Group
ARM Project 150298M-2
Tradepoint Atlantic
Baltimore County, MD
Figure
S-3


A4-010-PZ
1,4-Dioxane: 19.2
A4-007-PZ
Parcel A6
A4-019-PZ
A4-005-PZ
1,4-Dioxane: 2.1
Parcel A4
A4-001-PZ
Benz[a]anthracene: 0.021 J
A4-014-PZ
Benz[a]anthracene: 0.024 J
Parcel B6
Parcel A1
A4-013-PZ
Benz[a]anthracene: 0.024 J
Naphthalene: 0.28
Parcel B14
A4-012-PZ
Benz[a]anthracene: 0.067 J
Naphthalene: 63.9
Pentachlorophenol: 2.6
ARM Group Inc.
Earth Resource Engineers and Consultants
0 50 100 200
Feet
Piezometer (Shallow)
Parcel Boundary
Parcel A4 Groundwater Samples
Phase II SVOC Exceedances (ug/L)
August 14, 2017
EnviroAnalytics Group
ARM Project 150298M-2
Tradepoint Atlantic
Baltimore County, MD
Figure
GW-1



ARM Group Inc.
Earth Resource Engineers and Consultants

0 50 100 200 Feet

Piezometer

Parcel Boundary

Only A4-007-PZ was analyzed for TPH-DRO/GRO

Parcel A4 Groundwater Samples
Phase II TPH/O&G Exceedances (ug/L)

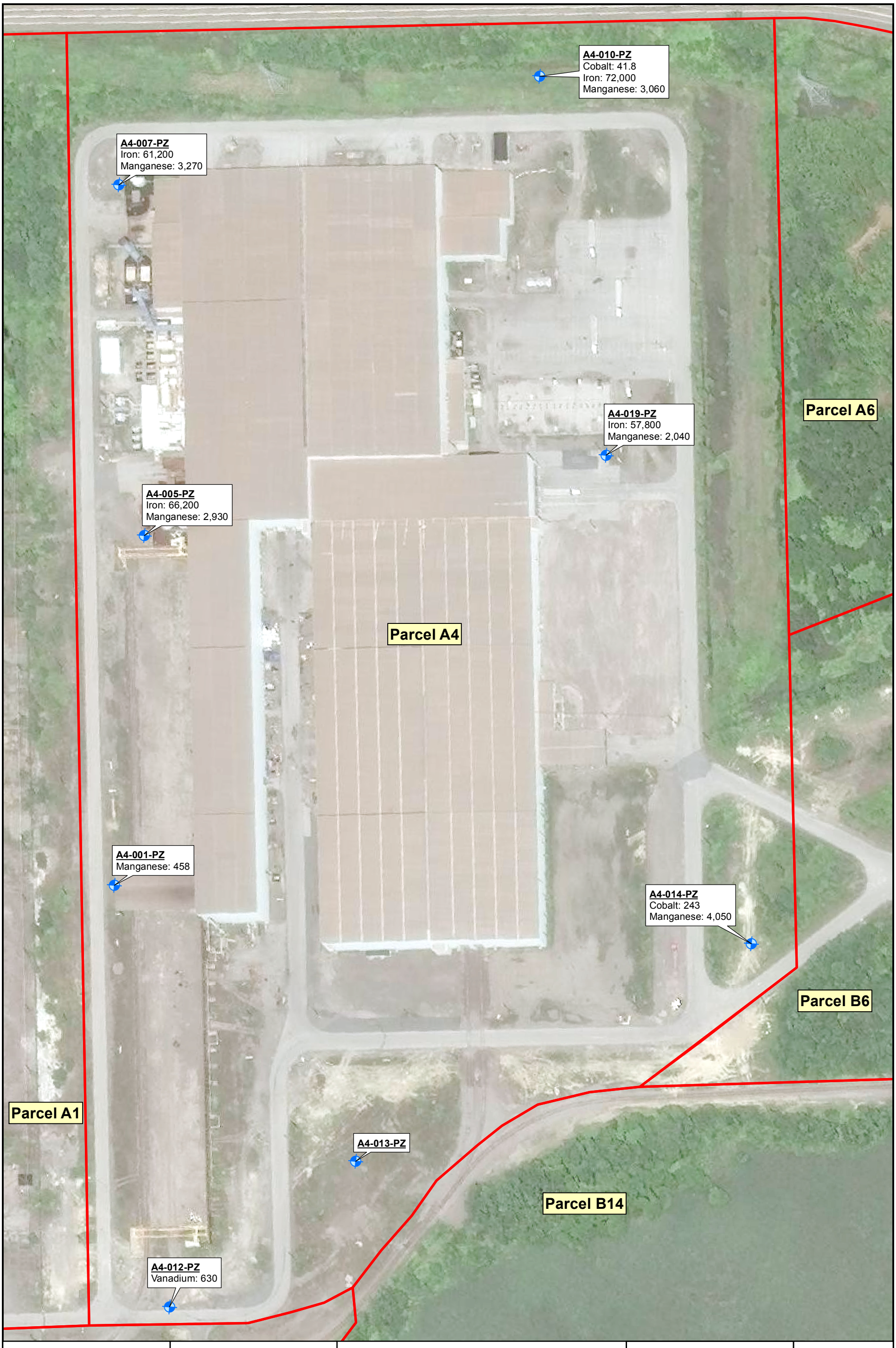
December 16, 2016

EnviroAnalytics Group
ARM Project 150298M-2

Tradepoint Atlantic
Baltimore County, MD

Figure

GW-2



ARM Group Inc.
Earth Resource Engineers and Consultants

0 50 100 200 Feet

Piezometer (Shallow)

Parcel Boundary

Parcel A4 Groundwater Samples
Phase II Inorganic Exceedances (ug/L)

July 7, 2016

EnviroAnalytics Group
ARM Project 150298M-2

Tradepoint Atlantic
Baltimore County, MD

Figure

GW-3

A4-010-PZ

A4-007-PZ

Parcel A6

Cold Sheet Mill

A4-019-PZ

A4-005-PZ

Parcel A4

A4-001-PZ

A4-014-PZ

Parcel B6

Parcel A1

A4-013-PZ
Cyanide: 4.9 J

Parcel B14

A4-012-PZ
Cyanide: 20.6

Parcel B8

Parcel A4 Shallow Groundwater
Vapor Intrusion Criteria Exceedances (ug/L)

August 14, 2017

Figure
GW-4

EnviroAnalytics Group	Tradepoint Atlantic
ARM Project 150298M-2	Baltimore County, MD

ARM Group Inc.
Earth Resource Engineers and Consultants

0 62.5 125 250
Feet

Piezometer
Cold Mill Building
Limit of Disturbance
Parcel Boundary

TABLES

TABLE 1 GROUNDWATER ELEVATION DATA				
Location Name	TOC Elevation (feet AMSL)	Ground Elevation (feet AMSL)	Measured DTW (ft)	Groundwater Elevation (feet AMSL)
A4-001-PZ	14.71	12.71	10.84	3.87
A4-005-PZ	15.95	12.94	10.84	5.11
A4-007-PZ	15.41	12.88	7.42	7.99
A4-010-PZ	14.67	12.79	4.56	10.11
A4-012-PZ	15.90	12.24	-	-
A4-013-PZ	12.00	9.76	7.78	4.22
A4-014-PZ	15.39	11.49	9.67	5.72
A4-019-PZ	16.34	12.65	7.05	9.29

DTW = Depth to water
TOC = Top of casing
AMSL = Above mean sea level

TABLE 2
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.)	5044	8/3/1959	3/11/1982
		5049	6/4/1968	3/11/1982
		5050	*Unknown*	3/18/1982
		5054	4/27/1959	3/11/1982
		5055	1/27/1959	3/11/1982
Plant Index	Roads, water bodies, demolished buildings/structures, electric lines, above-ground pipelines	5144	Unknown	8/5/2008
		5149	*Unknown*	3/28/2008
		5150	*Unknown*	8/18/2008
		5154	*Unknown*	3/26/2008
		5155	*Unknown*	3/3/2008
Plant Sewer Lines	Same as above plus trenches, sumps, underground piping (includes pipe materials)	5544	9/16/1959	2/27/1976
		5549	10/15/1959	3/3/1976
		5550	9/16/1959	3/5/1976
		5554	2/10/1976	2/10/1976
		5555	2/10/1976	2/10/1976
Drip Legs	Coke Oven Gas Drip Legs Locations	5888	*Unknown*	Sept. 1988
		5887	*Unknown*	Sept. 1988

TABLE 3
FIELD SHIFTED BORING LOCATIONS

Location ID	Sample Target	Proposed Location[¥]		Final Location[¥]		Relocation Distance & Direction		Rationale
		Northing	Easting	Northing	Easting			
A4-004-SB	AOC O - Hydraulic Oil Storage Area	571,164	1,458,158	571,175	1,458,160	9	NE	Refusal
A4-012-SB	Parcel Coverage	570,399	1,458,228	570,368	1,458,231	26	S	Utilities
A4-015-SB	Parcel Coverage	571,608	1,459,155	571,628	1,459,137	23	NW	Utilities
A4-016-SB	Parcel Coverage	570,993	1,458,898	570,994	1,458,908	10	E	Refusal
A4-019-SB	Parcel Coverage	571,933	1,458,896	571,969	1,458,880	36	NW	Utilities
A4-020-SB	Parcel Coverage	572,070	1,458,006	572,134	1,457,992	61	N	Utilities
A4-023-SB	Parcel Coverage	571,671	1,458,331	571,626	1,458,374	60	SE	Utilities
A4-027-SB	Parcel Coverage	571,312	1,458,367	571,260	1,458,372	49	S	Refusal/Utilities

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

TABLE 4
TCLP RESULTS FOR SOLID IDW

Parameter	Result (mg/L)	TCLP Limit (mg/L)	TCLP Exceedance	Laboratory Flag	Laboratory LOQ (mg/L)
1,1-Dichloroethene	0.05	0.7	no	U	0.05
1,2-Dichloroethane	0.05	0.5	no	U	0.05
1,4-Dichlorobenzene	0.5	7.5	no	U	0.5
2,4,5-Trichlorophenol	5	400	no	U	5
2,4,6-Trichlorophenol	0.1	2	no	U	0.1
2,4-Dinitrotoluene	0.1	0.13	no	U	0.1
2-Butanone (MEK)	5	200	no	U	5
2-Methylphenol	2	200	no	U	2
3&4-Methylphenol(m&p Cresol)	2	200	no	U	2
Arsenic	0.005	5	no	J	0.05
Barium	0.48	100	no	J	1
Benzene	0.05	0.5	no	U	0.05
Cadmium	0.00085	1	no	J	0.05
Carbon tetrachloride	0.05	0.5	no	U	0.05
Chlorobenzene	1	100	no	U	1
Chloroform	0.5	6	no	U	0.5
Chromium	0.0016	5	no	J	0.05
Hexachlorobenzene	0.1	0.13	no	UL2	0.1
Hexachloroethane	0.5	3	no	U	0.5
Lead	0.25	5	no	U	0.25
Mercury	0.001	0.2	no	U	0.001
Nitrobenzene	0.1	2	no	U	0.1
Pentachlorophenol	5	100	no	U	5
Selenium	0.0044	1	no	J	0.1
Silver	0.05	5	no	U	0.05
Tetrachloroethene	0.05	0.7	no	U	0.05
Trichloroethene	0.05	0.5	no	U	0.05
Vinyl chloride	0.05	0.2	no	U	0.05

J = The positive result reported for this analyte is a quantitative estimate below the laboratory LOQ.
Uxx = The analyte was not detected in the sample. The numeric value represents the sample LOQ.
TCLP = Toxicity characteristic leaching procedure
LOQ = Limit of Quantitation

TABLE 5 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	1,1-Dichloroethene	0.001	0.7	no	U	0.001
Water Disposal 1	1,2-Dichloroethane	0.001	0.5	no	U	0.001
Water Disposal 1	1,4-Dichlorobenzene	0.001	7.5	no	U	0.001
Water Disposal 1	2-Butanone (MEK)	0.01	200	no	U	0.01
Water Disposal 1	Arsenic	0.005	5	no	U	0.005
Water Disposal 1	Barium	0.0338	100	no		0.01
Water Disposal 1	Benzene	0.001	0.5	no	U	0.001
Water Disposal 1	Cadmium	0.0006	1	no	J	0.003
Water Disposal 1	Carbon tetrachloride	0.001	0.5	no	U	0.001
Water Disposal 1	Chlorobenzene	0.001	100	no	U	0.001
Water Disposal 1	Chloroform	0.001	6	no	U	0.001
Water Disposal 1	Chromium	0.0016	5	no	J	0.005
Water Disposal 1	Lead	0.005	5	no	U	0.005
Water Disposal 1	Mercury	0.0002	0.2	no	U	0.0002
Water Disposal 1	Selenium	0.008	1	no	U	0.008
Water Disposal 1	Silver	0.006	5	no	U	0.006
Water Disposal 1	Tetrachloroethene	0.001	0.7	no	U	0.001
Water Disposal 1	Trichloroethene	0.001	0.5	no	U	0.001
Water Disposal 1	Vinyl chloride	0.001	0.2	no	U	0.001
Water Disposal 2	1,1-Dichloroethene	0.001	0.7	no	U	0.001
Water Disposal 2	1,2-Dichloroethane	0.001	0.5	no	U	0.001
Water Disposal 2	1,4-Dichlorobenzene	0.001	7.5	no	U	0.001
Water Disposal 2	2-Butanone (MEK)	0.01	200	no	U	0.01
Water Disposal 2	Arsenic	0.005	5	no	U	0.005
Water Disposal 2	Barium	0.0811	100	no		0.01
Water Disposal 2	Benzene	0.001	0.5	no	U	0.001
Water Disposal 2	Cadmium	0.003	1	no	U	0.003
Water Disposal 2	Carbon tetrachloride	0.001	0.5	no	U	0.001
Water Disposal 2	Chlorobenzene	0.001	100	no	U	0.001
Water Disposal 2	Chloroform	0.0029	6	no		0.001
Water Disposal 2	Chromium	0.0012	5	no	J	0.005
Water Disposal 2	Lead	0.005	5	no	U	0.005
Water Disposal 2	Mercury	0.0002	0.2	no	U	0.0002
Water Disposal 2	Selenium	0.008	1	no	U	0.008
Water Disposal 2	Silver	0.006	5	no	U	0.006
Water Disposal 2	Tetrachloroethene	0.001	0.7	no	U	0.001
Water Disposal 2	Trichloroethene	0.001	0.5	no	U	0.001
Water Disposal 2	Vinyl chloride	0.001	0.2	no	U	0.001

TABLE 5
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	1,1-Dichloroethene	0.001	0.7	no	U	0.001
Water Disposal 3	1,2-Dichloroethane	0.001	0.5	no	U	0.001
Water Disposal 3	1,4-Dichlorobenzene	0.001	7.5	no	U	0.001
Water Disposal 3	2-Butanone (MEK)	0.01	200	no	U	0.01
Water Disposal 3	Arsenic	0.005	5	no	U	0.005
Water Disposal 3	Barium	0.0051	100	no	J	0.01
Water Disposal 3	Benzene	0.001	0.5	no	U	0.001
Water Disposal 3	Cadmium	0.003	1	no	U	0.003
Water Disposal 3	Carbon tetrachloride	0.001	0.5	no	U	0.001
Water Disposal 3	Chlorobenzene	0.001	100	no	U	0.001
Water Disposal 3	Chloroform	0.0016	6	no		0.001
Water Disposal 3	Chromium	0.00085	5	no	J	0.005
Water Disposal 3	Lead	0.005	5	no	U	0.005
Water Disposal 3	Mercury	0.0002	0.2	no	U	0.0002
Water Disposal 3	Selenium	0.008	1	no	U	0.008
Water Disposal 3	Silver	0.006	5	no	U	0.006
Water Disposal 3	Tetrachloroethene	0.001	0.7	no	U	0.001
Water Disposal 3	Trichloroethene	0.001	0.5	no	U	0.001
Water Disposal 3	Vinyl chloride	0.001	0.2	no	U	0.001
Water Disposal 4	1,1-Dichloroethene	0.001	0.7	no	U	0.001
Water Disposal 4	1,2-Dichloroethane	0.001	0.5	no	U	0.001
Water Disposal 4	1,4-Dichlorobenzene	0.001	7.5	no	U	0.001
Water Disposal 4	2-Butanone (MEK)	0.01	200	no	U	0.01
Water Disposal 4	Arsenic	0.0094	5	no		0.005
Water Disposal 4	Barium	0.101	100	no		0.01
Water Disposal 4	Benzene	0.001	0.5	no	U	0.001
Water Disposal 4	Cadmium	0.003	1	no	U	0.003
Water Disposal 4	Carbon tetrachloride	0.001	0.5	no	U	0.001
Water Disposal 4	Chlorobenzene	0.001	100	no	U	0.001
Water Disposal 4	Chloroform	0.0024	6	no		0.001
Water Disposal 4	Chromium	0.0012	5	no	J	0.005
Water Disposal 4	Lead	0.005	5	no	U	0.005
Water Disposal 4	Mercury	0.0002	0.2	no	U	0.0002
Water Disposal 4	Selenium	0.008	1	no	U	0.008
Water Disposal 4	Silver	0.006	5	no	U	0.006
Water Disposal 4	Tetrachloroethene	0.001	0.7	no	U	0.001
Water Disposal 4	Trichloroethene	0.001	0.5	no	U	0.001
Water Disposal 4	Vinyl chloride	0.001	0.2	no	U	0.001

TABLE 5 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	1,1-Dichloroethene	0.001	0.7	no	U	0.001
Water Disposal 5	1,2-Dichloroethane	0.001	0.5	no	U	0.001
Water Disposal 5	1,4-Dichlorobenzene	0.001	7.5	no	U	0.001
Water Disposal 5	2-Butanone (MEK)	0.01	200	no	U	0.01
Water Disposal 5	Arsenic	0.005	5	no	U	0.005
Water Disposal 5	Barium	0.398	100	no		0.01
Water Disposal 5	Benzene	0.001	0.5	no	U	0.001
Water Disposal 5	Cadmium	0.00058	1	no	J	0.003
Water Disposal 5	Carbon tetrachloride	0.001	0.5	no	U	0.001
Water Disposal 5	Chlorobenzene	0.001	100	no	U	0.001
Water Disposal 5	Chloroform	0.0039	6	no		0.001
Water Disposal 5	Chromium	0.0012	5	no	J	0.005
Water Disposal 5	Lead	0.005	5	no	U	0.005
Water Disposal 5	Mercury	0.0002	0.2	no	U	0.0002
Water Disposal 5	Selenium	0.008	1	no	U	0.008
Water Disposal 5	Silver	0.006	5	no	U	0.006
Water Disposal 5	Tetrachloroethene	0.001	0.7	no	U	0.001
Water Disposal 5	Trichloroethene	0.001	0.5	no	U	0.001
Water Disposal 5	Vinyl chloride	0.001	0.2	no	U	0.001
Water Disposal 6	1,1-Dichloroethene	0.001	0.7	no	U	0.001
Water Disposal 6	1,2-Dichloroethane	0.001	0.5	no	U	0.001
Water Disposal 6	1,4-Dichlorobenzene	0.001	7.5	no	U	0.001
Water Disposal 6	2-Butanone (MEK)	0.01	200	no	U	0.01
Water Disposal 6	Arsenic	0.005	5	no	U	0.005
Water Disposal 6	Barium	2.14	100	no		0.01
Water Disposal 6	Benzene	0.001	0.5	no	U	0.001
Water Disposal 6	Cadmium	0.001	1	no	J	0.003
Water Disposal 6	Carbon tetrachloride	0.001	0.5	no	U	0.001
Water Disposal 6	Chlorobenzene	0.001	100	no	U	0.001
Water Disposal 6	Chloroform	0.00058	6	no	J	0.001
Water Disposal 6	Chromium	0.005	5	no	U	0.005
Water Disposal 6	Lead	0.005	5	no	U	0.005
Water Disposal 6	Mercury	0.0002	0.2	no	U	0.0002
Water Disposal 6	Selenium	0.008	1	no	U	0.008
Water Disposal 6	Silver	0.006	5	no	U	0.006
Water Disposal 6	Tetrachloroethene	0.001	0.7	no	U	0.001
Water Disposal 6	Trichloroethene	0.001	0.5	no	U	0.001
Water Disposal 6	Vinyl chloride	0.001	0.2	no	U	0.001

TABLE 5
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	1,1-Dichloroethene	0.001	0.7	no	U	0.001
Water Disposal 7	1,2-Dichloroethane	0.001	0.5	no	U	0.001
Water Disposal 7	1,4-Dichlorobenzene	0.001	7.5	no	U	0.001
Water Disposal 7	2-Butanone (MEK)	0.01	200	no	U	0.01
Water Disposal 7	Arsenic	0.005	5	no	U	0.005
Water Disposal 7	Barium	0.0889	100	no		0.01
Water Disposal 7	Benzene	0.001	0.5	no	U	0.001
Water Disposal 7	Cadmium	0.00067	1	no	J	0.003
Water Disposal 7	Carbon tetrachloride	0.001	0.5	no	U	0.001
Water Disposal 7	Chlorobenzene	0.001	100	no	U	0.001
Water Disposal 7	Chloroform	0.00075	6	no	J	0.001
Water Disposal 7	Chromium	0.005	5	no	U	0.005
Water Disposal 7	Lead	0.005	5	no	U	0.005
Water Disposal 7	Mercury	0.0002	0.2	no	U	0.0002
Water Disposal 7	Selenium	0.008	1	no	U	0.008
Water Disposal 7	Silver	0.006	5	no	U	0.006
Water Disposal 7	Tetrachloroethene	0.001	0.7	no	U	0.001
Water Disposal 7	Trichloroethene	0.00065	0.5	no	J	0.001
Water Disposal 7	Vinyl chloride	0.001	0.2	no	U	0.001
Water Disposal 8	1,1-Dichloroethene	0.001	0.7	no	U	0.001
Water Disposal 8	1,2-Dichloroethane	0.001	0.5	no	U	0.001
Water Disposal 8	1,4-Dichlorobenzene	0.001	7.5	no	U	0.001
Water Disposal 8	2-Butanone (MEK)	0.01	200	no	U	0.01
Water Disposal 8	Arsenic	0.005	5	no	U	0.005
Water Disposal 8	Barium	0.01	100	no	J	0.01
Water Disposal 8	Benzene	0.001	0.5	no	U	0.001
Water Disposal 8	Cadmium	0.003	1	no	U	0.003
Water Disposal 8	Carbon tetrachloride	0.001	0.5	no	U	0.001
Water Disposal 8	Chlorobenzene	0.001	100	no	U	0.001
Water Disposal 8	Chloroform	0.001	6	no	U	0.001
Water Disposal 8	Chromium	0.005	5	no	U	0.005
Water Disposal 8	Lead	0.005	5	no	U	0.005
Water Disposal 8	Mercury	0.0002	0.2	no	U	0.0002
Water Disposal 8	Selenium	0.008	1	no	U	0.008
Water Disposal 8	Silver	0.006	5	no	U	0.006
Water Disposal 8	Tetrachloroethene	0.001	0.7	no	U	0.001
Water Disposal 8	Trichloroethene	0.001	0.5	no	U	0.001
Water Disposal 8	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 characteristic leaching procedure
LOQ = Limit of Quantitation

Table 6
Summary of Organics Detected in Soil
Parcel A4
Tradepoint Atlantic
Sparrows Point, Maryland

Parameter	Units	PAL	A4-001-SB-1	A4-001-SB-5	A4-002-SB-1	A4-002-SB-5	A4-002-SB-10	A4-003-SB-1	A4-003-SB-7.5	A4-003-SB-10	A4-004-SB-1	A4-004-SB-5	A4-005-SB-1	A4-005-SB-5	A4-005-SB-10	A4-006-SB-1
Volatile Organic Compounds																
1,2-Dichlorobenzene	mg/kg	9,300	0.0055 U	0.0046 U	0.0052 U	0.0046 U	N/A-M	0.0045 U	0.0048 U	N/A-M	0.0044 U	0.0051 U	0.0048 U	0.0051 U	N/A	0.0048 U
2-Butanone (MEK)	mg/kg	190,000	**0.0035 J**	0.0091 U	**0.0045 J**	**0.0092 J**	N/A-M	**0.0028 J**	**0.059**	N/A-M	0.0088 U	0.01 U	**0.012**	**0.016**	N/A	**0.0042 J**
2-Hexanone	mg/kg	1,300	0.011 U	0.0091 U	0.01 U	0.0092 U	N/A-M	0.0089 U	0.0096 U	N/A-M	0.0088 U	0.01 U	0.0096 U	0.01 U	N/A	0.0097 U
Acetone	mg/kg	670,000	**0.028 J**	**0.023 J**	**0.039 J**	**0.057 J**	N/A-M	**0.037 J**	**0.065 J**	N/A-M	**0.013 J**	**0.072 J**	**0.074 J**	**0.11 J**	N/A	**0.042 J**
Benzene	mg/kg	5.1	**0.002 J**	0.0046 U	0.0052 U	**0.0013 J**	N/A-M	0.0045 U	**0.027**	N/A-M	0.0044 U	**0.012**	0.0048 U	**0.0036 J**	N/A	0.0048 U
Cyclohexane	mg/kg	27,000	0.011 U	0.0091 U	0.01 U	0.0092 U	N/A-M	0.0089 U	**0.052**	N/A-M	0.0088 U	**0.0026 J**	0.0096 U	0.01 U	N/A	0.0097 U
Ethylbenzene	mg/kg	25	0.0055 U	0.0046 U	0.0052 U	**0.00051 J**	N/A-M	0.0045 U	**0.0065**	N/A-M	0.0044 U	**0.012**	0.0048 U	0.0051 U	N/A	0.0048 U
Isopropylbenzene	mg/kg	9,900	0.0055 U	0.0046 U	0.0052 U	0.0046 U	N/A-M	0.0045 U	**0.0012 J**	N/A-M	0.0044 U	**0.067**	0.0048 U	0.0051 U	N/A	0.0048 U
Methyl Acetate	mg/kg	1,200,000	0.055 U	0.046 U	0.052 U	0.046 U	N/A-M	0.045 U	0.048 U	N/A-M	0.044 U	0.051 U	0.048 U	0.051 U	N/A	0.048 U
Methylene Chloride	mg/kg	1,000	**0.0036 J**	**0.0057**	**0.0031 J**	0.0046 U	N/A-M	**0.0024 J**	**0.0021 J**	N/A-M	**0.0034 J**	**0.0032 J**	0.0048 U	0.0051 U	N/A	**0.0023 J**
Toluene	mg/kg	47,000	**0.0015 J**	0.0046 U	**0.00049 J**	**0.0023 J**	N/A-M	**0.00049 J**	**0.02**	N/A-M	**0.00057 J**	**0.0089**	0.0048 U	**0.0018 J**	N/A	**0.0007 J**
Trichloroethene	mg/kg	6	0.0055 U	0.0046 U	0.0052 U	0.0046 U	N/A-M	0.0045 U	0.0048 U	N/A-M	0.0044 U	0.0051 U	0.0048 U	0.0051 U	N/A	0.0048 U
Xylenes	mg/kg	2,800	0.016 U	0.014 U	0.016 U	**0.0025 J**	N/A-M	0.013 U	**0.0066 J**	N/A-M	0.013 U	**0.012 J**	0.014 U	0.015 U	N/A	0.015 U
Semi-Volatile Organic Compounds*																
1,1-Biphenyl	mg/kg	200	0.073 U	0.071 U	0.075 U	0.072 U	0.08 U	0.072 U	**1.5**	**0.51**	0.075 U	0.077 U	**0.083**	**0.21**	0.08 U	0.075 U
2,4-Dimethylphenol	mg/kg	16,000	0.073 U	0.071 U	0.075 U	0.072 U	0.08 U	0.072 UJ	**0.095**	**0.024 J**	0.075 R	0.077 U	0.074 R	**0.035 J**	0.08 U	0.075 U
2,6-Dinitrotoluene	mg/kg	1.5	0.073 U	0.071 U	0.075 U	0.072 U	0.08 U	**0.043 J**	0.08 U	0.081 U	0.075 U	0.077 U	0.074 U	0.075 U	0.08 U	0.075 U
2-Chloronaphthalene	mg/kg	60,000	0.073 U	0.071 U	0.075 U	0.072 U	0.08 U	0.072 U	0.08 U	0.081 U	0.075 U	0.077 U	0.074 U	0.075 U	0.08 U	0.075 U
2-Methylnaphthalene	mg/kg	3,000	**0.017**	**0.0064 J**	**0.015**	0.15 U	N/A-M	**0.0046 J**	**0.011**	N/A-M	0.0072 U	**0.19**	**0.0037 J**	**0.17**	0.008 U	**0.041**
2-Methylphenol	mg/kg	41,000	0.073 U	0.071 U	0.075 U	0.072 U	0.08 U	0.072 UJ	**0.11**	**0.025 J**	0.075 R	0.077 U	0.074 R	**0.023 J**	0.08 U	0.075 U
3&4-Methylphenol(m&p Cresol)	mg/kg	41,000	0.15 U	0.14 U	0.15 U	0.14 U	0.16 U	0.14 UJ	**0.55**	**0.13 J**	0.15 R	0.15 U	0.15 R	**0.021 J**	0.16 U	0.15 U
Acenaphthene	mg/kg	45,000	**0.01**	**0.0043 J**	**0.0067 J**	0.15 U	N/A-M	0.0073 U	0.0073 U	N/A-M	0.0072 U	**0.052**	0.0074 U	**0.16**	0.008 U	**0.1**
Acenaphthylene	mg/kg	45,000	**0.0061 J**	**0.0029 J**	**0.011**	0.15 U	N/A-M	0.0073 U	**0.026**	N/A-M	0.0072 U	**0.0056 J**	0.0074 U	**0.22**	0.008 U	**0.077**
Acetophenone	mg/kg	120,000	0.073 U	0.071 U	0.075 U	**0.038 J**	0.08 U	**0.11**	**0.076 J**	**0.03 J**	0.075 U	0.077 U	**0.028 J**	0.075 U	0.08 U	0.075 U
Anthracene	mg/kg	230,000	**0.024**	**0.021**	**0.023**	0.15 U	N/A-M	**0.0052 J**	**0.053**	N/A-M	0.0072 U	**0.074**	**0.0031 J**	**1.1**	0.008 U	**0.39**
Benz[a]anthracene	mg/kg	2.9	**0.15**	**0.056**	**0.097**	**0.14 J**	N/A-M	**0.038**	**0.25**	N/A-M	**0.0029 J**	**0.13**	**0.0089**	**4.4**	**0.0036 J**	**1.7**
Benzaldehyde	mg/kg	120,000	0.073 R	0.071 R	0.075 R	**0.045 J**	**0.15 J**	**0.064 J**	0.08 R	**0.1 J**	0.075 R	0.077 R	0.074 R	**0.1 J**	0.08 UJ	0.075 R
Benzo[a]pyrene	mg/kg	0.29	**0.21**	**0.049**	**0.1**	**0.15 J**	N/A-M	**0.029**	**0.24**	N/A-M	0.0072 U	0.077 U	**0.0058 J**	**3.6**	**0.0028 J**	**1.7**
Benzo[b]fluoranthene	mg/kg	2.9	**0.38**	**0.073**	**0.16**	**0.32**	N/A-M	**0.16**	**0.49**	N/A-M	**0.0068 J**	**0.18**	**0.023**	**6.1**	**0.0061 J**	**2.2**
Benzo[g,h,i]perylene	mg/kg		**0.098**	**0.033**	**0.097**	**0.074 J**	N/A-M	**0.048**	**0.2**	N/A-M	**0.0027 J**	**0.097**	**0.0095**	**1.8**	**0.0021 J**	**0.68**
Benzo[k]fluoranthene	mg/kg	29	**0.12**	**0.042**	**0.094**	**0.13 J**	N/A-M	**0.13**	**0.16**	N/A-M	**0.0058 J**	**0.08**	**0.0071 J**	**2.4**	**0.002 J**	**0.81**
bis(2-Ethylhexyl)phthalate	mg/kg	160	0.073 UJ	0.071 U	0.075 U	**0.24 J**	0.08 UJ	0.072 U	0.8 U	0.081 UJ	0.075 U	0.077 U	0.074 UJ	0.075 U	0.08 U	0.075 U
Carbazole	mg/kg		**0.046 J**	0.071 U	**0.018 J**	**0.031 J**	0.08 U	0.072 U	**16**	**3**	0.075 U	0.077 U	**0.078**	**0.35**	0.08 U	**0.11**
Chrysene	mg/kg	290	**0.18**	**0.062**	**0.12**	**0.2**	N/A-M	**0.088**	**0.28**	N/A-M	**0.003 J**	**0.24**	**0.019**	**4.3**	**0.0026 J**	**1.8**
Dibenz[a,h]anthracene	mg/kg	0.29	**0.041**	**0.012**	**0.033**	0.15 U	N/A-M	**0.017**	**0.086**	N/A-M	0.0072 U	0.077 U	0.0074 U	**0.81**	0.008 U	**0.31**
Diethylphthalate	mg/kg	660,000	0.073 U	0.071 U	0.075 U	0.072 U	0.08 U	0.072 U	0.08 U	0.081 U	0.075 U	0.077 U	0.074 U	0.075 U	0.08 U	0.075 U
Di-n-butylphthalate	mg/kg	82,000	0.073 U	0.071 U	0.075 U	0.072 U	**0.12**	0.017 B	0.8 U	0.081 U	0.075 U	0.077 U	0.029 B	0.075 U	0.08 U	0.075 U
Di-n-ocytlphthalate	mg/kg	8,200	0.073 UJ	0.071 U	0.075 U	0.072 UJ	**0.027 J**	0.072 U	0.8 U	0.081 UJ	0.075 U	0.077 U	0.074 UJ	0.075 U	0.08 U	0.075 U
Fluoranthene	mg/kg	30,000	**0.19**	**0.1**	**0.14**	**0.3**	N/A-M	**0.1**	**0.55**	N/A-M	**0.0075**	**0.47**	**0.021**	**7.9**	**0.0051 J**	**3**
Fluorene	mg/kg	30,000	**0.0061 J**	**0.0047 J**	**0.0041 J**	**0.017 J**	N/A-M	**0.00082 J**	**0.0069 J**	N/A-M	0.0072 U	**0.063**	0.0074 U	**0.19**	0.008 U	**0.079**
Indeno[1,2,3-c,d]pyrene	mg/kg	2.9	**0.11**	**0.032**	**0.094**	0.15 U	N/A-M	**0.047**	**0.22**	N/A-M	0.0072 U	0.077 U	**0.0069 J**	**2.1**	**0.0019 J**	**0.73**
Naphthalene	mg/kg	17	**0.012**	**0.0087**	**0.024**	0.15 U	N/A-M	**0.0098**	**0.033**	N/A-M	0.0027 B	**0.18**	**0.0085**	**0.34**	**0.0015 J**	**0.067**
N-Nitrosodiphenylamine	mg/kg	470	0.073 U	0.071 U	0.075 U	0.072 U	0.08 U	0.072 U	0.8 U	0.081 U	0.075 U	0.077 U	0.074 U	0.075 U	0.08 U	0.075 U
Phenanthrene	mg/kg		**0.091**	**0.059**	**0.069**	0.15 U	N/A-M	**0.047**	**0.22**	N/A-M	0.0072 U	**0.3**	**0.016**	**3.5**	**0.0035 J**	**1.3**
Phenol	mg/kg	250,000	0.073 U	0.071 U	0.075 U	0.072 U	0.08 U	0.072 UJ	**0.99**	**0.23**	0.075 R	0.077 U	0.074 R	0.075 U	0.08 U	0.075 U
Pyrene	mg/kg	23,000	**0.16**	**0.085**	**0.11**	**0.31**	N/A-M	**0.084**	**0.36**	N/A-M	**0.0047 J**	**0.44**	**0.018**	**6.3**	**0.0044 J**	**2.6**
PCBs																
Aroclor 1254	mg/kg	0.97	0.019 U	N/A	0.018 U	N/A	N/A-M	0.018 U	N/A	N/A-M	0.018 U	N/A	0.018 U	N/A	N/A	0.088 U
Aroclor 1260	mg/kg	0.99	**0.0089 J**	N/A	0.018 U	N/A	N/A-M	0.018 U	N/A	N/A-M	0.018 U	N/A	0.018 U	N/A	N/A	0.088 U
PCBs (total)	mg/kg	0.97	0.13 U	N/A	0.12 U	N/A	N/A-M	0.13 U	N/A	N/A-M	0.13 U	N/A	0.13 U	N/A	N/A	0.62 U
TPH/Oil and Grease																
Diesel Range Organics	mg/kg	6,200	N/A	N/A	N/A	N/A	N/A-M	**33.4**	**22.1**	N/A-M	**13.1**	**2,310**	N/A	N/A	N/A	N/A
Gasoline Range Organics	mg/kg	6,200	N/A	N/A	N/A	N/A	N/A-M	9.6 U	**7.1 J**	N/A-M	9.2 U	**162**	N/A	N/A	N/A	N/A
Oil and Grease	mg/kg	6,200	**541**	**557**	**787**	**17,600**	N/A-M	**355**	**718**	N/A-M	**734**	**5,590**	**303**	**613**	N/A	**547**

Detections in bold
N/A: This parameter was not analyzed for this sample
N/A-M: This parameter was not analyzed for this sample based on the scope of the SVOC Microwave method resampling event
*PAH compounds were analyzed via SIM
Values in red indicate an exceedance of the Project Action Limit (PAL)

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 quantitative/detection limit may be higher than reported.
B: This analyte was not detected substantially above the level of the associated method blank or field blank.
J: The positive result for this analyte is a quantitative estimate.
R: The result for this analyte is unreliable.

Table 6
Summary of Organics Detected in Soil
Parcel A4
Tradepoint Atlantic
Sparrows Point, Maryland

Parameter	Units	PAL	A4-006-SB-6	A4-007-SB-1	A4-007-SB-5	A4-008-SB-1	A4-008-SB-5	A4-009-SB-1	A4-009-SB-5	A4-010-SB-1	A4-010-SB-5	A4-010-SB-10	A4-011-SB-1	A4-011-SB-5	A4-012-SB-1	A4-012-SB-5
Volatile Organic Compounds																
1,2-Dichlorobenzene	mg/kg	9,300	0.0047 U	0.0046 U	0.0055 U	0.0048 U	0.0048 U	0.0048 U	0.0046 U	0.0048 U	0.0048 U	N/A	0.0044 U	0.0059 U	**0.0021 J**	0.0052 U
2-Butanone (MEK)	mg/kg	190,000	**0.0083 J**	0.0091 U	0.011 U	0.0097 U	0.0096 U	**0.022**	0.0093 U	0.0096 U	0.0096 U	N/A	**0.0043 J**	**0.0037 J**	**0.0041 J**	**0.0058 J**
2-Hexanone	mg/kg	1,300	0.0093 U	0.0091 U	0.011 U	0.0097 U	0.0096 U	0.0096 U	0.0093 U	0.0096 U	0.0096 U	N/A	0.0087 U	0.012 U	0.01 U	0.01 U
Acetone	mg/kg	670,000	**0.061 J**	0.0091 R	**0.055 J**	0.0097 R	0.0096 R	0.48 U	**0.07 J**	**0.17 J**	0.0096 R	N/A	**0.029 J**	**0.046 J**	**0.036 J**	**0.046 J**
Benzene	mg/kg	5.1	0.0047 U	0.0046 U	**0.0094**	0.0048 U	0.0048 U	0.0048 U	0.0046 U	0.0048 U	0.0048 U	N/A	0.0044 U	0.0059 U	0.005 U	0.0052 U
Cyclohexane	mg/kg	27,000	0.0093 U	0.0091 U	0.011 U	0.0097 U	0.0096 U	0.0096 U	0.0093 U	0.0096 U	0.0096 U	N/A	0.0087 U	**0.00072 J**	0.01 UJ	**0.0017 J**
Ethylbenzene	mg/kg	25	0.0047 U	0.0046 U	0.0055 U	0.0048 U	0.0048 U	0.0048 U	0.0046 U	0.0048 U	0.0048 U	N/A	**0.005 J**	0.0059 U	0.005 U	0.0052 U
Isopropylbenzene	mg/kg	9,900	0.0047 U	0.0046 U	0.0055 U	0.0048 U	0.0048 U	0.0048 U	0.0046 U	0.0048 U	0.0048 U	N/A	0.0044 U	0.0059 U	0.005 U	0.0052 U
Methyl Acetate	mg/kg	1,200,000	0.047 U	0.046 R	0.055 R	0.048 R	0.048 R	0.048 R	0.046 R	0.048 R	0.048 R	N/A	0.044 U	0.059 U	0.05 U	0.052 U
Methylene Chloride	mg/kg	1,000	**0.0036 J**	0.0046 U	0.0055 U	0.0048 U	0.0048 U	0.0048 U	0.0046 U	**0.0037 J**	0.0048 U	N/A	0.0044 U	0.0059 U	0.005 U	0.0052 U
Toluene	mg/kg	47,000	**0.00082 J**	0.0046 U	**0.0038 J**	0.0048 U	0.0048 U	0.0048 U	0.0046 U	0.0048 U	0.0048 U	N/A	**0.08**	0.0059 U	0.005 U	0.0052 U
Trichloroethene	mg/kg	6	0.0047 U	0.0046 U	0.0055 U	0.0048 U	0.0048 U	0.0048 U	0.0046 U	0.0048 U	0.0048 U	N/A	0.0044 U	0.0059 U	0.005 U	0.0052 U
Xylenes	mg/kg	2,800	0.014 U	0.014 U	0.016 U	0.015 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	N/A	**0.028 J**	0.018 U	0.015 U	0.016 U
Semi-Volatile Organic Compounds*																
1,1-Biphenyl	mg/kg	200	0.075 U	0.075 U	0.083 U	0.072 U	0.073 U	0.074 U	0.074 U	0.074 U	**0.026 J**	0.087 U	0.071 U	**0.019 J**	0.14 U	**0.079 J**
2,4-Dimethylphenol	mg/kg	16,000	0.075 U	0.075 U	0.083 U	0.072 U	0.073 U	0.074 U	0.074 U	0.074 U	**0.073 J**	0.087 U	0.071 R	0.079 U	0.14 UJ	0.079 U
2,6-Dinitrotoluene	mg/kg	1.5	0.075 U	0.075 U	0.083 U	0.072 U	0.073 U	0.074 U	0.074 U	0.074 U	0.074 U	0.087 U	0.071 U	0.079 U	0.14 U	0.079 U
2-Chloronaphthalene	mg/kg	60,000	0.075 U	0.075 U	0.083 U	0.072 U	0.073 U	0.074 U	0.074 U	0.074 U	0.074 U	0.087 U	0.071 U	0.079 U	0.14 U	0.079 U
2-Methylnaphthalene	mg/kg	3,000	**0.056 J**	0.071 U	0.0093 U	**0.076 J**	0.0079 U	**0.0074 J**	0.0072 U	0.0078 U	**0.084**	**0.0036 J**	0.007 U	**0.051**	0.14 U	**0.11**
2-Methylphenol	mg/kg	41,000	0.075 U	0.075 U	0.083 U	0.072 U	0.073 U	0.074 U	0.074 U	0.074 U	**0.016 J**	0.087 U	0.071 R	0.079 U	0.14 UJ	0.079 U
3&4-Methylphenol(m&p Cresol)	mg/kg	41,000	0.15 U	0.15 U	0.17 U	0.14 U	0.15 U	0.15 U	0.15 U	0.15 U	**0.13 J**	0.17 U	0.14 R	0.16 U	0.29 UJ	**0.036 J**
Acenaphthene	mg/kg	45,000	0.14 U	0.071 U	0.0093 U	0.14 U	0.0079 U	0.0081 U	0.0072 U	**0.011**	**1**	**0.048**	0.007 U	0.0072 U	0.14 U	**0.092**
Acenaphthylene	mg/kg	45,000	0.14 U	0.071 U	0.0093 U	0.14 U	0.0079 U	**0.014**	0.0072 U	0.0078 U	0.071 U	0.0086 U	0.007 U	**0.0096**	0.14 U	**0.2**
Acetophenone	mg/kg	120,000	0.075 U	0.075 U	0.083 U	0.072 U	0.073 U	0.074 U	0.074 U	0.074 U	**0.019 J**	0.087 U	0.071 U	**0.031 J**	0.14 U	**0.037 J**
Anthracene	mg/kg	230,000	**0.063 J**	0.071 U	0.0093 U	0.14 U	0.0079 U	**0.0078 J**	0.0072 U	**0.0084**	**0.44**	**0.021**	0.007 U	**0.016**	0.14 U	**0.5**
Benz[a]anthracene	mg/kg	2.9	**0.27**	**0.06 J**	0.0093 U	**0.063 J**	0.0079 U	**0.047**	0.0072 U	**0.059**	**3**	**0.13**	**0.0026 J**	**0.043**	**0.31**	**1.5**
Benzaldehyde	mg/kg	120,000	0.075 R	0.075 R	0.083 R	0.072 R	0.073 R	0.074 R	0.074 R	0.074 R	0.074 R	0.087 UJ	0.071 R	**0.057 J**	0.14 R	**0.054 J**
Benzo[a]pyrene	mg/kg	0.29	**0.25**	0.071 U	0.0093 U	**0.068 J**	0.0079 U	**0.059**	0.0072 U	**0.098**	**6.4**	**0.32**	0.007 U	**0.059**	**0.23**	**1.5**
Benzo[b]fluoranthene	mg/kg	2.9	**0.43**	**0.098**	0.0093 U	**0.18**	0.0079 U	**0.12**	0.0072 U	**0.12**	**8.2**	**0.39**	**0.011**	**0.12**	**0.45**	**2.5**
Benzo[g,h,i]perylene	mg/kg		**0.19**	**0.033 J**	0.0093 UJ	**0.04 J**	0.0079 UJ	**0.024 J**	0.0072 UJ	**0.085 J**	**5.2 J**	**0.24**	**0.0039 J**	**0.068**	**0.16**	**0.85**
Benzo[k]fluoranthene	mg/kg	29	**0.18**	**0.045 J**	0.0093 U	**0.082 J**	0.0079 U	**0.059**	0.0072 U	**0.052**	**3.2**	**0.13**	**0.009**	**0.042**	**0.17**	**1.3**
bis(2-Ethylhexyl)phthalate	mg/kg	160	0.075 U	0.075 U	0.083 U	0.072 UJ	0.073 U	0.074 U	0.074 U	0.074 U	0.074 U	0.087 U	0.071 U	0.079 U	0.14 UJ	0.079 UJ
Carbazole	mg/kg		**0.021 J**	0.075 U	0.083 U	0.072 U	0.073 U	0.074 U	0.074 U	0.074 U	**0.43**	0.087 U	0.071 U	0.079 U	0.14 U	**0.27 J**
Chrysene	mg/kg	290	**0.32**	**0.05 J**	0.0093 U	**0.15**	0.0079 U	**0.059**	0.0072 U	**0.063**	**3.1**	**0.13**	**0.0072**	**0.07**	**0.28**	**1.5**
Dibenz[a,h]anthracene	mg/kg	0.29	**0.072 J**	0.071 U	0.0093 U	0.14 U	0.0079 U	**0.01**	0.0072 U	**0.029**	**1.8**	**0.07**	0.007 U	**0.026**	0.14 U	**0.39**
Diethylphthalate	mg/kg	660,000	0.075 U	0.075 U	0.083 U	0.072 U	0.073 U	0.074 U	0.074 U	0.074 U	0.074 U	0.087 U	0.071 U	0.079 U	0.14 U	0.079 U
Di-n-butylphthalate	mg/kg	82,000	0.075 U	0.075 U	0.083 U	0.072 U	0.073 U	0.074 U	0.074 U	0.074 U	0.074 U	0.087 U	0.071 U	0.079 U	0.14 U	0.079 U
Di-n-ocytlphthalate	mg/kg	8,200	0.075 U	0.075 U	0.083 U	0.072 UJ	0.073 U	0.074 U	0.074 U	0.074 U	0.074 U	0.087 U	0.071 UJ	0.079 U	0.14 UJ	0.079 UJ
Fluoranthene	mg/kg	30,000	**0.47**	0.071 U	0.0093 U	**0.07 J**	0.0079 U	**0.072**	0.0072 U	**0.071**	**3.1**	**0.15**	**0.012**	**0.071**	**0.46**	**2.1**
Fluorene	mg/kg	30,000	**0.031 J**	0.071 U	0.0093 U	0.14 U	0.0079 U	**0.0021 J**	0.0072 U	**0.0025 J**	**0.17**	**0.0096**	0.007 U	**0.0024 J**	0.14 U	**0.12**
Indeno[1,2,3-c,d]pyrene	mg/kg	2.9	**0.16**	0.071 U	0.0093 U	0.14 U	0.0079 U	**0.028**	0.0072 UJ	**0.081**	**5.4**	**0.23**	0.007 U	**0.06**	0.14 U	**1**
Naphthalene	mg/kg	17	0.14 U	0.071 U	0.0015 B	0.14 U	0.0079 U	**0.014**	0.0072 U	0.0047 B	**0.21**	**0.014**	0.0023 B	**0.036**	0.14 U	**0.19**
N-Nitrosodiphenylamine	mg/kg	470	0.075 U	0.075 U	0.083 U	0.072 U	0.073 U	0.074 U	0.074 U	0.074 U	0.074 U	0.087 U	0.071 U	0.079 U	0.14 U	0.079 U
Phenanthrene	mg/kg		**0.23**	0.071 U	0.0093 U	0.14 U	0.0079 U	**0.028**	0.0072 U	**0.024**	**1.3**	**0.069**	0.007 U	**0.071**	0.14 U	**1.3**
Phenol	mg/kg	250,000	0.075 U	0.075 U	0.083 U	0.072 U	0.073 U	0.074 U	0.074 U	0.074 U	**0.046 J**	0.087 U	0.071 R	0.079 U	0.14 UJ	**0.031 J**
Pyrene	mg/kg	23,000	**0.47**	**0.06 J**	0.0093 U	**0.09 J**	0.0079 U	**0.063**	0.0072 U	**0.07**	**2.9**	**0.14**	**0.0065 J**	**0.06**	**0.43**	**1.9**
PCBs																
Aroclor 1254	mg/kg	0.97	N/A	0.018 U	N/A	0.18 U	N/A	0.02 U	N/A	0.019 U	N/A	N/A	0.018 U	N/A	0.018 U	N/A
Aroclor 1260	mg/kg	0.99	N/A	0.018 U	N/A	0.18 U	N/A	0.02 U	N/A	0.019 U	N/A	N/A	0.018 U	N/A	0.018 U	N/A
PCBs (total)	mg/kg	0.97	N/A	0.12 U	N/A	1.3 U	N/A	0.14 U	N/A	0.13 U	N/A	N/A	0.12 U	N/A	0.12 U	N/A
TPH/Oil and Grease																
Diesel Range Organics	mg/kg	6,200	N/A	**24.1**	9.1 U	**428**	7.8 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gasoline Range Organics	mg/kg	6,200	N/A	9.2 U	11.2 U	9.5 U	9.1 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Oil and Grease	mg/kg	6,200	**2,300**	**614**	**1,720**	**12,400**	**348**	**501**	**317**	**404**	**239**	N/A	**549**	**598**	**1,290**	**567**

Detections in bold
N/A: This parameter was not analyzed for this sample
N/A-M: This parameter was not analyzed for this sample based on the scope of the SVOC Microwave method resampling event
*PAH compounds were analyzed via SIM
Values in red indicate an exceedance of the Project Action Limit (PAL)

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 quantitative/detection limit may be higher than reported.
B: This analyte was not detected substantially above the level of the associated method blank or field blank.
J: The positive result for this analyte is a quantitative estimate.
R: The result for this analyte is unreliable.

Table 6
Summary of Organics Detected in Soil
Parcel A4
Tradepoint Atlantic
Sparrows Point, Maryland

Parameter	Units	PAL	A4-012-SB-10	A4-013-SB-1	A4-013-SB-4	A4-014-SB-1	A4-014-SB-7	A4-015-SB-1	A4-015-SB-5	A4-016-SB-1	A4-016-SB-5	A4-016-SB-10	A4-017-SB-1	A4-017-SB-5	A4-018-SB-1	A4-018-SB-5
Volatile Organic Compounds																
1,2-Dichlorobenzene	mg/kg	9,300	N/A-M	0.0087 UJ	0.007 U	0.0044 U	0.005 U	0.0063 U	0.0052 U	0.0054 U	0.0057 U	N/A	0.0047 U	0.0051 U	0.0049 U	0.005 U
2-Butanone (MEK)	mg/kg	190,000	N/A-M	0.017 U	**0.011 J**	**0.0082 J**	**0.0092 J**	**0.0075 J**	0.01 U	**0.0061 J**	0.011 U	N/A	**0.014**	0.01 U	0.0098 U	0.0099 U
2-Hexanone	mg/kg	1,300	N/A-M	0.017 U	0.014 U	0.0088 U	0.01 U	0.013 U	0.01 U	0.011 U	0.011 U	N/A	0.0095 U	0.01 U	0.0098 U	0.0099 U
Acetone	mg/kg	670,000	N/A-M	**0.081 J**	**0.069 J**	**0.085 J**	**0.059 J**	**0.051 J**	**0.01 J**	**0.044 J**	**0.029 J**	N/A	**0.076 J**	**0.011 J**	**0.044 J**	0.0099 R
Benzene	mg/kg	5.1	N/A-M	0.0087 U	**0.002 J**	0.0044 U	0.005 U	0.0063 U	0.0052 U	0.0054 U	0.0057 U	N/A	**0.0075**	0.0051 U	0.0049 U	0.005 U
Cyclohexane	mg/kg	27,000	N/A-M	0.017 UJ	**0.002 J**	0.0088 UJ	0.01 UJ	0.013 U	0.01 U	0.011 UJ	0.011 UJ	N/A	**0.0006 J**	0.01 U	0.0098 U	0.0099 U
Ethylbenzene	mg/kg	25	N/A-M	0.0087 U	0.007 U	0.0044 U	0.005 U	0.0063 U	0.0052 U	0.0054 U	0.0057 U	N/A	0.0047 U	0.0051 U	0.0049 U	0.005 U
Isopropylbenzene	mg/kg	9,900	N/A-M	0.0087 U	0.007 U	0.0044 U	0.005 U	0.0063 U	0.0052 U	0.0054 U	0.0057 U	N/A	0.0047 U	0.0051 U	0.0049 U	0.005 U
Methyl Acetate	mg/kg	1,200,000	N/A-M	0.087 U	0.07 U	0.044 U	**0.058**	0.063 U	0.052 U	0.054 U	0.057 U	N/A	0.047 U	0.051 U	0.049 R	0.05 R
Methylene Chloride	mg/kg	1,000	N/A-M	0.0087 U	0.007 U	0.0044 U	0.005 U	**0.003 J**	0.0052 U	0.0054 U	0.0057 U	N/A	**0.003 J**	0.0051 U	0.0049 U	0.005 U
Toluene	mg/kg	47,000	N/A-M	0.0087 U	0.0015 B	0.00075 B	0.0014 B	0.0063 U	0.0052 U	0.00074 B	0.0057 U	N/A	**0.0046 J**	0.0051 U	0.0049 U	0.005 U
Trichloroethene	mg/kg	6	N/A-M	0.0087 U	0.007 U	0.0044 U	0.005 U	**0.0018 J**	0.0052 U	0.0054 U	0.0057 U	N/A	0.0047 U	0.0051 U	0.0049 U	0.005 U
Xylenes	mg/kg	2,800	N/A-M	0.026 U	0.021 U	0.013 U	0.015 U	0.019 U	0.016 U	0.016 U	0.017 U	N/A	0.014 U	0.015 U	0.015 U	0.015 U
Semi-Volatile Organic Compounds*																
1,1-Biphenyl	mg/kg	200	**0.039 J**	0.075 U	0.073 U	**0.034 J**	0.08 U	0.073 U	0.079 U	0.073 U	0.074 U	0.083 U	0.075 U	0.081 U	0.074 U	0.081 U
2,4-Dimethylphenol	mg/kg	16,000	0.078 UJ	0.075 U	0.073 U	0.074 U	0.08 U	0.073 U	0.079 U	0.073 UJ	0.074 U	0.083 U	0.075 U	0.081 U	0.074 U	0.081 U
2,6-Dinitrotoluene	mg/kg	1.5	0.078 U	0.075 U	0.073 U	0.074 U	0.08 U	0.073 U	0.079 U	0.073 U	0.074 U	0.083 U	0.075 U	0.081 U	0.074 U	0.081 U
2-Chloronaphthalene	mg/kg	60,000	0.078 U	0.075 U	**0.024 J**	0.074 U	0.08 U	0.073 U	0.079 U	0.073 U	0.074 U	0.083 U	0.075 U	0.081 U	0.074 U	0.081 U
2-Methylnaphthalene	mg/kg	3,000	N/A-M	**0.027**	**0.14**	0.38 U	**0.014**	**0.026**	0.0083 U	**0.089**	**0.054**	N/A	**0.03**	**0.0013 J**	**0.042**	0.0082 U
2-Methylphenol	mg/kg	41,000	0.078 UJ	0.075 U	0.073 U	0.074 U	0.08 U	0.073 U	0.079 U	0.073 UJ	0.074 U	0.083 U	0.075 U	0.081 U	0.074 U	0.081 U
3&4-Methylphenol(m&p Cresol)	mg/kg	41,000	0.16 UJ	0.15 U	0.15 U	**0.022 J**	0.16 U	0.15 U	0.16 U	0.15 UJ	**0.022 J**	0.17 U	0.15 U	0.16 U	0.15 U	0.16 U
Acenaphthene	mg/kg	45,000	N/A-M	**0.033**	**0.011**	**0.049 J**	**0.0032 J**	**0.014**	0.0083 U	**0.052**	**0.26**	N/A	**0.11**	0.0079 U	**0.0086**	0.0082 U
Acenaphthylene	mg/kg	45,000	N/A-M	**0.023**	**0.092**	**0.18 J**	**0.0062 J**	**0.045**	0.0083 U	**0.053**	**0.051**	N/A	**0.013**	0.0079 U	**0.016**	0.0082 U
Acetophenone	mg/kg	120,000	0.078 U	0.075 U	0.073 U	0.074 U	0.08 U	0.073 U	0.079 U	0.073 U	0.074 U	0.083 U	0.075 U	0.081 U	0.074 U	0.081 U
Anthracene	mg/kg	230,000	N/A-M	**0.024**	**0.14**	**0.49**	**0.013**	**0.13**	0.0083 U	**0.45**	**0.083**	N/A	**0.076**	**0.0021 J**	**0.021**	0.0082 U
Benz[a]anthracene	mg/kg	2.9	N/A-M	**0.094**	**0.63**	**2.2**	**0.038**	**0.63**	0.0083 U	**1.9**	**0.57**	N/A	**0.48**	**0.0043 J**	**0.1**	0.0082 U
Benzaldehyde	mg/kg	120,000	**0.018 J**	0.075 R	0.073 R	0.074 R	0.08 R	0.073 R	0.079 R	0.073 R	0.074 R	0.083 UJ	0.075 R	0.081 R	0.074 R	0.081 R
Benzo[a]pyrene	mg/kg	0.29	N/A-M	**0.12**	**0.48**	**2.1**	**0.041**	**0.52**	0.0083 U	**1.6**	**0.95**	**0.11 J**	**0.81**	**0.0026 J**	**0.14**	0.0082 U
Benzo[b]fluoranthene	mg/kg	2.9	N/A-M	**0.3**	**1.1**	**3.1**	**0.11**	**1.1**	**0.0009 J**	**3.7**	**1.5**	N/A	**1.2**	**0.0038 J**	**0.23**	0.0082 U
Benzo[g,h,i]perylene	mg/kg		N/A-M	**0.077**	**0.21**	**1.2**	**0.011**	**0.12**	0.0083 UJ	**0.48**	**0.35**	N/A	**0.28**	0.0079 U	**0.12 J**	0.0082 UJ
Benzo[k]fluoranthene	mg/kg	29	N/A-M	**0.083**	**1.4**	**1.3**	**0.099**	**0.47**	0.0083 U	**0.96**	**0.49**	N/A	**0.49**	**0.0023 J**	**0.083**	0.0082 U
bis(2-Ethylhexyl)phthalate	mg/kg	160	0.078 U	0.075 U	0.073 U	0.074 U	0.08 U	0.073 U	0.079 U	0.073 U	0.074 U	0.083 U	0.075 U	0.081 U	0.074 U	0.081 U
Carbazole	mg/kg		**0.16**	**0.027 J**	0.073 U	**0.47**	0.08 U	0.073 U	0.079 U	**0.024 J**	**0.058 J**	0.083 U	**0.032 J**	0.081 U	0.074 U	0.081 U
Chrysene	mg/kg	290	N/A-M	**0.12**	**0.69**	**2.1**	**0.056**	**0.63**	**0.00064 J**	**2.2**	**0.57**	N/A	**0.46**	**0.0041 J**	**0.15**	0.0082 U
Dibenz[a,h]anthracene	mg/kg	0.29	N/A-M	**0.033**	**0.095**	**0.46**	**0.004 J**	**0.065**	0.0083 UJ	**0.31**	**0.2**	N/A	**0.13**	0.0079 U	**0.041**	0.0082 U
Diethylphthalate	mg/kg	660,000	0.078 U	0.075 U	0.073 U	0.074 U	0.08 U	0.073 U	0.079 U	0.073 U	0.074 U	0.083 U	**0.044 J**	0.081 U	0.074 U	0.081 U
Di-n-butylphthalate	mg/kg	82,000	0.078 U	0.075 U	0.021 B	0.074 U	0.08 U	0.073 U	0.079 U	0.073 U	0.074 U	0.083 U	0.075 U	0.081 U	0.074 U	0.081 U
Di-n-ocytlphthalate	mg/kg	8,200	0.078 U	0.075 U	0.073 U	0.074 U	0.08 U	0.073 U	0.079 U	0.073 U	0.074 U	0.083 U	0.075 U	0.081 U	0.074 U	0.081 U
Fluoranthene	mg/kg	30,000	N/A-M	**0.15**	**1.2**	**3.1**	**0.061**	**1**	**0.0017 J**	**2.9**	**0.66**	N/A	**0.51**	**0.0087**	**0.16**	0.0082 U
Fluorene	mg/kg	30,000	N/A-M	**0.0066 J**	**0.016**	**0.06 J**	**0.011**	**0.012**	0.0083 U	**0.052**	**0.038**	N/A	**0.023**	**0.0019 J**	**0.0071 J**	0.0082 U
Indeno[1,2,3-c,d]pyrene	mg/kg	2.9	N/A-M	**0.078**	**0.23**	**1.3**	**0.011**	**0.16**	0.0083 UJ	**0.69**	**0.45**	N/A	**0.32**	0.0079 U	**0.1**	0.0082 U
Naphthalene	mg/kg	17	N/A-M	**0.044**	**0.46**	**0.083 J**	**0.017**	**0.04**	0.0083 U	**0.22**	**0.14**	N/A	**0.057**	**0.003 J**	**0.028**	0.0082 U
N-Nitrosodiphenylamine	mg/kg	470	0.078 U	0.075 U	0.073 U	0.074 U	0.08 U	0.073 U	0.079 U	0.073 U	0.074 U	0.083 U	0.075 U	0.081 U	0.074 U	0.081 U
Phenanthrene	mg/kg		N/A-M	**0.072**	**0.69**	**1.2**	**0.037**	**0.36**	**0.0012 J**	**1.6**	**0.27**	N/A	**0.24**	**0.0091**	**0.067**	0.0082 U
Phenol	mg/kg	250,000	0.078 UJ	0.075 U	0.073 U	0.074 U	0.08 U	0.073 U	0.079 U	0.073 UJ	0.074 U	0.083 U	0.075 U	0.081 U	0.074 U	0.081 U
Pyrene	mg/kg	23,000	N/A-M	**0.14**	**0.95**	**2.5**	**0.052**	**0.84**	**0.0015 J**	**2.5**	**0.68**	N/A	**0.48**	**0.0067 J**	**0.16**	0.0082 U
PCBs																
Aroclor 1254	mg/kg	0.97	N/A-M	0.019 U	N/A	0.093 U	N/A	0.018 U	N/A	0.19 U	N/A	N/A	0.018 U	N/A	0.018 U	N/A
Aroclor 1260	mg/kg	0.99	N/A-M	**0.044**	N/A	0.093 U	N/A	**0.055**	N/A	0.19 U	N/A	N/A	**0.027**	N/A	**0.036**	N/A
PCBs (total)	mg/kg	0.97	N/A-M	**0.044 J**	N/A	0.65 U	N/A	**0.055 J**	N/A	1.3 U	N/A	N/A	0.13 U	N/A	**0.036 J**	N/A
TPH/Oil and Grease																
Diesel Range Organics	mg/kg	6,200	N/A-M	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gasoline Range Organics	mg/kg	6,200	N/A-M	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Oil and Grease	mg/kg	6,200	N/A-M	**469**	**1,240**	**663**	**1,760**	**417**	**252**	**595**	**472**	N/A	**773**	**285**	**645**	**573**

Detections in bold
N/A: This parameter was not analyzed for this sample
N/A-M: This parameter was not analyzed for this sample based on the scope of the SVOC Microwave method resampling event
*PAH compounds were analyzed via SIM
Values in red indicate an exceedance of the Project Action Limit (PAL)

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 quantitative/detection limit may be higher than reported.
B: This analyte was not detected substantially above the level of the associated method blank or field blank.
J: The positive result for this analyte is a quantitative estimate.
R: The result for this analyte is unreliable.
A4-013-SB has been excavated due to elevated levels of cadmium and is not included in the SLRA

Table 6
Summary of Organics Detected in Soil
Parcel A4
Tradepoint Atlantic
Sparrows Point, Maryland

Parameter	Units	PAL	A4-019-SB-1	A4-019-SB-5	A4-020-SB-1	A4-020-SB-5	A4-021-SB-1	A4-021-SB-5	A4-022-SB-1	A4-022-SB-8	A4-022-SB-10	A4-023-SB-1	A4-023-SB-5	A4-023-SB-10	A4-024-SB-1	A4-024-SB-5
Volatile Organic Compounds																
1,2-Dichlorobenzene	mg/kg	9,300	0.0039 U	0.0049 U	0.0044 U	0.0048 U	0.0055 U	0.0051 U	0.0051 U	0.0059 UJ	N/A-M	0.0058 U	0.008 U	N/A-M	0.0043 U	0.0055 U
2-Butanone (MEK)	mg/kg	190,000	**0.0029 J**	0.0097 U	0.0087 U	0.0095 U	**0.0046 J**	**0.0035 J**	**0.0037 J**	**0.012**	N/A-M	0.012 U	**0.0032 J**	N/A-M	**0.005 J**	**0.0067 J**
2-Hexanone	mg/kg	1,300	0.0079 U	0.0097 U	0.0087 U	0.0095 U	0.011 U	0.01 U	0.01 U	0.012 U	N/A-M	0.012 U	0.016 U	N/A-M	0.0086 U	0.011 U
Acetone	mg/kg	670,000	**0.024 J**	**0.0079 J**	**0.037 J**	0.0095 R	**0.059 J**	**0.052 J**	**0.03 J**	**0.095 J**	N/A-M	**0.028 J**	**0.027 J**	N/A-M	**0.044 J**	**0.078 J**
Benzene	mg/kg	5.1	0.0039 U	0.0049 U	0.0044 U	0.0048 U	**0.0016 J**	0.0051 U	0.0051 U	0.0059 U	N/A-M	0.0058 U	0.008 U	N/A-M	0.0043 U	**0.002 J**
Cyclohexane	mg/kg	27,000	0.0079 U	0.0097 U	0.0087 U	0.0095 U	0.011 U	0.01 U	0.01 UJ	0.012 UJ	N/A-M	0.012 UJ	0.016 UJ	N/A-M	0.0086 U	**0.00065 J**
Ethylbenzene	mg/kg	25	0.0039 U	0.0049 U	0.0044 U	0.0048 U	0.0055 U	0.0051 U	0.0051 U	0.0059 U	N/A-M	0.0058 U	0.008 U	N/A-M	0.0043 U	0.0055 U
Isopropylbenzene	mg/kg	9,900	0.0039 U	0.0049 U	0.0044 U	0.0048 U	0.0055 U	0.0051 U	0.0051 U	0.0059 U	N/A-M	0.0058 U	0.008 U	N/A-M	0.0043 U	0.0055 U
Methyl Acetate	mg/kg	1,200,000	0.039 U	0.049 U	0.044 R	0.048 R	0.055 U	0.051 U	0.051 U	0.059 U	N/A-M	0.058 U	0.08 U	N/A-M	0.043 U	0.055 U
Methylene Chloride	mg/kg	1,000	**0.0028 J**	**0.0043 J**	0.0044 U	**0.0038 J**	**0.0032 J**	**0.0041 J**	0.0051 U	0.0059 U	N/A-M	0.0058 U	**0.0073 J**	N/A-M	**0.0026 J**	0.0055 U
Toluene	mg/kg	47,000	**0.00043 J**	0.0049 U	0.0044 U	0.0048 U	0.0055 U	**0.00055 J**	0.0011 B	0.0013 B	N/A-M	0.0058 U	0.008 U	N/A-M	0.0043 U	**0.00094 J**
Trichloroethene	mg/kg	6	0.0039 U	0.0049 U	0.0044 U	0.0048 U	0.0055 U	0.0051 U	0.0051 U	0.0059 U	N/A-M	0.0058 U	0.008 U	N/A-M	0.0043 U	0.0055 U
Xylenes	mg/kg	2,800	0.012 U	0.015 U	0.013 U	0.014 U	0.016 U	0.015 U	0.015 U	0.018 U	N/A-M	0.017 U	0.024 U	N/A-M	**0.0018 J**	0.016 U
Semi-Volatile Organic Compounds*																
1,1-Biphenyl	mg/kg	200	**0.022 J**	0.075 U	0.071 U	0.085 U	0.075 U	0.076 U	0.073 U	**0.2 J**	**0.42**	0.072 U	**0.06 J**	**0.038 J**	0.074 U	0.072 U
2,4-Dimethylphenol	mg/kg	16,000	0.074 U	0.075 U	0.071 U	0.085 U	0.075 U	0.076 U	0.073 U	0.077 UJ	0.087 UJ	0.072 U	0.078 U	0.078 R	0.074 R	0.072 U
2,6-Dinitrotoluene	mg/kg	1.5	0.074 U	0.075 U	0.071 U	0.085 U	0.075 U	0.076 U	0.073 U	0.077 U	0.087 U	0.072 U	0.078 U	0.078 U	0.074 U	0.072 U
2-Chloronaphthalene	mg/kg	60,000	0.074 U	0.075 U	0.071 U	0.085 U	0.075 U	0.076 U	0.073 U	0.077 U	0.087 U	0.072 U	0.078 U	0.078 U	0.074 U	0.072 U
2-Methylnaphthalene	mg/kg	3,000	**0.086**	0.0078 U	**0.0035 J**	0.008 U	**9.7**	0.0077 U	**0.01**	**0.029**	N/A-M	0.0072 U	**0.01**	N/A-M	**0.02**	**0.22**
2-Methylphenol	mg/kg	41,000	0.074 U	0.075 U	0.071 U	0.085 U	0.075 U	0.076 U	0.073 U	0.077 UJ	0.087 UJ	0.072 U	0.078 U	0.078 R	0.074 R	0.072 U
3&4-Methylphenol(m&p Cresol)	mg/kg	41,000	0.15 U	0.15 U	0.14 U	0.17 U	0.15 U	0.15 U	0.15 U	0.15 UJ	**0.025 J**	0.14 U	0.16 U	0.16 R	0.15 R	0.14 U
Acenaphthene	mg/kg	45,000	**0.056**	0.0078 U	0.0072 U	0.008 U	**3.5**	0.0077 U	**0.0077**	**0.028**	N/A-M	0.0072 U	0.0075 U	N/A-M	0.0074 U	**0.061**
Acenaphthylene	mg/kg	45,000	**0.14**	0.0078 U	0.0072 U	0.008 U	**6.1**	**0.02**	**0.042**	**0.015**	N/A-M	0.0072 U	**0.0063 J**	N/A-M	0.0074 U	**0.36**
Acetophenone	mg/kg	120,000	0.074 U	0.075 U	0.071 U	0.085 U	0.075 U	0.076 U	0.073 U	**0.025 J**	**0.057 J**	0.072 U	0.078 U	**0.025 J**	0.074 U	0.072 U
Anthracene	mg/kg	230,000	**0.15**	0.0078 U	**0.011**	0.008 U	**69.5**	**0.016**	**0.082**	**0.17**	N/A-M	0.0072 U	**0.014**	N/A-M	**0.0021 J**	**0.32**
Benz[a]anthracene	mg/kg	2.9	**0.56**	**0.0022 J**	**0.041**	0.008 U	**27.8**	**0.053**	**0.32**	**0.71**	N/A-M	**0.016**	**0.053**	N/A-M	**0.0097**	**1.1**
Benzaldehyde	mg/kg	120,000	0.074 R	0.075 R	0.071 R	0.085 R	0.075 R	0.076 R	0.073 R	**0.018 J**	**0.11 J**	0.072 R	0.078 R	**0.034 J**	0.074 R	0.072 R
Benzo[a]pyrene	mg/kg	0.29	**0.81**	**0.001 J**	**0.047**	0.008 U	**16.1**	**0.049**	**0.28**	**0.67**	N/A-M	**0.019**	**0.047**	N/A-M	**0.0082**	**1.1**
Benzo[b]fluoranthene	mg/kg	2.9	**2**	**0.0023 J**	**0.075**	0.008 U	**24.9**	**0.08**	**0.61**	**1.2**	N/A-M	**0.033**	**0.16**	N/A-M	**0.029**	**1.9**
Benzo[g,h,i]perylene	mg/kg		**0.22**	0.0078 U	**0.023 J**	0.008 UJ	**6.8**	**0.041**	**0.14**	**0.26**	N/A-M	**0.012**	**0.023**	N/A-M	**0.0099**	**0.59**
Benzo[k]fluoranthene	mg/kg	29	**0.53**	**0.00093 J**	**0.041**	0.008 U	**8.6**	**0.03**	**0.19**	**0.37**	N/A-M	**0.015**	**0.13**	N/A-M	**0.024**	**0.94**
bis(2-Ethylhexyl)phthalate	mg/kg	160	**0.13 J**	0.075 U	0.071 U	0.085 U	0.075 U	0.076 U	0.073 UJ	0.077 UJ	0.087 U	0.072 U	0.078 UJ	0.078 U	0.074 U	0.072 U
Carbazole	mg/kg		**0.028 J**	0.075 U	0.071 U	0.085 U	**0.054 J**	0.076 U	**0.062 J**	**0.34 J**	**0.21**	**0.022 J**	**0.21**	**0.42**	0.074 U	**0.021 J**
Chrysene	mg/kg	290	**0.57**	**0.0015 J**	**0.049**	0.008 U	**23.8**	**0.055**	**0.34**	**0.71**	N/A-M	**0.021**	**0.077**	N/A-M	**0.014**	**1.4**
Dibenz[a,h]anthracene	mg/kg	0.29	**0.092**	0.0078 U	**0.01**	0.008 U	**2.9**	**0.013**	**0.057**	**0.13**	N/A-M	0.0072 U	**0.01**	N/A-M	0.0074 U	**0.31**
Diethylphthalate	mg/kg	660,000	0.074 U	0.075 U	0.071 U	0.085 U	0.075 U	0.076 U	0.073 U	0.077 U	0.087 U	0.072 U	0.078 U	0.078 U	0.074 U	0.072 U
Di-n-butylphthalate	mg/kg	82,000	0.074 U	0.075 U	0.071 U	0.085 U	0.075 U	0.076 U	0.073 U	0.041 B	0.087 U	0.072 U	0.078 U	0.078 U	0.074 U	0.072 U
Di-n-ocytlphthalate	mg/kg	8,200	0.074 UJ	0.075 U	0.071 U	0.085 U	0.075 U	0.076 U	0.073 UJ	**0.021 J**	0.087 U	0.072 UJ	0.078 UJ	0.078 U	0.074 U	0.072 U
Fluoranthene	mg/kg	30,000	**0.69**	**0.0027 J**	**0.063**	0.008 U	**147**	**0.1**	**0.56**	**1.3**	N/A-M	**0.015**	**0.12**	N/A-M	**0.02**	**2**
Fluorene	mg/kg	30,000	**0.031**	0.0078 U	**0.0017 J**	0.008 U	**79.1**	**0.0065 J**	**0.013**	**0.027**	N/A-M	0.0072 U	**0.0024 J**	N/A-M	**0.00075 J**	**0.076**
Indeno[1,2,3-c,d]pyrene	mg/kg	2.9	**0.28**	0.0078 U	**0.026**	0.008 U	**8.1**	**0.04**	**0.15**	**0.32**	N/A-M	**0.011**	**0.023**	N/A-M	**0.0086**	**0.79**
Naphthalene	mg/kg	17	**0.25**	**0.0016 J**	**0.0073**	0.008 U	**19.4**	**0.018**	**0.03**	**0.08**	N/A-M	**0.0023 J**	**0.015**	N/A-M	**0.026**	**0.36**
N-Nitrosodiphenylamine	mg/kg	470	0.074 U	0.075 U	0.071 U	0.085 U	0.075 U	0.076 U	0.073 U	0.077 U	0.087 U	0.072 U	0.078 U	0.078 U	0.074 U	0.072 U
Phenanthrene	mg/kg		**0.36**	**0.0019 J**	**0.028**	0.008 U	**287**	**0.06**	**0.23**	**0.53**	N/A-M	0.0072 U	**0.045**	N/A-M	**0.031**	**1.2**
Phenol	mg/kg	250,000	0.074 U	0.075 U	0.071 U	0.085 U	0.075 U	0.076 U	0.073 U	0.077 UJ	**0.03 J**	0.072 U	0.078 U	0.078 R	0.074 R	0.072 U
Pyrene	mg/kg	23,000	**0.62**	**0.0022 J**	**0.058**	0.008 U	**104**	**0.075**	**0.47**	**1.2**	N/A-M	**0.018**	**0.099**	N/A-M	**0.015**	**1.6**
PCBs																
Aroclor 1254	mg/kg	0.97	0.018 U	N/A	0.018 U	N/A	**0.12 J**	N/A	0.018 U	N/A	N/A-M	0.018 U	N/A	N/A-M	0.019 U	N/A
Aroclor 1260	mg/kg	0.99	**0.13**	N/A	**0.01 J**	N/A	0.019 U	N/A	0.018 U	N/A	N/A-M	0.018 U	N/A	N/A-M	0.019 U	N/A
PCBs (total)	mg/kg	0.97	**0.13**	N/A	0.13 U	N/A	**0.12 J**	N/A	0.12 U	N/A	N/A-M	0.13 U	N/A	N/A-M	0.13 U	N/A
TPH/Oil and Grease																
Diesel Range Organics	mg/kg	6,200	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A-M	N/A	N/A	N/A-M	N/A	N/A
Gasoline Range Organics	mg/kg	6,200	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A-M	N/A	N/A	N/A-M	N/A	N/A
Oil and Grease	mg/kg	6,200	**1,440**	**516**	**336**	**425**	**840**	**67.2 J**	**366**	**630**	N/A-M	**254**	**291**	N/A-M	**542**	**1,110**

Detections in bold
N/A: This parameter was not analyzed for this sample
N/A-M: This parameter was not analyzed for this sample based on the scope of the SVOC Microwave method resampling event
*PAH compounds were analyzed via SIM
Values in red indicate an exceedance of the Project Action Limit (PAL)

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 quantitative/detection limit may be higher than reported.
B: This analyte was not detected substantially above the level of the associated method blank or field blank.
J: The positive result for this analyte is a quantitative estimate.
R: The result for this analyte is unreliable.

Table 6
Summary of Organics Detected in Soil
Parcel A4
Tradepoint Atlantic
Sparrows Point, Maryland

Parameter	Units	PAL	A4-025-SB-1	A4-025-SB-7	A4-025-SB-10	A4-026-SB-1	A4-026-SB-5	A4-026-SB-10	A4-027-SB-1	A4-027-SB-5	A4-027-SB-10	A4-028-SB-1	A4-028-SB-5
Volatile Organic Compounds													
1,2-Dichlorobenzene	mg/kg	9,300	0.0046 U	0.005 U	N/A	0.0051 U	0.0052 U	N/A-M	0.0041 U	0.0057 U	N/A-M	0.005 U	0.0047 U
2-Butanone (MEK)	mg/kg	190,000	0.0092 U	0.01 U	N/A	**0.0057 J**	**0.0047 J**	N/A-M	0.0081 U	**0.0099 J**	N/A-M	**0.0034 J**	0.0095 U
2-Hexanone	mg/kg	1,300	0.0092 U	0.01 U	N/A	0.01 U	0.01 U	N/A-M	0.0081 U	0.011 U	N/A-M	**0.024**	0.0095 U
Acetone	mg/kg	670,000	**0.036 J**	0.01 R	N/A	**0.035 J**	**0.042 J**	N/A-M	**0.014 J**	**0.074 J**	N/A-M	**0.032 J**	**0.007 J**
Benzene	mg/kg	5.1	0.0046 U	0.005 U	N/A	0.0051 U	0.0052 U	N/A-M	0.0041 U	0.0057 U	N/A-M	0.005 U	0.0047 U
Cyclohexane	mg/kg	27,000	0.0092 U	0.01 U	N/A	0.01 U	**0.00052 J**	N/A-M	0.0081 UJ	0.011 UJ	N/A-M	0.01 U	0.0095 U
Ethylbenzene	mg/kg	25	0.0046 U	0.005 U	N/A	0.0051 U	0.0052 U	N/A-M	0.0041 U	0.0057 U	N/A-M	0.005 U	0.0047 U
Isopropylbenzene	mg/kg	9,900	0.0046 U	0.005 U	N/A	0.0051 U	0.0052 U	N/A-M	0.0041 U	0.0057 U	N/A-M	0.005 U	0.0047 U
Methyl Acetate	mg/kg	1,200,000	0.046 R	0.05 R	N/A	0.051 U	0.052 U	N/A-M	0.041 U	0.057 U	N/A-M	0.05 U	0.047 U
Methylene Chloride	mg/kg	1,000	0.0046 U	0.005 U	N/A	0.0051 U	0.0052 U	N/A-M	0.0041 U	0.0057 U	N/A-M	**0.0038 J**	**0.0039 J**
Toluene	mg/kg	47,000	0.0046 U	0.005 U	N/A	**0.00056 J**	**0.00081 J**	N/A-M	0.0041 U	0.00092 B	N/A-M	**0.00054 J**	0.0047 U
Trichloroethene	mg/kg	6	0.0046 U	0.005 U	N/A	0.0051 U	0.0052 U	N/A-M	0.0041 U	0.0057 U	N/A-M	0.005 U	0.0047 U
Xylenes	mg/kg	2,800	0.014 U	0.015 U	N/A	0.015 U	0.016 U	N/A-M	0.012 U	0.017 U	N/A-M	0.015 U	0.014 U
Semi-Volatile Organic Compounds*													
1,1-Biphenyl	mg/kg	200	0.072 U	0.082 U	N/A	0.072 U	0.074 U	0.082 U	0.074 U	**0.048 J**	**0.094**	**0.038 J**	0.077 U
2,4-Dimethylphenol	mg/kg	16,000	0.072 U	0.082 U	N/A	0.072 U	**0.015 J**	0.082 U	0.074 R	0.074 R	0.074 UJ	**0.03 J**	0.077 U
2,6-Dinitrotoluene	mg/kg	1.5	0.072 U	0.082 U	N/A	0.072 U	0.074 U	0.082 U	0.074 U	0.074 U	0.074 U	0.075 U	0.077 U
2-Chloronaphthalene	mg/kg	60,000	0.072 U	0.082 U	N/A	0.072 U	0.074 U	0.082 U	0.074 U	0.074 U	0.074 U	0.075 U	0.077 U
2-Methylnaphthalene	mg/kg	3,000	**0.0032 J**	**0.071**	0.0088 U	**0.072 J**	**0.0033 J**	N/A-M	**0.0037 J**	**0.28**	N/A-M	**0.013**	**0.0014 J**
2-Methylphenol	mg/kg	41,000	0.072 U	0.082 U	N/A	0.072 U	**0.014 J**	0.082 U	0.074 R	0.074 R	0.074 UJ	0.075 U	0.077 U
3&4-Methylphenol(m&p Cresol)	mg/kg	41,000	0.14 U	0.16 U	N/A	0.14 U	**0.038 J**	0.16 U	0.15 R	0.15 R	0.15 UJ	**0.034 J**	0.15 U
Acenaphthene	mg/kg	45,000	0.007 U	**0.31**	0.0088 U	**0.51**	**0.0027 J**	N/A-M	0.0071 U	**0.18**	N/A-M	**0.017**	0.0075 U
Acenaphthylene	mg/kg	45,000	0.007 U	**0.01**	0.0088 U	**0.14 J**	**0.0042 J**	N/A-M	0.0071 U	**0.25**	N/A-M	**0.0093**	0.0075 U
Acetophenone	mg/kg	120,000	0.072 U	0.082 U	N/A	0.072 U	0.074 U	0.082 U	0.074 U	**0.033 J**	0.074 U	0.075 U	0.077 U
Anthracene	mg/kg	230,000	**0.0087**	**0.14**	0.0088 U	**1.3**	**0.0086**	N/A-M	**0.0039 J**	**0.97**	N/A-M	**0.031**	0.0075 U
Benz[a]anthracene	mg/kg	2.9	**0.068**	**0.96**	0.0088 U	**3**	**0.032**	N/A-M	**0.05**	**3.1**	N/A-M	**0.14**	0.0075 U
Benzaldehyde	mg/kg	120,000	0.072 R	0.082 R	N/A	0.072 R	0.074 R	0.082 UJ	0.074 R	**0.021 J**	0.074 UJ	0.075 R	0.077 R
Benzo[a]pyrene	mg/kg	0.29	**0.096**	**1.7**	0.0088 U	**3**	**0.034**	N/A-M	**0.054**	**2.8**	N/A-M	**0.18**	0.0075 U
Benzo[b]fluoranthene	mg/kg	2.9	**0.18**	**2.2**	**0.0037 J**	**4.6**	**0.058**	N/A-M	**0.16**	**4.7**	N/A-M	**0.3**	**0.0011 J**
Benzo[g,h,i]perylene	mg/kg		**0.037 J**	**0.54 J**	0.0088 U	**0.72**	**0.0087**	N/A-M	**0.028**	**0.73**	N/A-M	**0.074**	0.0075 U
Benzo[k]fluoranthene	mg/kg	29	**0.094**	**0.89**	**0.003 J**	**2.1**	**0.024**	N/A-M	**0.13**	**1.9**	N/A-M	**0.15**	0.0075 U
bis(2-Ethylhexyl)phthalate	mg/kg	160	0.072 UJ	0.082 U	N/A	0.072 U	0.074 UJ	0.082 U	0.074 UJ	0.074 UJ	0.074 UJ	**0.2 J**	0.077 U
Carbazole	mg/kg		**0.054 J**	0.082 U	N/A	**0.14**	**0.73 J**	0.082 U	0.074 U	**0.32**	**1.3**	**0.17 J**	0.077 U
Chrysene	mg/kg	290	**0.096**	**0.99**	**0.00083 J**	**2.9**	**0.034**	N/A-M	**0.064**	**3.4**	N/A-M	**0.15**	**0.00059 J**
Dibenz[a,h]anthracene	mg/kg	0.29	**0.018**	**0.32**	0.0088 U	**0.45**	**0.0049 J**	N/A-M	**0.01**	**0.47**	N/A-M	**0.028**	0.0075 U
Diethylphthalate	mg/kg	660,000	0.072 U	0.082 U	N/A	0.072 U	0.074 U	0.082 U	0.074 U	0.074 U	0.074 U	0.075 U	0.077 U
Di-n-butylphthalate	mg/kg	82,000	0.072 U	0.082 U	N/A	0.03 B	0.074 U	0.082 U	0.074 U	0.074 U	0.074 U	0.075 U	0.077 U
Di-n-ocytlphthalate	mg/kg	8,200	0.072 UJ	0.082 U	N/A	0.072 U	0.074 UJ	0.082 U	0.074 UJ	0.074 UJ	0.074 UJ	0.075 UJ	0.077 U
Fluoranthene	mg/kg	30,000	**0.091**	**1**	**0.0014 J**	**5.3**	**0.061**	N/A-M	**0.072**	**4.4**	N/A-M	**0.16**	**0.00086 J**
Fluorene	mg/kg	30,000	**0.0017 J**	**0.072**	0.0088 U	**0.4**	**0.0029 J**	N/A-M	**0.00077 J**	**0.21**	N/A-M	**0.0053 J**	0.0075 U
Indeno[1,2,3-c,d]pyrene	mg/kg	2.9	**0.044**	**0.72**	0.0088 U	**0.92**	**0.011**	N/A-M	**0.028**	**0.99**	N/A-M	**0.082**	0.0075 U
Naphthalene	mg/kg	17	0.0038 B	**0.1**	0.0088 U	**0.18**	**0.0098**	N/A-M	**0.004 J**	**0.69**	N/A-M	**0.016**	**0.0017 J**
N-Nitrosodiphenylamine	mg/kg	470	0.072 U	0.082 U	N/A	0.072 U	0.074 U	0.082 U	0.074 U	0.074 U	0.074 U	**0.037 J**	0.077 U
Phenanthrene	mg/kg		**0.029**	**0.46**	**0.0026 J**	**3.7**	**0.032**	N/A-M	**0.02**	**2.6**	N/A-M	**0.076**	**0.0017 J**
Phenol	mg/kg	250,000	0.072 U	0.082 U	N/A	0.072 U	**0.037 J**	0.082 U	0.074 R	0.074 R	0.074 UJ	**0.022 J**	0.077 U
Pyrene	mg/kg	23,000	**0.088**	**0.91**	**0.0019 J**	**4.3**	**0.048**	N/A-M	**0.065**	**3.8**	N/A-M	**0.17**	**0.00081 J**
PCBs													
Aroclor 1254	mg/kg	0.97	0.018 U	N/A	N/A	0.018 U	N/A	N/A-M	0.018 U	N/A	N/A-M	0.018 U	N/A
Aroclor 1260	mg/kg	0.99	0.018 U	N/A	N/A	0.018 U	N/A	N/A-M	0.018 U	N/A	N/A-M	**0.013 J**	N/A
PCBs (total)	mg/kg	0.97	0.12 U	N/A	N/A	0.12 U	N/A	N/A-M	0.13 U	N/A	N/A-M	0.12 U	N/A
TPH/Oil and Grease													
Diesel Range Organics	mg/kg	6,200	N/A	N/A	N/A	N/A	N/A	N/A-M	N/A	N/A	N/A-M	N/A	N/A
Gasoline Range Organics	mg/kg	6,200	N/A	N/A	N/A	N/A	N/A	N/A-M	N/A	N/A	N/A-M	N/A	N/A
Oil and Grease	mg/kg	6,200	**412**	**2,600**	N/A	**618**	**1,040**	N/A-M	**227**	**1,740**	N/A-M	**587**	**309**

Detections in bold
N/A: This parameter was not analyzed for this sample
N/A-M: This parameter was not analyzed for this sample based on the scope of the SVOC Microwave method resampling event
*PAH compounds were analyzed via SIM
Values in red indicate an exceedance of the Project Action Limit (PAL)

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 quantitative/detection limit may be higher than reported.
B: This analyte was not detected substantially above the level of the associated method blank or field blank.
J: The positive result for this analyte is a quantitative estimate.
R: The result for this analyte is unreliable.

Table 7
Summary of Inorganics Detected in Soil
Parcel A4
Tradepoint Atlantic
Sparrows Point, Maryland

Parameter	Units	PAL	A4-001-SB-1	A4-001-SB-5	A4-002-SB-1	A4-002-SB-5	A4-003-SB-1	A4-003-SB-7.5	A4-004-SB-1
Metal									
Aluminum	mg/kg	1,100,000	**41,000**	**15,600**	**27,200**	**36,600**	**9,490**	**6,080**	**9,450**
Antimony	mg/kg	470	2.5 UJ	2.2 UJ	1.8 UJ	3.4 UJ	2 UJ	**5.4 J**	2.2 UJ
Arsenic	mg/kg	3	1.8 B	1.8 U	1.2 B	2.7 B	**2.7**	**11.7**	**5.1**
Barium	mg/kg	220,000	**417 J**	**108 J**	**277 J**	**689 J**	**50.8 J**	**83.8 J**	**31.3 J**
Beryllium	mg/kg	2,300	**7.3**	**1.7**	**4.7**	**2.8**	0.17 B	0.96 U	0.73 U
Cadmium	mg/kg	980	**0.34 J**	**0.3 J**	**0.34 J**	**6.3**	**0.44 J**	**0.36 J**	**0.41 J**
Chromium	mg/kg	120,000	**32.5**	**17.3**	**27.8**	**73.3**	**913**	**472**	**1,320**
Chromium VI	mg/kg	6.3	1.1 U	1.1 U	1.1 U	1.1 U	**1.1**	1.1 U	**10.3**
Cobalt	mg/kg	350	1.4 B	2.9 B	1.3 B	**30.5**	**1.9 J**	**17.9**	1.2 B
Copper	mg/kg	47,000	**7.2 J**	**34.4 J**	**5.9 J**	**30 J**	**34.5 J**	**224 J**	**21.2 J**
Iron	mg/kg	820,000	**20,900**	**10,700**	**9,960**	**20,700**	**105,000**	**140,000**	**160,000**
Lead	mg/kg	800	**11.8**	**14.7**	**17.3**	**817**	**13.7**	**84.8**	**1.9**
Manganese	mg/kg	26,000	**2,940**	**679**	**2,140**	**9,360**	**22,500**	**9,290**	**31,900**
Mercury	mg/kg	350	0.11 UJ	0.11 UJ	0.1 UJ	0.11 UJ	**0.0082 J**	**0.0061 J**	0.11 UJ
Nickel	mg/kg	22,000	**6 J**	**6.1 J**	**4 J**	**14.4 J**	**15.1 J**	**36.4 J**	**22 J**
Selenium	mg/kg	5,800	**2.6 J**	3 U	**2.1 J**	4.5 U	**2.3 J**	3.8 U	2.9 U
Silver	mg/kg	5,800	2.5 U	2.2 U	1.8 U	3.4 U	**1.6 J**	2.9 U	**3.1**
Thallium	mg/kg	12	8.2 UJ	7.4 UJ	5.9 UJ	11.2 UJ	6.6 UJ	9.6 UJ	7.3 UJ
Vanadium	mg/kg	5,800	**36.2**	**33**	**30.2**	**301**	**400**	**2,140**	**563**
Zinc	mg/kg	350,000	**96**	**76**	**69.5**	**8,500**	**94.3**	**71.6**	**21**
Other									
Cyanide	mg/kg	150	**0.28 J+**	0.6 U	**0.22 J+**	**0.23 J+**	**0.12 J+**	**0.06 J+**	**0.052 J+**

Detections in bold
N/A: This parameter was not analyzed for this sample
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J+: The positive result for this anlyte is a quantitative estimate but may be biased high.
J-: The positive result for this analyte is a quantitative estimate but may be biased low.
J: The positive resulte for this analyte is a quantitative estimate.

Table 7
Summary of Inorganics Detected in Soil
Parcel A4
Tradepoint Atlantic
Sparrows Point, Maryland

Parameter	Units	PAL	A4-004-SB-5	A4-005-SB-1	A4-005-SB-5	A4-005-SB-10	A4-006-SB-1	A4-006-SB-6	A4-006-SB-10
Metal									
Aluminum	mg/kg	1,100,000	**13,900**	**11,400**	**10,900**	N/A	**13,800**	**17,800**	N/A
Antimony	mg/kg	470	3.5 UJ	2.4 UJ	**2.4 J**	N/A	2.6 UJ	3.1 UJ	N/A
Arsenic	mg/kg	3	**3.6**	**2.6 J**	**8.1 J**	**5.9**	**4.3 J**	**4.5 J**	**10.5**
Barium	mg/kg	220,000	**95.6 J**	**75.8 J**	**159 J**	N/A	**107 J**	**139 J**	N/A
Beryllium	mg/kg	2,300	0.7 B	0.38 B	0.21 B	N/A	**1.4**	**2.3**	N/A
Cadmium	mg/kg	980	**0.43 J**	**1.2**	**4**	N/A	1.1 B	0.6 B	N/A
Chromium	mg/kg	120,000	**25.3**	**1,390**	**1,580**	N/A	**94.5**	**40.5**	N/A
Chromium VI	mg/kg	6.3	1.2 U	**4.2 J-**	1.1 UJ	N/A	1.1 UJ	1.1 UJ	N/A
Cobalt	mg/kg	350	**11.2**	3.9 B	**24.1**	N/A	**4.7**	4.1 B	N/A
Copper	mg/kg	47,000	**18.2 J**	**35.5**	**155**	N/A	**42.3**	**23.3**	N/A
Iron	mg/kg	820,000	**18,200**	**158,000 J**	**123,000 J**	N/A	**31,100 J**	**23,600 J**	N/A
Lead	mg/kg	800	**92**	**105 J**	**693 J**	N/A	**187 J**	**42.9 J**	N/A
Manganese	mg/kg	26,000	**432**	**30,000 J**	**26,500 J**	**46.3**	**2,050 J**	**1,330 J**	N/A
Mercury	mg/kg	350	**0.19 J**	**0.085 J**	**0.14**	N/A	**0.078 J**	**0.0025 J**	N/A
Nickel	mg/kg	22,000	**12.8 J**	**23.9**	**33**	N/A	**14.2**	**12.8**	N/A
Selenium	mg/kg	5,800	4.6 U	3.2 U	2.2 U	N/A	3.4 U	4.1 U	N/A
Silver	mg/kg	5,800	3.5 U	**2.7**	1.6 U	N/A	2.6 U	3.1 U	N/A
Thallium	mg/kg	12	11.5 UJ	7.9 U	**13.8**	10.2 U	8.5 U	1.6 B	N/A
Vanadium	mg/kg	5,800	**41.2**	**629 J**	**5,460 J**	N/A	**162 J**	**46.7 J**	N/A
Zinc	mg/kg	350,000	**223**	**350**	**1,720**	N/A	**346**	**171**	N/A
Other									
Cyanide	mg/kg	150	0.67 U	**1.3**	**1.6**	N/A	**0.3 J**	**0.6 J**	N/A

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Table 7
Summary of Inorganics Detected in Soil
Parcel A4
Tradepoint Atlantic
Sparrows Point, Maryland

Parameter	Units	PAL	A4-007-SB-1	A4-007-SB-5	A4-007-SB-10	A4-008-SB-1	A4-008-SB-5	A4-008-SB-10	A4-009-SB-1
Metal									
Aluminum	mg/kg	1,100,000	**19,200**	**17,400**	N/A	**15,100**	**16,000**	N/A	**11,800**
Antimony	mg/kg	470	2 UJ	2.2 UJ	N/A	2.1 UJ	3.3 UJ	N/A	3.6 UJ
Arsenic	mg/kg	3	1.7 U	**5**	**3.9**	1.8 U	**3.8**	**12.3**	**4.3**
Barium	mg/kg	220,000	**163**	**47.5**	N/A	**98.9**	**72.7**	N/A	**69.3**
Beryllium	mg/kg	2,300	**2.9**	**1.1**	N/A	**1.6**	0.82 B	N/A	0.62 B
Cadmium	mg/kg	980	0.39 B	1.1 U	N/A	0.36 B	1.7 U	N/A	0.82 B
Chromium	mg/kg	120,000	**36.9**	**34.8**	N/A	**55**	**17.4**	N/A	**29.8**
Chromium VI	mg/kg	6.3	1 U	**0.87 J**	N/A	1.1 U	1.2 U	N/A	1.2 U
Cobalt	mg/kg	350	2 B	**3.8**	N/A	**4.1**	5.1 B	N/A	4.5 B
Copper	mg/kg	47,000	**7.9**	**9.6**	N/A	**9.1**	**10.3**	N/A	**19**
Iron	mg/kg	820,000	**16,000**	**37,200**	N/A	**19,900**	**6,150**	N/A	**16,900**
Lead	mg/kg	800	**26.5**	**27.3**	N/A	**10.1**	**12.7**	N/A	**53.2**
Manganese	mg/kg	26,000	**2,230**	**48.9**	N/A	**1,170**	**15.6**	N/A	**613**
Mercury	mg/kg	350	**0.012 J**	**0.055 J**	N/A	**0.0057 J**	**0.025 J**	N/A	**0.12**
Nickel	mg/kg	22,000	5.9 B	**7.7**	N/A	**11.5**	**13.7**	N/A	**13.4**
Selenium	mg/kg	5,800	2.7 U	2.9 U	N/A	2.8 U	4.5 U	N/A	4.7 U
Silver	mg/kg	5,800	2 U	2.2 U	N/A	2.1 U	3.3 U	N/A	3.6 U
Thallium	mg/kg	12	6.8 U	7.3 U	N/A	7.1 U	11.2 U	N/A	11.9 U
Vanadium	mg/kg	5,800	**39.4**	**97.5**	N/A	**72.9**	**18.3**	N/A	**60.5**
Zinc	mg/kg	350,000	**71.2**	**29.8**	N/A	**97.8**	**23.6**	N/A	**192**
Other									
Cyanide	mg/kg	150	**0.075 J+**	0.73 U	N/A	**0.084 J**	0.65 U	N/A	0.59 U

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Table 7
Summary of Inorganics Detected in Soil
Parcel A4
Tradepoint Atlantic
Sparrows Point, Maryland

Parameter	Units	PAL	A4-009-SB-5	A4-010-SB-1	A4-010-SB-5	A4-011-SB-1	A4-011-SB-5	A4-012-SB-1	A4-012-SB-5
Metal									
Aluminum	mg/kg	1,100,000	**5,220**	**12,800**	**29,400**	**8,040**	**20,600**	**15,600**	**11,800**
Antimony	mg/kg	470	2.8 UJ	3.4 UJ	2.8 UJ	3.1 UJ	2.4 UJ	3.1 UJ	2 UJ
Arsenic	mg/kg	3	2.4 U	**5.7**	**2.6**	**5.9**	**2.8**	**3.7**	**9.4**
Barium	mg/kg	220,000	**16.2**	**62**	**250**	**41.5 J**	**214 J**	**124**	**173**
Beryllium	mg/kg	2,300	0.23 B	0.71 B	**3.9**	1 U	**1.2**	**1.1**	**1**
Cadmium	mg/kg	980	1.4 U	0.28 B	0.34 B	**0.7 J**	**0.65 J**	0.76 B	**11.7**
Chromium	mg/kg	120,000	**7.6**	**30.5**	**46.3**	**1,810**	**31.3**	**687**	**399**
Chromium VI	mg/kg	6.3	1.1 U	1.1 U	1.1 U	**15.1**	1.1 U	1 UJ	1.1 UJ
Cobalt	mg/kg	350	0.76 B	**6.2**	3.1 B	5.2 U	**9.1**	4.7 B	**14.2**
Copper	mg/kg	47,000	**3.9 J**	**10.4**	**15.7**	**17.5 J**	**72.4 J**	**23.5 J**	**70.7 J**
Iron	mg/kg	820,000	**3,690**	**20,100**	**30,900**	**177,000**	**25,700**	**79,600**	**73,100**
Lead	mg/kg	800	2.4 U	**15.2**	**10.7**	**3.4**	**235**	**68**	**228**
Manganese	mg/kg	26,000	**5.9**	**517**	**2,580**	**35,800**	**1,370**	**16,100 J**	**9,020 J**
Mercury	mg/kg	350	0.1 U	**0.067 J**	**0.0053 J**	0.1 UJ	**0.017 J**	**0.031 J**	**0.054 J**
Nickel	mg/kg	22,000	2.7 B	**14.7**	**18.6**	**13.8 J**	**14.9 J**	**13**	**35.8**
Selenium	mg/kg	5,800	3.8 U	4.6 U	3.7 U	4.1 U	3.1 U	2.8 B	2.6 U
Silver	mg/kg	5,800	2.8 U	3.4 U	2.8 U	**2.9 J**	2.4 U	3.1 U	2 U
Thallium	mg/kg	12	9.5 U	11.4 U	9.3 U	10.4 UJ	7.8 UJ	10.2 UJ	6.6 UJ
Vanadium	mg/kg	5,800	**9.5**	**35**	**101**	**630**	**121**	**324 J**	**1,060 J**
Zinc	mg/kg	350,000	**7.3**	**75.6**	**20.8**	**29.8**	**236**	**208**	**1,250**
Other									
Cyanide	mg/kg	150	0.59 U	0.66 U	**2.4**	0.65 U	0.59 U	**0.18 J**	**0.49 J**

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Table 7
Summary of Inorganics Detected in Soil
Parcel A4
Tradepoint Atlantic
Sparrows Point, Maryland

Parameter	Units	PAL	A4-013-SB-1	A4-013-SB-4	A4-014-SB-1	A4-014-SB-7	A4-014-SB-10	A4-015-SB-1	A4-015-SB-5
Metal									
Aluminum	mg/kg	1,100,000	**12,100**	**4,840**	**11,200**	**17,300**	N/A	**34,000**	**16,300**
Antimony	mg/kg	470	3.3 UJ	**7.8 J**	3.1 UJ	3.5 UJ	N/A	2.5 UJ	3 UJ
Arsenic	mg/kg	3	**6.2**	**29.4**	**5.2**	**5.3**	**7.1**	**6.1 J**	**85.5 J**
Barium	mg/kg	220,000	**157**	**90.8**	**113**	**74.5**	N/A	**314 J**	**20.6 J**
Beryllium	mg/kg	2,300	**1.6**	**0.28 J**	**0.69 J**	**0.82 J**	N/A	**3.1**	**1.2**
Cadmium	mg/kg	980	1.4 B	**33,600**	**2.4**	1.7 U	N/A	1.2 B	0.23 B
Chromium	mg/kg	120,000	**89**	**126**	**219**	**35.3**	N/A	**303**	**43**
Chromium VI	mg/kg	6.3	1.1 UJ	1.3 UJ	1.1 UJ	1.3 UJ	N/A	1.1 U	1.2 UJ
Cobalt	mg/kg	350	**9.5**	**70.9**	**12.7**	**7.2**	N/A	**8.6**	4.1 B
Copper	mg/kg	47,000	**49.4 J**	**10,700 J**	**50.3 J**	**18.8 J**	N/A	**73.5**	**9.1**
Iron	mg/kg	820,000	**38,700**	**255,000**	**43,200**	**19,100**	N/A	**102,000 J**	**73,000 J**
Lead	mg/kg	800	**115**	**2,780**	**214**	**19.3**	N/A	**101 J**	**17.1 J**
Manganese	mg/kg	26,000	**3,060 J**	**3,580 J**	**3,470 J**	**238 J**	N/A	**17,300 J**	**51.1 J**
Mercury	mg/kg	350	**0.027 J**	**0.89 J**	**0.082 J**	**0.036 J**	N/A	**0.042 J**	**0.0079 J**
Nickel	mg/kg	22,000	**24.4**	**213**	**22.9**	**15.4**	N/A	**46.1**	9.6 B
Selenium	mg/kg	5,800	4.4 U	3.9 U	4.1 U	4.6 U	N/A	2.9 B	4 U
Silver	mg/kg	5,800	3.3 U	**14.3**	3.1 U	3.5 U	N/A	2.5 U	**0.39 J**
Thallium	mg/kg	12	11 UJ	9.7 UJ	10.2 UJ	11.6 UJ	N/A	8.4 U	2.2 B
Vanadium	mg/kg	5,800	**228 J**	**106 J**	**558 J**	**38 J**	N/A	**430 J**	**72.8 J**
Zinc	mg/kg	350,000	**308**	**62,400**	**721**	**80**	N/A	**332**	**39.8**
Other									
Cyanide	mg/kg	150	**0.28 J**	0.72 U	**0.2 J**	0.63 U	N/A	**0.86**	0.71 U

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A4-013-SB has been excavated due to elevated levels of cadmium and is not included in the SLRA

Table 7
Summary of Inorganics Detected in Soil
Parcel A4
Tradepoint Atlantic
Sparrows Point, Maryland

Parameter	Units	PAL	A4-015-SB-10	A4-016-SB-1	A4-016-SB-5	A4-016-SB-10	A4-017-SB-1	A4-017-SB-5	A4-017-SB-10
Metal									
Aluminum	mg/kg	1,100,000	N/A	**21,000**	**24,000**	N/A	**14,600**	**14,100**	N/A
Antimony	mg/kg	470	N/A	3 UJ	2.1 UJ	N/A	2.5 UJ	2.6 UJ	N/A
Arsenic	mg/kg	3	**6.7**	**9.5**	**9.5**	**8.3**	**5.2 J**	**6.4 J**	**11.8**
Barium	mg/kg	220,000	N/A	**210**	**308**	N/A	**137 J**	**32.5 J**	N/A
Beryllium	mg/kg	2,300	N/A	**2.6**	**3**	N/A	**1.3**	0.87 B	N/A
Cadmium	mg/kg	980	N/A	**3.7**	**1.6**	N/A	0.71 B	1.3 U	N/A
Chromium	mg/kg	120,000	N/A	**570**	**487**	N/A	**567**	**25.4**	N/A
Chromium VI	mg/kg	6.3	N/A	1.1 UJ	1.1 UJ	N/A	1.1 U	1.2 U	N/A
Cobalt	mg/kg	350	N/A	**7.3**	**6.1**	N/A	**7.3**	**4.6**	N/A
Copper	mg/kg	47,000	N/A	**59.9 J**	**54.5 J**	N/A	**71.1**	4 B	N/A
Iron	mg/kg	820,000	N/A	**96,300**	**118,000**	N/A	**150,000 J**	**48,700 J**	N/A
Lead	mg/kg	800	N/A	**776**	**272**	N/A	**135 J**	**15.4 J**	N/A
Manganese	mg/kg	26,000	N/A	**13,600 J**	**14,100 J**	N/A	**16,700 J**	**47.5 J**	N/A
Mercury	mg/kg	350	N/A	0.11 UJ	0.11 UJ	N/A	**0.042 J**	**0.013 J**	N/A
Nickel	mg/kg	22,000	N/A	**21.7**	**17.7**	N/A	**54.6**	**9.5**	N/A
Selenium	mg/kg	5,800	N/A	3 B	**3.5**	N/A	3.3 U	3.5 U	N/A
Silver	mg/kg	5,800	N/A	3 U	2.1 U	N/A	2.5 U	0.29 B	N/A
Thallium	mg/kg	12	N/A	9.9 UJ	7.1 UJ	N/A	8.4 U	8.7 U	N/A
Vanadium	mg/kg	5,800	N/A	**663 J**	**1,360 J**	N/A	**935 J**	**62.2 J**	N/A
Zinc	mg/kg	350,000	N/A	**1,180**	**274**	N/A	**211**	**35**	N/A
Other									
Cyanide	mg/kg	150	N/A	**3.1**	**0.77**	N/A	**0.2 J**	0.68 U	N/A

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Table 7
Summary of Inorganics Detected in Soil
Parcel A4
Tradepoint Atlantic
Sparrows Point, Maryland

Parameter	Units	PAL	A4-018-SB-1	A4-018-SB-5	A4-018-SB-10	A4-019-SB-1	A4-019-SB-5	A4-020-SB-1	A4-020-SB-5
Metal									
Aluminum	mg/kg	1,100,000	**11,400**	**17,100**	N/A	**6,190**	**10,900**	**7,740**	**13,300**
Antimony	mg/kg	470	0.97 B	2.3 UJ	N/A	2 UJ	2.4 UJ	1.7 UJ	2.7 UJ
Arsenic	mg/kg	3	**16.5**	**3.4**	**10.5**	**6.5 J**	**1.8 J**	**5.7**	**3.1**
Barium	mg/kg	220,000	**110**	**53.1**	N/A	**62.5 J**	**40.2 J**	**53.9**	**35.4**
Beryllium	mg/kg	2,300	**2.5**	**0.8**	N/A	0.61 B	0.63 B	0.27 B	0.3 B
Cadmium	mg/kg	980	**1.4**	0.14 B	N/A	**3**	1.2 U	0.29 B	1.3 U
Chromium	mg/kg	120,000	**117**	**36.1**	N/A	**219**	**15.3**	**25.3**	**18.7**
Chromium VI	mg/kg	6.3	1.1 U	1.2 U	N/A	1.1 U	1.2 U	1.1 U	1.2 U
Cobalt	mg/kg	350	**17.6**	**5.7**	N/A	**12.3**	3 B	**8.4**	2.6 B
Copper	mg/kg	47,000	**138**	**13.5**	N/A	**119**	**6.8**	**8.1**	**6.4**
Iron	mg/kg	820,000	**259,000**	**20,000**	N/A	**152,000 J**	**14,300 J**	**12,700**	**12,800**
Lead	mg/kg	800	**182**	**17.7**	N/A	**1,010 J**	**13.9 J**	**8.8**	**7.5**
Manganese	mg/kg	26,000	**3,910**	**37.5**	N/A	**5,460 J**	**27.8 J**	**452**	**44.3**
Mercury	mg/kg	350	**0.12**	**0.0045 J**	N/A	**0.84**	**0.0069 J**	**0.0074 J**	**0.04 J**
Nickel	mg/kg	22,000	**94.2**	**14.5**	N/A	**49.9**	7.1 B	**9.1**	8 B
Selenium	mg/kg	5,800	2.7 U	3 U	N/A	2.6 U	3.2 U	2.3 U	3.5 U
Silver	mg/kg	5,800	**3.1**	2.3 U	N/A	1.1 B	2.4 U	1.7 U	2.7 U
Thallium	mg/kg	12	6.9 U	7.6 U	N/A	6.5 U	8 U	5.8 U	8.9 U
Vanadium	mg/kg	5,800	**178**	**43.6**	N/A	**441 J**	**18.5 J**	**26.9**	**27.5**
Zinc	mg/kg	350,000	**509**	**42.8**	N/A	**462**	**18.6**	**29.1**	**19.1**
Other									
Cyanide	mg/kg	150	**0.29 J**	0.65 U	N/A	**0.75**	**0.89**	0.54 U	0.73 U

Detections in bold
N/A: This parameter was not analyzed for this sample
Values in red indicate an exceedance of the Project Action Limit (PAL)

U: This analyte was not detected in the sample. The numeric value represents the sample quantitation/detection limit.
UJ: This analyte was not detected in the sample. The quantitation/detection limit may be higher than reported.
B: The analyte was not detected substantially above the level of the associated method blank or field blank.
J+: The positive result for this anlyte is a quantitative estimate but may be biased high.
J-: The positive result for this analyte is a quantitative estimate but may be biased low.
J: The positive resulte for this analyte is a quantitative estimate.

Table 7
Summary of Inorganics Detected in Soil
Parcel A4
Tradepoint Atlantic
Sparrows Point, Maryland

Parameter	Units	PAL	A4-020-SB-10	A4-021-SB-1	A4-021-SB-5	A4-021-SB-10	A4-022-SB-1	A4-022-SB-8	A4-023-SB-1
Metal									
Aluminum	mg/kg	1,100,000	N/A	**17,600**	**18,700**	N/A	**21,100**	**10,100**	**11,500**
Antimony	mg/kg	470	N/A	2.9 UJ	2.4 UJ	N/A	3.1 UJ	2.4 UJ	2 UJ
Arsenic	mg/kg	3	**8.4**	**7.2 J**	**4 J**	**11.8**	2.3 B	**8.5**	**2.2**
Barium	mg/kg	220,000	N/A	**116 J**	**53.9 J**	N/A	**184**	**157**	**56.5**
Beryllium	mg/kg	2,300	N/A	**1.2**	0.54 B	N/A	**3.1**	**0.3 J**	**0.5 J**
Cadmium	mg/kg	980	N/A	1.4 B	0.42 B	N/A	**2.6**	**2.4**	0.44 B
Chromium	mg/kg	120,000	N/A	**166**	**117**	N/A	**188**	**1,140**	**1,370**
Chromium VI	mg/kg	6.3	N/A	1.1 U	1.1 U	N/A	1.1 UJ	1.1 UJ	1.1 UJ
Cobalt	mg/kg	350	N/A	**10**	**6.3**	N/A	4.8 B	**12.1**	**0.79 J**
Copper	mg/kg	47,000	N/A	**46.1**	**15.3**	N/A	**29.5 J**	**99.1 J**	**16.4 J**
Iron	mg/kg	820,000	N/A	**56,200 J**	**27,100 J**	N/A	**35,400**	**138,000**	**155,000**
Lead	mg/kg	800	N/A	**140 J**	**28.3 J**	N/A	**89.7**	**123**	**2.2**
Manganese	mg/kg	26,000	N/A	**5,060 J**	**4,040 J**	N/A	**5,030 J**	**31,300 J**	**33,700 J**
Mercury	mg/kg	350	N/A	**0.077 J**	**0.081 J**	N/A	0.1 UJ	**0.0097 J**	0.1 UJ
Nickel	mg/kg	22,000	N/A	**25.2**	**16.7**	N/A	**14.6**	**39.7**	**13.5**
Selenium	mg/kg	5,800	N/A	3.8 U	3.2 U	N/A	4.1 U	3.3 U	2.1 B
Silver	mg/kg	5,800	N/A	2.9 U	2.4 U	N/A	3.1 U	2.4 U	1 B
Thallium	mg/kg	12	N/A	9.6 U	8.1 U	N/A	10.3 UJ	8.1 UJ	6.5 UJ
Vanadium	mg/kg	5,800	N/A	**411 J**	**397 J**	N/A	**179 J**	**4,890 J**	**623 J**
Zinc	mg/kg	350,000	N/A	**439**	**127**	N/A	**249**	**213**	**13.1**
Other									
Cyanide	mg/kg	150	N/A	0.64 U	**0.72**	N/A	**0.5 J**	**0.37 J**	**0.039 J**

Detections in bold
N/A: This parameter was not analyzed for this sample
Values in red indicate an exceedance of the Project Action Limit (PAL)

U: This analyte was not detected in the sample. The numeric value represents the sample quantitation/detection limit.
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J+: The positive result for this anlyte is a quantitative estimate but may be biased high.
J-: The positive result for this analyte is a quantitative estimate but may be biased low.
J: The positive resulte for this analyte is a quantitative estimate.

Table 7
Summary of Inorganics Detected in Soil
Parcel A4
Tradepoint Atlantic
Sparrows Point, Maryland

Parameter	Units	PAL	A4-023-SB-5	A4-024-SB-1	A4-024-SB-5	A4-025-SB-1	A4-025-SB-7	A4-026-SB-1	A4-026-SB-5
Metal									
Aluminum	mg/kg	1,100,000	**42,300**	**12,600**	**11,000**	**35,300**	**14,300**	**16,700**	**19,500**
Antimony	mg/kg	470	2.1 UJ	2.9 UJ	2.2 B	2.9 UJ	2.5 UJ	2.7 UJ	2.1 UJ
Arsenic	mg/kg	3	**3.3**	**2.8**	**10.1**	2.4 U	**2.7**	**2.9 J**	**4.3 J**
Barium	mg/kg	220,000	**339**	**33.2 J**	**185 J**	**328**	**129**	**154 J**	**98.2 J**
Beryllium	mg/kg	2,300	**6.5**	0.96 U	0.9 B	**5.8**	**1.8**	**2**	**1**
Cadmium	mg/kg	980	**5.6**	**0.34 J**	**4.4**	0.36 B	0.35 B	1.1 B	0.46 B
Chromium	mg/kg	120,000	**17.4**	**1,600**	**130**	**20.3**	**511**	**184**	**25.4**
Chromium VI	mg/kg	6.3	1.1 UJ	**9.6**	1.1 U	1.1 U	1.1 U	1.1 U	1.2 U
Cobalt	mg/kg	350	3.2 B	4.8 U	**9.2**	**1.6 J**	**3.9 J**	3.9 B	**6.7**
Copper	mg/kg	47,000	**24.5 J**	**16.3 J**	**134 J**	**8.9**	**46.7**	**27**	**14.8**
Iron	mg/kg	820,000	**19,000**	**170,000**	**53,100**	**16,500**	**71,100**	**44,600 J**	**20,700 J**
Lead	mg/kg	800	**69.3**	2.4 U	**350**	**3.2**	**188**	**121 J**	**32.8 J**
Manganese	mg/kg	26,000	**2,530 J**	**30,600**	**3,940**	**2,240**	**6,580**	**5,740 J**	**862 J**
Mercury	mg/kg	350	0.11 UJ	0.11 UJ	**0.075 J**	0.1 U	**0.027 J**	0.099 U	**0.18**
Nickel	mg/kg	22,000	**7.5**	**12.5 J**	**26.2 J**	5.7 B	**27.1**	**15.5**	**12.7**
Selenium	mg/kg	5,800	**3.5**	3.8 U	4.5 U	2.1 B	3.4 U	3.6 U	2.8 U
Silver	mg/kg	5,800	2.1 U	**1.5 J**	3.4 U	2.9 U	2.5 U	2.7 U	2.1 U
Thallium	mg/kg	12	7 UJ	9.6 UJ	11.2 UJ	9.6 U	8.4 U	9.1 U	7.1 U
Vanadium	mg/kg	5,800	**27.2 J**	**1,240**	**687**	**16**	**357**	**460 J**	**42.6 J**
Zinc	mg/kg	350,000	**3,150**	**27.4**	**1,620**	**21.1**	**109**	**298**	**184**
Other									
Cyanide	mg/kg	150	**2**	0.57 U	**0.72 J+**	**1.3**	**0.91**	**0.54 J**	0.66 U

Detections in bold
N/A: This parameter was not analyzed for this sample
Values in red indicate an exceedance of the Project Action Limit (PAL)

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

Table 7
Summary of Inorganics Detected in Soil
Parcel A4
Tradepoint Atlantic
Sparrows Point, Maryland

Parameter	Units	PAL	A4-026-SB-10	A4-027-SB-1	A4-027-SB-5	A4-028-SB-1	A4-028-SB-5
Metal							
Aluminum	mg/kg	1,100,000	N/A	**16,200**	**10,000**	**28,600**	**14,100**
Antimony	mg/kg	470	N/A	2 UJ	2.8 UJ	2.7 UJ	2.9 UJ
Arsenic	mg/kg	3	**4.7**	**1.4 J**	**25.5**	2.2 UJ	**2.4 J**
Barium	mg/kg	220,000	N/A	**125**	**202**	**348 J**	**40.6 J**
Beryllium	mg/kg	2,300	N/A	**1.9**	**0.73 J**	**5.6**	0.64 B
Cadmium	mg/kg	980	N/A	0.26 B	**8.9**	0.54 B	1.5 U
Chromium	mg/kg	120,000	N/A	**1,070**	**603**	**79.8**	**45.7**
Chromium VI	mg/kg	6.3	N/A	1.1 UJ	1.1 UJ	1.1 U	1.1 U
Cobalt	mg/kg	350	N/A	0.93 B	**26.9**	2.9 B	3.7 B
Copper	mg/kg	47,000	N/A	**17 J**	**182 J**	**25.4**	**6.5**
Iron	mg/kg	820,000	N/A	**145,000**	**153,000**	**34,300 J**	**26,900 J**
Lead	mg/kg	800	N/A	**2**	**1,500**	**79 J**	**12.7 J**
Manganese	mg/kg	26,000	N/A	**25,800 J**	**20,700 J**	**4,780 J**	**446 J**
Mercury	mg/kg	350	N/A	0.1 UJ	**0.61 J**	0.1 U	**0.0065 J**
Nickel	mg/kg	22,000	N/A	**12.6**	**73.2**	**11.1**	8.5 B
Selenium	mg/kg	5,800	N/A	**1.9 J**	3.7 U	3.5 U	3.9 U
Silver	mg/kg	5,800	N/A	0.81 B	2.4 B	2.7 U	2.9 U
Thallium	mg/kg	12	N/A	6.6 UJ	9.4 UJ	8.9 U	9.8 U
Vanadium	mg/kg	5,800	N/A	**500 J**	**1,650 J**	**127 J**	**81.5 J**
Zinc	mg/kg	350,000	N/A	**25.1**	**3,720**	**83.1**	**26.7**
Other							
Cyanide	mg/kg	150	N/A	0.52 U	**4.7**	**0.24 J**	0.62 U

Detections in bold
N/A: This parameter was not analyzed for this sample
Values in red indicate an exceedance of the Project Action Limit (PAL)

U: This analyte was not detected in the sample. The numeric value represents the sample quantitation/detection limit.
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TABLE 8
SUMMARY OF SOIL PAL EXCEEDANCES

Parameter	CAS#	Frequency of Detections (%)	Frequency of PAL Exceedances (%)	Sample ID of Max Result	Unit	PAL Solid	Max Result
Arsenic	7440-38-2	85	69	A4-015-SB-5	mg/kg	3	85.5
Benz[a]anthracene	56-55-3	86	8	A4-021-SB-1	mg/kg	2.9	27.8
Benzo[a]pyrene	50-32-8	80	30	A4-021-SB-1	mg/kg	0.29	16.1
Benzo[b]fluoranthene	205-99-2	92	12	A4-021-SB-1	mg/kg	2.9	24.9
Cadmium	7440-43-9	45	2	A4-013-SB-4	mg/kg	980	33,600
Chromium VI	18540-29-9	11	5	A4-011-SB-1	mg/kg	6.3	15.1
Dibenz[a,h]anthracene	53-70-3	64	19	A4-021-SB-1	mg/kg	0.29	2.9
Indeno[1,2,3-c,d]pyrene	193-39-5	71	3	A4-021-SB-1	mg/kg	2.9	8.1
Lead	7439-92-1	96	7	A4-013-SB-4	mg/kg	800	2,780
Manganese	7439-96-5	100	12	A4-011-SB-1	mg/kg	26,000	35,800
Naphthalene	91-20-3	73	2	A4-021-SB-1	mg/kg	17	19.4
Oil and Grease	O&G	100	4	A4-002-SB-5	mg/kg	6,200	17,600
Thallium	7440-28-0	2	2	A4-005-SB-5	mg/kg	12	13.8

TABLE 9
SOIL PAL EXCEEDANCES FOR SPECIFIC TARGETS

Target Feature	Boring ID	Sample Depth (ft)	Parameter	PAL (mg/kg)	Result (mg/kg)	Final Flag
Pipe Mill Trenches/Sump	A4-002-SB	5	Lead	800	817	
	A4-002-SB	5	Oil and Grease	6,200	17,600	
Hydraulic Oil Storage Area	A4-003-SB	7.5	Arsenic	3	11.7	
	A4-004-SB	1	Arsenic	3	5.1	
	A4-004-SB	1	Chromium, Hexavalent	6.3	10.3	
	A4-004-SB	1	Manganese	26,000	31,900	
	A4-004-SB	5	Arsenic	3	3.6	
Acid Storage Tanks	A4-005-SB	1	Manganese	26,000	30,000	J
	A4-005-SB	5	Arsenic	3	8.1	J
	A4-005-SB	5	Benz(a)anthracene	2.9	4.4	
	A4-005-SB	5	Benzo(a)pyrene	0.29	3.6	
	A4-005-SB	5	Benzo(b)fluoranthene	2.9	6.1	
	A4-005-SB	5	Dibenz(a,h)anthracene	0.29	0.81	
	A4-005-SB	5	Manganese	26,000	26,500	J
	A4-005-SB	5	Thallium	12	13.8	
	A4-005-SB	10	Arsenic	3	5.9	
	A4-006-SB	1	Arsenic	3	4.3	J
	A4-006-SB	1	Benzo(a)pyrene	0.29	1.7	
	A4-006-SB	1	Dibenz(a,h)anthracene	0.29	0.31	
	A4-006-SB	6	Arsenic	3	4.5	J
	A4-006-SB	10	Arsenic	3	10.5	
Waste Oil Tank	A4-007-SB	5	Arsenic	3	5	
	A4-007-SB	10	Arsenic	3	3.9	
	A4-008-SB	1	Oil and Grease	6,200	12,400	
	A4-008-SB	5	Arsenic	3	3.8	
	A4-008-SB	10	Arsenic	3	12.3	

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

Table 10
Summary of Organics Detected in Groundwater
Parcel A4
Tradepoint Atlantic
Sparrows Point, Maryland

Parameter	Units	PAL	A4-001-PZ	A4-005-PZ	A4-007-PZ	A4-010-PZ	A4-012-PZ	A4-013-PZ	A4-014-PZ	A4-019-PZ
Volatile Organic Compounds										
Benzene	µg/L	5	1 U	1 U	1 U	1 U	**2.1**	1 U	1 U	1 U
Ethylbenzene	µg/L	700	1 U	1 U	1 U	1 U	**0.56 J**	1 U	1 U	1 U
Toluene	µg/L	1,000	1 U	1 U	1 U	1 U	**1.6**	**0.31 J**	1 U	1 U
Xylenes	µg/L	10,000	3 U	3 U	3 U	3 U	**3.6**	3 U	3 U	3 U
Semi-Volatile Organic Compounds*										
1,1-Biphenyl	µg/L	0.83	1 U	1 U	1 U	1 U	**0.39 J**	1 U	1 U	1 U
1,4-Dioxane	µg/L	0.46	0.1 UJ	**2.1**	0.025 B	**19.2**	0.1 U	0.1 U	0.069 B	0.1 U
2,3,4,6-Tetrachlorophenol	µg/L	240	1 U	1 U	1 U	1 U	**0.33 J**	1 U	1 U	1 U
2,4-Dimethylphenol	µg/L	360	1 U	1 U	1 U	1 U	**1.2**	1 U	1 U	1 U
2-Methylnaphthalene	µg/L	36	0.1 U	0.1 U	0.1 U	0.1 U	**2.9**	**0.064 J**	0.1 U	0.1 U
2-Methylphenol	µg/L	930	1 U	1 U	1 U	1 U	**0.3 J**	1 U	1 U	1 U
3&4-Methylphenol(m&p Cresol)	µg/L	930	2.1 U	2 U	2 U	2 U	**1.4 J**	2 U	2 U	2 U
Acenaphthene	µg/L	530	0.1 U	0.1 U	0.1 U	0.1 U	**2.3**	**0.056 J**	0.1 U	0.1 U
Acenaphthylene	µg/L	530	0.1 U	0.1 U	0.1 U	0.1 U	**0.41**	**0.02 J**	0.1 U	0.1 U
Anthracene	µg/L	1,800	**0.018 J**	0.1 U	0.1 U	0.1 U	**0.6**	**0.057 J**	0.1 U	0.1 U
Benz[a]anthracene	µg/L	0.012	**0.021 J**	0.1 U	0.1 U	0.1 U	**0.067 J**	**0.024 J**	**0.024 J**	0.1 U
Benzo[a]pyrene	µg/L	0.2	0.1 U	0.1 U	0.1 U	0.1 U	**0.0082 J**	**0.0097 J**	**0.0098 J**	0.1 U
Benzo[b]fluoranthene	µg/L	0.034	0.1 U	0.1 U	0.1 U	0.1 U	**0.026 J**	0.1 U	**0.016 J**	0.1 U
Benzo[k]fluoranthene	µg/L	0.34	0.1 U	0.1 U	0.1 U	0.1 U	**0.023 J**	0.1 U	0.1 U	0.1 U
bis(2-Ethylhexyl)phthalate	µg/L	6	**0.22 J**	1 U	1 U	1 U	**0.26 J**	1 U	1 U	1 U
Carbazole	µg/L		1 U	1 U	1 U	1 U	**4.7**	1 U	1 U	1 U
Chrysene	µg/L	3.4	**0.01 J**	0.1 U	0.1 U	0.1 U	**0.067 J**	**0.011 J**	**0.016 J**	0.1 U
Fluoranthene	µg/L	800	**0.024 J**	0.1 U	0.1 U	0.1 U	**0.77**	**0.054 J**	**0.029 J**	0.1 U
Fluorene	µg/L	290	**0.018 J**	0.1 U	0.1 U	0.1 U	**2.3**	**0.085 J**	0.1 U	0.1 U
Naphthalene	µg/L	0.17	**0.063 J**	0.038 B	0.064 B	0.061 B	**63.9**	**0.28**	0.034 B	0.028 B
Pentachlorophenol	µg/L	1	2.6 U	2.5 U	2.5 U	2.5 U	**2.6**	2.5 U	2.5 U	2.5 U
Phenanthrene	µg/L		**0.044 J**	0.1 U	0.1 U	0.1 U	**4.4**	**0.17**	**0.032 J**	0.1 U
Pyrene	µg/L	120	**0.018 J**	0.1 U	0.1 U	0.1 U	**0.51**	**0.047 J**	**0.024 J**	0.1 U
TPH/Oil and Grease										
Gasoline Range Organics	µg/L	47	N/A	N/A	**1,560 J**	N/A	N/A	N/A	N/A	N/A
Oil and Grease	µg/L	47	4,850 U	**1,400 J**	**1,500 J**	4,870 U	4,820 U	4,820 U	4,850 U	4,850 U

Detection in bold
N/A: this parameter was not analyzed for this sample
Values in red indicate an exceedance of the Project Action Limit (PAL)
*PAH compounds were analyzed via SIM

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

Table 11
Summary of Inorganics Detected in Groundwater
Parcel A4
Tradepoint Atlantic
Sparrows Point, Maryland

Parameter	Units	PAL	A4-001-PZ	A4-005-PZ	A4-007-PZ	A4-010-PZ	A4-012-PZ	A4-013-PZ	A4-014-PZ	A4-019-PZ
Metal										
Aluminum, Dissolved	µg/L	20,000	38.6 B	50 U	50 U	17.9 B	**677**	**31.3 J**	**178**	50 U
Arsenic, Dissolved	µg/L	10	5 U	5 U	5 U	5 U	**5**	5 U	5 U	5 U
Barium, Dissolved	µg/L	2,000	**37.8**	**91**	**89**	**146**	**38.1**	**29.2**	**19.4**	**107**
Beryllium, Dissolved	µg/L	4	1 U	1 U	1 U	1 U	1 U	1 U	**0.98 J**	1 U
Cadmium, Dissolved	µg/L	5	3 U	3 U	3 U	3 U	3 U	3 U	**2.5 J**	3 U
Chromium, Dissolved	µg/L	100	2.4 B	1 B	0.81 B	1.2 B	1 B	0.91 B	1.9 B	5 U
Cobalt, Dissolved	µg/L	6	5 U	5 U	5 U	**41.8**	5 U	5 U	**243**	5 U
Copper, Dissolved	µg/L	1,300	4.7 B	2.2 B	1.8 B	2 B	1.5 B	5 U	5 U	5 U
Iron, Dissolved	µg/L	14,000	**3,870**	**66,200**	**61,200**	**72,000**	22.3 B	**326**	**9,570**	**57,800**
Manganese, Dissolved	µg/L	430	**458**	**2,930**	**3,270**	**3,060**	0.88 B	**282**	**4,050**	**2,040**
Nickel, Dissolved	µg/L	390	**0.89 J**	**1.3 J**	10 U	**41.4**	10 U	10 U	**278**	1 B
Selenium, Dissolved	µg/L	50	8 U	8 U	8 U	8 U	7.2 B	8 U	8 U	8 U
Silver, Dissolved	µg/L	94	6 U	**0.59 J**	**0.78 J**	6 U	6 U	6 U	6 U	**0.99 J**
Vanadium, Dissolved	µg/L	86	**45.2**	5 U	5 U	1.2 B	**630**	**63.7**	1.6 B	0.81 B
Zinc, Dissolved	µg/L	6,000	8.3 B	**11.2**	0.89 B	**59.8**	10 U	10 U	**307**	**0.96 J**
Other										
Cyanide	µg/L	200	10 U	10 U	10 U	10 U	**20.6**	**4.9 J**	10 U	10 U

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

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

Table 12
Vapor Intrusion Criteria Comparison

Sample Location	Parameter	Result (ug/L)	Final Flag	Target Groundwater Concentration (ug/L) TCR=1E-05 or THQ=1	Exceeds Criteria	Comparison = Result / Target	Toxicity Type
A4-012-PZ	Cyanide	20.6		3.5	YES	5.89	NC
A4-013-PZ	Cyanide	4.9	J	3.5	YES	1.40	NC

NC indicates non-carcinogenic
J: The posititve result reported for this analyte is a quantitative estimate.

Table 13
Cumulative Vapor Intrusion Criteria Comparison

Parameter	Type	Organ Systems	VI Screening Criteria (ug/L)	A4-001-PZ		A4-005-PZ		A4-007-PZ		A4-010-PZ	
				Conc. (ug/L)	Cancer Risk	Conc. (ug/L)	Cancer Risk	Conc. (ug/L)	Cancer Risk	Conc. (ug/L)	Cancer Risk
Cancer Risk											
1,4-Dioxane	SVOC		130,000	0.1 UJ	0	2.1	1.6E-10	0.025 B	0	19.2	1.5E-09
Naphthalene	SVOC		200	0.063 J	3.2E-09	0.038 B	0	0.064 B	0	0.061 B	0
Benzene	VOC		69	1 U	0	1 U	0	1 U	0	1 U	0
Ethylbenzene	VOC		150	1 U	0	1 U	0	1 U	0	1 U	0
Cumulative Vapor Intrusion Cancer Risk					3E-09		2E-10		0E+00		1E-09
Non-Cancer Hazard											
				Conc. (ug/L)	Non-Cancer HQ	Conc. (ug/L)	Non-Cancer HQ	Conc. (ug/L)	Non-Cancer HQ	Conc. (ug/L)	Non-Cancer HQ
Cyanide	Other	Reproductive	3.5	10 U	0	10 U	0	10 U	0	10 U	0
Cumulative Vapor Intrusion Non-Cancer Hazard Index					0		0		0		0

Highlighted values indicate exceedances of the cumulative vapor intrusion criteria
TCR > 1E-05
THI > 1
Conc. = Concentration
U: This analyte was not detected in the sample. The numeric value represents the sample quantitation/detection limit.
UJ: This analyte was not detected in the sample. The quantitation/detection limit may be higher than reported.
B: The analyte was not detected substantially above the level of the associated method blank or field blank.
J: The positive result for this analyte is a quantitative estimate.

Table 13
Cumulative Vapor Intrusion Criteria Comparison

Parameter	Type	Organ Systems	VI Screening Criteria (ug/L)	A4-012-PZ		A4-013-PZ		A4-014-PZ		A4-019-PZ	
				Conc. (ug/L)	Cancer Risk	Conc. (ug/L)	Cancer Risk	Conc. (ug/L)	Cancer Risk	Conc. (ug/L)	Cancer Risk
Cancer Risk											
1,4-Dioxane	SVOC		130,000	0.1 U	0	0.1 U	0	0.069 B	0	0.1 U	0
Naphthalene	SVOC		200	63.9	3.2E-06	0.28	1.4E-08	0.034 B	0	0.028 B	0
Benzene	VOC		69	2.1	3.0E-07	1 U	0	1 U	0	1 U	0
Ethylbenzene	VOC		150	0.56 J	3.7E-08	1 U	0	1 U	0	1 U	0
Cumulative Vapor Intrusion Cancer Risk					4E-06		1E-08		0E+00		0E+00
Non-Cancer Hazard											
				Conc. (ug/L)	Non-Cancer HQ	Conc. (ug/L)	Non-Cancer HQ	Conc. (ug/L)	Non-Cancer HQ	Conc. (ug/L)	Non-Cancer HQ
Cyanide	Other	Reproductive	3.5	20.6	5.9	4.9 J	1.4	10 U	0	10 U	0
Cumulative Vapor Intrusion Non-Cancer Hazard Index					6		1		0		0

Highlighted values indicate exceedances of the cumulative vapor intrusion criteria
TCR > 1E-05
THI > 1
Conc. = Concentration
U: This analyte was not detected in the sample. The numeric value represents the sample quantitation/detection limit.
UJ: This analyte was not detected in the sample. The quantitation/detection limit may be higher than reported.
B: The analyte was not detected substantially above the level of the associated method blank or field blank.
J: The positive result for this analyte is a quantitative estimate.

EnviroAnalytics Group

Parcel A4 - Table 14

Rejected Results for Soil

Parameter	Result	Units	PAL	Exceeds PAL?	Flag
Sample: *A4-001-SB-1*					
1,4-Dioxane	0.11	mg/kg	24	no	R
Benzaldehyde	0.073	mg/kg	120,000	no	R
Bromomethane	0.0055	mg/kg	30	no	R
Chloroethane	0.0055	mg/kg	57,000	no	R
Sample: *A4-001-SB-5*					
1,4-Dioxane	0.091	mg/kg	24	no	R
Benzaldehyde	0.071	mg/kg	120,000	no	R
Bromomethane	0.0046	mg/kg	30	no	R
Chloroethane	0.0046	mg/kg	57,000	no	R
Sample: *A4-002-SB-1*					
1,4-Dioxane	0.1	mg/kg	24	no	R
Benzaldehyde	0.075	mg/kg	120,000	no	R
Bromomethane	0.0052	mg/kg	30	no	R
Chloroethane	0.0052	mg/kg	57,000	no	R
Sample: *A4-002-SB-5*					
1,4-Dioxane	0.092	mg/kg	24	no	R
Bromomethane	0.0046	mg/kg	30	no	R
Chloroethane	0.0046	mg/kg	57,000	no	R
Sample: *A4-003-SB-1*					
1,4-Dioxane	0.089	mg/kg	24	no	R
Bromomethane	0.0045	mg/kg	30	no	R
Chloroethane	0.0045	mg/kg	57,000	no	R
Sample: *A4-003-SB-7.5*					
1,4-Dioxane	0.096	mg/kg	24	no	R
Benzaldehyde	0.08	mg/kg	120,000	no	R

Rejected Results for Soil

Parameter	Result	Units	PAL	Exceeds PAL?	Flag
Sample: *A4-003-SB-7.5*					
Bromomethane	0.0048	mg/kg	30	no	R
Chloroethane	0.0048	mg/kg	57,000	no	R
Sample: *A4-004-SB-1*					
1,4-Dioxane	0.088	mg/kg	24	no	R
2,3,4,6-Tetrachlorophenol	0.075	mg/kg	25,000	no	R
2,4,5-Trichlorophenol	0.19	mg/kg	82,000	no	R
2,4,6-Trichlorophenol	0.075	mg/kg	210	no	R
2,4-Dichlorophenol	0.075	mg/kg	2,500	no	R
2,4-Dimethylphenol	0.075	mg/kg	16,000	no	R
2,4-Dinitrophenol	0.19	mg/kg	1,600	no	R
2-Chlorophenol	0.075	mg/kg	5,800	no	R
2-Methylphenol	0.075	mg/kg	41,000	no	R
3&4-Methylphenol(m&p Cresol)	0.15	mg/kg	41,000	no	R
Benzaldehyde	0.075	mg/kg	120,000	no	R
Bromomethane	0.0044	mg/kg	30	no	R
Chloroethane	0.0044	mg/kg	57,000	no	R
Pentachlorophenol	0.19	mg/kg	4	no	R
Phenol	0.075	mg/kg	250,000	no	R
Sample: *A4-004-SB-5*					
1,4-Dioxane	0.1	mg/kg	24	no	R
Benzaldehyde	0.077	mg/kg	120,000	no	R
Bromomethane	0.0051	mg/kg	30	no	R
Chloroethane	0.0051	mg/kg	57,000	no	R
Sample: *A4-005-SB-1*					
1,4-Dioxane	0.096	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

Rejected Results for Soil

Parameter	Result	Units	PAL	Exceeds PAL?	Flag
Sample:	***A4-005-SB-1***				
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
Benzaldehyde	0.074	mg/kg	120,000	no	R
Bromomethane	0.0048	mg/kg	30	no	R
Pentachlorophenol	0.19	mg/kg	4	no	R
Phenol	0.074	mg/kg	250,000	no	R
Sample:	***A4-005-SB-5***				
1,4-Dioxane	0.1	mg/kg	24	no	R
Bromomethane	0.0051	mg/kg	30	no	R
Sample:	***A4-006-SB-1***				
1,4-Dioxane	0.097	mg/kg	24	no	R
Benzaldehyde	0.075	mg/kg	120,000	no	R
Bromomethane	0.0048	mg/kg	30	no	R
Sample:	***A4-006-SB-6***				
1,4-Dioxane	0.093	mg/kg	24	no	R
Benzaldehyde	0.075	mg/kg	120,000	no	R
Bromomethane	0.0047	mg/kg	30	no	R
Sample:	***A4-007-SB-1***				
Acetone	0.0091	mg/kg	670,000	no	R
Benzaldehyde	0.075	mg/kg	120,000	no	R
Methyl Acetate	0.046	mg/kg	1,200,000	no	R
Sample:	***A4-007-SB-5***				
Benzaldehyde	0.083	mg/kg	120,000	no	R
Methyl Acetate	0.055	mg/kg	1,200,000	no	R
Sample:	***A4-008-SB-1***				
Acetone	0.0097	mg/kg	670,000	no	R
Benzaldehyde	0.072	mg/kg	120,000	no	R

Rejected Results for Soil

Parameter	Result	Units	PAL	Exceeds PAL?	Flag
Sample: ***A4-008-SB-1***					
Methyl Acetate	0.048	mg/kg	1,200,000	no	R
Sample: ***A4-008-SB-5***					
Acetone	0.0096	mg/kg	670,000	no	R
Benzaldehyde	0.073	mg/kg	120,000	no	R
Methyl Acetate	0.048	mg/kg	1,200,000	no	R
Sample: ***A4-009-SB-1***					
Benzaldehyde	0.074	mg/kg	120,000	no	R
Methyl Acetate	0.048	mg/kg	1,200,000	no	R
Sample: ***A4-009-SB-5***					
Benzaldehyde	0.074	mg/kg	120,000	no	R
Methyl Acetate	0.046	mg/kg	1,200,000	no	R
Sample: ***A4-010-SB-1***					
Benzaldehyde	0.074	mg/kg	120,000	no	R
Methyl Acetate	0.048	mg/kg	1,200,000	no	R
Sample: ***A4-010-SB-5***					
Acetone	0.0096	mg/kg	670,000	no	R
Benzaldehyde	0.074	mg/kg	120,000	no	R
Methyl Acetate	0.048	mg/kg	1,200,000	no	R
Sample: ***A4-011-SB-1***					
1,4-Dioxane	0.087	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

Rejected Results for Soil

Parameter	Result	Units	PAL	Exceeds PAL?	Flag
Sample: ***A4-011-SB-1***					
3&4-Methylphenol(m&p Cresol)	0.14	mg/kg	41,000	no	R
Benzaldehyde	0.071	mg/kg	120,000	no	R
Bromomethane	0.0044	mg/kg	30	no	R
Chloroethane	0.0044	mg/kg	57,000	no	R
Pentachlorophenol	0.18	mg/kg	4	no	R
Phenol	0.071	mg/kg	250,000	no	R
Sample: ***A4-011-SB-5***					
1,4-Dioxane	0.12	mg/kg	24	no	R
Bromomethane	0.0059	mg/kg	30	no	R
Chloroethane	0.0059	mg/kg	57,000	no	R
Sample: ***A4-012-SB-1***					
1,4-Dioxane	0.1	mg/kg	24	no	R
Benzaldehyde	0.14	mg/kg	120,000	no	R
Bromomethane	0.005	mg/kg	30	no	R
Sample: ***A4-012-SB-5***					
1,4-Dioxane	0.1	mg/kg	24	no	R
Bromomethane	0.0052	mg/kg	30	no	R
Sample: ***A4-013-SB-1***					
1,4-Dioxane	0.17	mg/kg	24	no	R
Benzaldehyde	0.075	mg/kg	120,000	no	R
Bromomethane	0.0087	mg/kg	30	no	R
Sample: ***A4-013-SB-4***					
1,4-Dioxane	0.14	mg/kg	24	no	R
Benzaldehyde	0.073	mg/kg	120,000	no	R
Bromomethane	0.007	mg/kg	30	no	R
Sample: ***A4-014-SB-1***					
1,4-Dioxane	0.088	mg/kg	24	no	R
Benzaldehyde	0.074	mg/kg	120,000	no	R

Rejected Results for Soil

Parameter	Result	Units	PAL	Exceeds PAL?	Flag
Sample: ***A4-014-SB-1***					
Bromomethane	0.0044	mg/kg	30	no	R
Sample: ***A4-014-SB-7***					
1,4-Dioxane	0.1	mg/kg	24	no	R
Benzaldehyde	0.08	mg/kg	120,000	no	R
Bromomethane	0.005	mg/kg	30	no	R
Sample: ***A4-015-SB-1***					
1,4-Dioxane	0.13	mg/kg	24	no	R
Benzaldehyde	0.073	mg/kg	120,000	no	R
Bromomethane	0.0063	mg/kg	30	no	R
Sample: ***A4-015-SB-5***					
1,4-Dioxane	0.1	mg/kg	24	no	R
Benzaldehyde	0.079	mg/kg	120,000	no	R
Bromomethane	0.0052	mg/kg	30	no	R
Sample: ***A4-016-SB-1***					
1,4-Dioxane	0.11	mg/kg	24	no	R
Benzaldehyde	0.073	mg/kg	120,000	no	R
Bromomethane	0.0054	mg/kg	30	no	R
Sample: ***A4-016-SB-5***					
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
Sample: ***A4-017-SB-1***					
1,4-Dioxane	0.095	mg/kg	24	no	R
Benzaldehyde	0.075	mg/kg	120,000	no	R
Bromomethane	0.0047	mg/kg	30	no	R
Sample: ***A4-017-SB-5***					
1,4-Dioxane	0.1	mg/kg	24	no	R

Rejected Results for Soil

Parameter	Result	Units	PAL	Exceeds PAL?	Flag
Sample: ***A4-017-SB-5***					
Benzaldehyde	0.081	mg/kg	120,000	no	R
Bromomethane	0.0051	mg/kg	30	no	R
Sample: ***A4-018-SB-1***					
Benzaldehyde	0.074	mg/kg	120,000	no	R
Methyl Acetate	0.049	mg/kg	1,200,000	no	R
Sample: ***A4-018-SB-5***					
Acetone	0.0099	mg/kg	670,000	no	R
Benzaldehyde	0.081	mg/kg	120,000	no	R
Methyl Acetate	0.05	mg/kg	1,200,000	no	R
Sample: ***A4-019-SB-1***					
1,4-Dioxane	0.079	mg/kg	24	no	R
Benzaldehyde	0.074	mg/kg	120,000	no	R
Bromomethane	0.0039	mg/kg	30	no	R
Sample: ***A4-019-SB-5***					
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
Sample: ***A4-020-SB-1***					
Benzaldehyde	0.071	mg/kg	120,000	no	R
Methyl Acetate	0.044	mg/kg	1,200,000	no	R
Sample: ***A4-020-SB-5***					
Acetone	0.0095	mg/kg	670,000	no	R
Benzaldehyde	0.085	mg/kg	120,000	no	R
Methyl Acetate	0.048	mg/kg	1,200,000	no	R
Sample: ***A4-021-SB-1***					
1,4-Dioxane	0.11	mg/kg	24	no	R
Benzaldehyde	0.075	mg/kg	120,000	no	R

Rejected Results for Soil

Parameter	Result	Units	PAL	Exceeds PAL?	Flag
Sample: ***A4-021-SB-1***					
Bromomethane	0.0055	mg/kg	30	no	R
Sample: ***A4-021-SB-5***					
1,4-Dioxane	0.1	mg/kg	24	no	R
Benzaldehyde	0.076	mg/kg	120,000	no	R
Bromomethane	0.0051	mg/kg	30	no	R
Sample: ***A4-022-SB-1***					
1,4-Dioxane	0.1	mg/kg	24	no	R
Benzaldehyde	0.073	mg/kg	120,000	no	R
Bromomethane	0.0051	mg/kg	30	no	R
Sample: ***A4-022-SB-8***					
1,4-Dioxane	0.12	mg/kg	24	no	R
Bromomethane	0.0059	mg/kg	30	no	R
Sample: ***A4-023-SB-1***					
1,4-Dioxane	0.12	mg/kg	24	no	R
Benzaldehyde	0.072	mg/kg	120,000	no	R
Bromomethane	0.0058	mg/kg	30	no	R
Sample: ***A4-023-SB-10***					
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
Pentachlorophenol	0.2	mg/kg	4	no	R
Phenol	0.078	mg/kg	250,000	no	R

Rejected Results for Soil

Parameter	Result	Units	PAL	Exceeds PAL?	Flag
Sample:	***A4-023-SB-5***				
1,4-Dioxane	0.16	mg/kg	24	no	R
Benzaldehyde	0.078	mg/kg	120,000	no	R
Bromomethane	0.008	mg/kg	30	no	R
Sample:	***A4-024-SB-1***				
1,4-Dioxane	0.086	mg/kg	24	no	R
2,3,4,6-Tetrachlorophenol	0.074	mg/kg	25,000	no	R
2,4,5-Trichlorophenol	0.18	mg/kg	82,000	no	R
2,4,6-Trichlorophenol	0.074	mg/kg	210	no	R
2,4-Dichlorophenol	0.074	mg/kg	2,500	no	R
2,4-Dimethylphenol	0.074	mg/kg	16,000	no	R
2,4-Dinitrophenol	0.18	mg/kg	1,600	no	R
2-Chlorophenol	0.074	mg/kg	5,800	no	R
2-Methylphenol	0.074	mg/kg	41,000	no	R
3&4-Methylphenol(m&p Cresol)	0.15	mg/kg	41,000	no	R
Benzaldehyde	0.074	mg/kg	120,000	no	R
Bromomethane	0.0043	mg/kg	30	no	R
Chloroethane	0.0043	mg/kg	57,000	no	R
Pentachlorophenol	0.18	mg/kg	4	no	R
Phenol	0.074	mg/kg	250,000	no	R
Sample:	***A4-024-SB-5***				
1,4-Dioxane	0.11	mg/kg	24	no	R
Benzaldehyde	0.072	mg/kg	120,000	no	R
Bromomethane	0.0055	mg/kg	30	no	R
Chloroethane	0.0055	mg/kg	57,000	no	R
Sample:	***A4-025-SB-1***				
Benzaldehyde	0.072	mg/kg	120,000	no	R
Methyl Acetate	0.046	mg/kg	1,200,000	no	R
Sample:	***A4-025-SB-7***				
Acetone	0.01	mg/kg	670,000	no	R
Benzaldehyde	0.082	mg/kg	120,000	no	R

Rejected Results for Soil

Parameter	Result	Units	PAL	Exceeds PAL?	Flag
Sample: ***A4-025-SB-7***					
Methyl Acetate	0.05	mg/kg	1,200,000	no	R
Sample: ***A4-026-SB-1***					
1,4-Dioxane	0.1	mg/kg	24	no	R
Benzaldehyde	0.072	mg/kg	120,000	no	R
Bromomethane	0.0051	mg/kg	30	no	R
Sample: ***A4-026-SB-5***					
1,4-Dioxane	0.1	mg/kg	24	no	R
Benzaldehyde	0.074	mg/kg	120,000	no	R
Bromomethane	0.0052	mg/kg	30	no	R
Sample: ***A4-027-SB-1***					
1,4-Dioxane	0.081	mg/kg	24	no	R
2,3,4,6-Tetrachlorophenol	0.074	mg/kg	25,000	no	R
2,4,5-Trichlorophenol	0.18	mg/kg	82,000	no	R
2,4,6-Trichlorophenol	0.074	mg/kg	210	no	R
2,4-Dichlorophenol	0.074	mg/kg	2,500	no	R
2,4-Dimethylphenol	0.074	mg/kg	16,000	no	R
2,4-Dinitrophenol	0.18	mg/kg	1,600	no	R
2-Chlorophenol	0.074	mg/kg	5,800	no	R
2-Methylphenol	0.074	mg/kg	41,000	no	R
3&4-Methylphenol(m&p Cresol)	0.15	mg/kg	41,000	no	R
Benzaldehyde	0.074	mg/kg	120,000	no	R
Bromomethane	0.0041	mg/kg	30	no	R
Pentachlorophenol	0.18	mg/kg	4	no	R
Phenol	0.074	mg/kg	250,000	no	R
Sample: ***A4-027-SB-5***					
1,4-Dioxane	0.11	mg/kg	24	no	R
2,3,4,6-Tetrachlorophenol	0.074	mg/kg	25,000	no	R
2,4,5-Trichlorophenol	0.19	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

Rejected Results for Soil

Parameter	Result	Units	PAL	Exceeds PAL?	Flag
Sample:	***A4-027-SB-5***				
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	0.0057	mg/kg	30	no	R
Pentachlorophenol	0.19	mg/kg	4	no	R
Phenol	0.074	mg/kg	250,000	no	R
Sample:	***A4-028-SB-1***				
1,4-Dioxane	0.1	mg/kg	24	no	R
Benzaldehyde	0.075	mg/kg	120,000	no	R
Bromomethane	0.005	mg/kg	30	no	R
Sample:	***A4-028-SB-5***				
1,4-Dioxane	0.095	mg/kg	24	no	R
Benzaldehyde	0.077	mg/kg	120,000	no	R
Bromomethane	0.0047	mg/kg	30	no	R

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Parcel A4 - Table 15

Rejected Results for Groundwater

Parameter	Result	Units	PAL	Exceeds PAL?	Flag
Sample: ***A4-001-PZ***					
3,3'-Dichlorobenzidine	1	µg/L	0.12	**YES**	R
Sample: ***A4-005-PZ***					
Acetone	10	µg/L	14,000	no	R
Methyl Acetate	5	µg/L	20,000	no	R
Sample: ***A4-007-PZ***					
Acetone	10	µg/L	14,000	no	R
Methyl Acetate	5	µg/L	20,000	no	R
Sample: ***A4-010-PZ***					
Acetone	10	µg/L	14,000	no	R
Methyl Acetate	5	µg/L	20,000	no	R
Sample: ***A4-012-PZ***					
Acetone	10	µg/L	14,000	no	R
Methyl Acetate	5	µg/L	20,000	no	R
Sample: ***A4-013-PZ***					
Acetone	10	µg/L	14,000	no	R
Methyl Acetate	5	µg/L	20,000	no	R
Sample: ***A4-014-PZ***					
Acetone	10	µg/L	14,000	no	R
Methyl Acetate	5	µg/L	20,000	no	R
Sample: ***A4-019-PZ***					
Acetone	10	µg/L	14,000	no	R
Methyl Acetate	5	µg/L	20,000	no	R

ARM Group Inc.
Earth Resource Engineers and Consultants

Table 16 - Parcel A4
COPC Screening Analysis

Parameter	CAS#	Location of Max Result	Max Detection (mg/kg)	Final Flag	Min Detection (mg/kg)	Average Detection (mg/kg)	Total Samples	Frequency of Detection (%)	Cancer TR=1E-06 (mg/kg)	Non-Cancer HQ=0.1 (mg/kg)	COPC?
1,1-Biphenyl	92-52-4	A4-003-SB-7.5	1.5		0.019	0.20	64	26.56	410	20	no
1,2-Dichlorobenzene	95-50-1	A4-012-SB-1	0.0021	J	0.0021	0.002	54	1.85		930	no
2,4-Dimethylphenol	105-67-9	A4-003-SB-7.5	0.095		0.015	0.05	57	10.53		1,600	no
2,6-Dinitrotoluene	606-20-2	A4-003-SB-1	0.043	J	0.043	0.04	64	1.56	1.5	25	no
2-Butanone (MEK)	78-93-3	A4-003-SB-7.5	0.059		0.0028	0.009	54	57.41		19,000	no
2-Hexanone	591-78-6	A4-028-SB-1	0.024		0.024	0.02	54	1.85		130	no
2-Methylnaphthalene	91-57-6	A4-021-SB-1	9.7		0.0013	0.30	57	68.42		300	no
2-Methylphenol	95-48-7	A4-003-SB-7.5	0.11		0.014	0.04	57	8.77		4,100	no
Acenaphthene	83-32-9	A4-021-SB-1	3.5		0.0027	0.25	57	47.37		4,500	no
Acenaphthylene	208-96-8	A4-021-SB-1	6.1		0.0029	0.28	57	50.88			no
Acetone	67-64-1	A4-010-SB-1	0.17	J	0.007	0.05	47	97.87		67,000	no
Acetophenone	98-86-2	A4-003-SB-1	0.11		0.019	0.04	64	18.75		12,000	no
Aluminum	7429-90-5	A4-023-SB-5	42,300		5,220	16,943	54	100.00		110,000	no
Anthracene	120-12-7	A4-021-SB-1	69.5		0.0021	1.92	57	70.18		23,000	no
Antimony	7440-36-0	A4-003-SB-7.5	5.4	J	2.4	3.90	54	3.70		47	no
Aroclor 1254	11097-69-1	A4-021-SB-1	0.12	J	0.12	0.12	27	3.70	0.97	1.5	no
Aroclor 1260	11096-82-5	A4-019-SB-1	0.13		0.0089	0.04	27	25.93	0.99		no
Arsenic	7440-38-2	A4-015-SB-5	85.5	J	1.4	7.76	66	84.85	3	48	YES (C/NC)
Barium	7440-39-3	A4-002-SB-5	689	J	16.2	142	54	100.00		22,000	no
Benz[a]anthracene	56-55-3	A4-021-SB-1	27.8		0.0022	1.15	57	85.96	21		YES (C)
Benzaldehyde	100-52-7	A4-002-SB-10	0.15	J	0.018	0.06	17	70.59	820	12,000	no
Benzene	71-43-2	A4-003-SB-7.5	0.027		0.0013	0.007	54	16.67	5.1	42	no
Benzo[a]pyrene	50-32-8	A4-021-SB-1	16.1		0.001	1.05	58	79.31	2.1	22	YES (C)
Benzo[b]fluoranthene	205-99-2	A4-021-SB-1	24.9		0.0009	1.48	57	91.23	21		YES (C)
Benzo[g,h,i]perylene	191-24-2	A4-021-SB-1	6.8		0.0021	0.49	57	82.46			no
Benzo[k]fluoranthene	207-08-9	A4-021-SB-1	8.6		0.00093	0.59	57	87.72	210		no
Beryllium	7440-41-7	A4-001-SB-1	7.3		0.3	2.34	54	62.96	6,900	230	no
bis(2-Ethylhexyl)phthalate	117-81-7	A4-002-SB-5	0.24	J	0.13	0.19	64	4.69	160	1,600	no
Cadmium	7440-43-9	A4-S-7	484		0.3	17.40	225	73.33	9,300	98	YES (NC)
Carbazole	86-74-8	A4-003-SB-7.5	16		0.018	0.81	64	48.44			no
Chromium	7440-47-3	A4-011-SB-1	1,810		7.6	354	54	100.00		180,000	no
Chromium VI	18540-29-9	A4-011-SB-1	15.1		0.87	6.86	54	11.11	6.3	350	YES (C)
Chrysene	218-01-9	A4-021-SB-1	23.8		0.00059	1.04	57	91.23	2,100		no
Cobalt	7440-48-4	A4-002-SB-5	30.5		0.79	9.77	54	57.41	1,900	35	no
Copper	7440-50-8	A4-003-SB-7.5	224	J	3.9	42.26	54	98.15		4,700	no
Cyanide	57-12-5	A4-027-SB-5	4.7		0.039	0.80	54	62.96		120	no
Cyclohexane	110-82-7	A4-003-SB-7.5	0.052		0.00052	0.008	54	12.96		2,700	no
Dibenz[a,h]anthracene	53-70-3	A4-021-SB-1	2.9		0.004	0.27	57	63.16	2.1		YES (C)

Table 16 - Parcel A4
COPC Screening Analysis

Parameter	CAS#	Location of Max Result	Max Detection (mg/kg)	Final Flag	Min Detection (mg/kg)	Average Detection (mg/kg)	Total Samples	Frequency of Detection (%)	Cancer TR=1E-06 (mg/kg)	Non-Cancer HQ=0.1 (mg/kg)	COPC?
Diethylphthalate	84-66-2	A4-017-SB-1	0.044	J	0.044	0.04	64	1.56		66,000	no
Di-n-butylphthalate	84-74-2	A4-002-SB-10	0.12		0.12	0.12	64	1.56		8,200	no
Di-n-ocytlphthalate	117-84-0	A4-002-SB-10	0.027	J	0.021	0.02	64	3.13		820	no
Ethylbenzene	100-41-4	A4-004-SB-5	0.012		0.00051	0.006	54	7.41	25	2,000	no
Fluoranthene	206-44-0	A4-021-SB-1	147		0.00086	3.74	57	89.47		3,000	no
Fluorene	86-73-7	A4-021-SB-1	79.1		0.00075	2.02	57	70.18		3,000	no
Indeno[1,2,3-c,d]pyrene	193-39-5	A4-021-SB-1	8.1		0.0019	0.65	57	70.18	21		no
Iron	7439-89-6	A4-018-SB-1	259,000		3,690	66,933	54	100.00		82,000	YES (NC)
Isopropylbenzene	98-82-8	A4-004-SB-5	0.067		0.0012	0.03	54	3.70		990	no
Lead^	7439-92-1	A4-027-SB-5	1,500		1.9	160	54	96.30		800	YES (NC)
Manganese	7439-96-5	A4-011-SB-1	35,800		5.9	8,499	55	100.00		2,600	YES (NC)
Mercury	7439-97-6	A4-019-SB-1	0.84		0.0025	0.09	54	68.52		35	no
Methyl Acetate	79-20-9	A4-014-SB-7	0.058		0.058	0.06	40	2.50		120,000	no
Methylene Chloride	75-09-2	A4-023-SB-5	0.0073	J	0.0021	0.004	54	38.89	1,000	320	no
Naphthalene	91-20-3	A4-021-SB-1	19.4		0.0015	0.56	57	71.93	17	59	YES (C)
Nickel	7440-02-0	A4-018-SB-1	94.2		4	21.73	54	87.04	64,000	2,200	no
N-Nitrosodiphenylamine	86-30-6	A4-028-SB-1	0.037	J	0.037	0.04	64	1.56	470		no
PCBs (total)*	1336-36-3	A4-019-SB-1	0.13		0.036	0.09	27	14.81	0.94		no
Phenanthrene	85-01-8	A4-021-SB-1	287		0.0012	6.86	57	78.95			no
Phenol	108-95-2	A4-003-SB-7.5	0.99		0.022	0.20	57	12.28		25,000	no
Pyrene	129-00-0	A4-021-SB-1	104		0.00081	2.72	57	91.23		2,300	no
Selenium	7782-49-2	A4-016-SB-5 & A4-023-SB-5	3.5		1.9	2.65	54	11.11		580	no
Silver	7440-22-4	A4-004-SB-1 & A4-018-SB-1	3.1		0.39	2.18	54	12.96		580	no
Thallium	7440-28-0	A4-005-SB-5	13.8		13.8	13.80	55	1.82		1.2	YES (NC)
Toluene	108-88-3	A4-011-SB-1	0.08		0.00043	0.007	54	35.19		4,700	no
Trichloroethene	79-01-6	A4-015-SB-1	0.0018	J	0.0018	0.002	54	1.85	6	1.9	no
Vanadium	7440-62-2	A4-005-SB-5	5,460	J	9.5	536	54	100.00		580	YES (NC)
Xylenes	1330-20-7	A4-011-SB-1	0.028	J	0.0018	0.01	54	9.26		250	no
Zinc	7440-66-6	A4-002-SB-5	8,500		7.3	523	54	100.00		35,000	no

J: The positive result reported for this analyte is a quantitative estimate.
COPC = Constituent of Potential Concern
TR = Target Risk C = Compound was identified as a cancer COPC
HQ = Hazard Quotient NC = Compound was identified as a non-cancer COPC

*PCBs (total) include the sum of all detected aroclor mixtures, including those without regional screening levels (e.g. Aroclor 1262, Aroclor 1268) which are not displayed.
^The COPC screening level for lead was not adjusted to the HQ=0.1 because lead is not assessed in the SLRA. The 800 mg/kg PAL is relevant to the Adult Lead Model procedure.

Table 17 - Parcel A4
Assessment of Lead

Exposure Unit	Surface/Sub-Surface	Arithmetic Mean (mg/kg)
Site-Wide (43.3 ac.)	Surface	125
	Sub-Surface	183
	Pooled	154

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

Table 18 - Parcel A4
Soil Exposure Point Concentrations

			EPCs - Surface Soils		**EPCs - Sub-Surface Soils**		**EPCs - Pooled Soils**	
Parameter	Cancer COPC Screening Level (mg/kg)	Non-Cancer Screening Level (mg/kg)	EPC Type Site-Wide Exposure Unit	EPC Site-Wide Exposure Unit (mg/kg)	EPC Type Site-Wide Exposure Unit	EPC Site-Wide Exposure Unit (mg/kg)	EPC Type Site-Wide Exposure Unit	EPC Site-Wide Exposure Unit (mg/kg)
Arsenic	3.00	48.0	95% GROS Adjusted Gamma UCL	**6.30**	KM H-UCL	**10.1**	KM H-UCL	**7.79**
Cadmium	9,300	98.0	95% KM Approximate Gamma UCL	1.78	KM H-UCL	29.2	KM H-UCL	19.1
Chromium VI	6.30	350	95% KM (t) UCL	3.58	Maximum Value	0.87	95% KM (t) UCL	2.18
Iron		82,000	95% Adjusted Gamma UCL	**118,009**	95% H-UCL	**82,778**	95% H-UCL	**98,348**
Manganese		2,600	95% Adjusted Gamma UCL	**18,278**	95% Adjusted Gamma UCL	**10,277**	95% Adjusted Gamma UCL	**12,431**
Vanadium		580	95% Student's-t UCL	464	95% Chebyshev (Mean, Sd) UCL	**1,889**	95% H-UCL	**1,129**
Benz[a]anthracene	21.0		97.5% Chebyshev (Mean, Sd) UCL	7.87	Gamma Adjusted KM-UCL	1.17	95% KM (Chebyshev) UCL	3.15
Benzo[a]pyrene	2.10	22.0	95% KM (Chebyshev) UCL	**3.66**	Gamma Adjusted KM-UCL	1.43	95% KM (Chebyshev) UCL	**2.17**
Benzo[b]fluoranthene	21.0		95% Chebyshev (Mean, Sd) UCL	5.73	Gamma Adjusted KM-UCL	2.13	95% KM (Chebyshev) UCL	3.42
Dibenz[a,h]anthracene	2.10		95% KM (Chebyshev) UCL	0.66	Gamma Adjusted KM-UCL	0.38	KM H-UCL	0.38
Naphthalene	17.0	59.0	95% KM (Chebyshev) UCL	3.91	Gamma Adjusted KM-UCL	0.17	KM H-UCL	0.37

Bold indicates EPC exceedance of lowest COPC SL
COPC = Constituent of Potential Concern

Table 19 - Parcel A4
Surface Soils
Composite Worker Risk Ratios

Parameter	Target Organs	Site-Wide Exposure Unit (43.3 ac.)				
			Composite Worker			
			RSLs (mg/kg)		Risk Ratios	
		EPC (mg/kg)	Cancer	Non-Cancer	Risk	HQ
Arsenic	**Cardiovascular; Dermal**	6.30	3.00	480	2.1E-06	0.01
Cadmium	**Urinary**	1.78	9,300	980	1.9E-10	0.002
Chromium VI	**Respiratory**	3.58	6.30	3,500	5.7E-07	0.001
Iron	**Gastrointestinal**	118,009		820,000		0.1
Manganese	**Nervous**	18,278		26,000		0.7
Vanadium	**Dermal**	464		5,800		0.08
Benz(a)anthracene		7.87	21.0		3.7E-07	
Benzo(a)pyrene	**Developmental**	3.66	2.10	220	1.7E-06	0.02
Benzo(b)fluoranthene		5.73	21.0		2.7E-07	
Dibenz(a,h)anthracene		0.66	2.10		3.1E-07	
Naphthalene	**Nervous; Respiratory**	3.91	17.0	590	2.3E-07	0.007
					6E-06	↓

RSLs were obtained from the EPA Regional Screening Levels at https://epa-prgs.ornl.gov/cgi-bin/chemicals/csl_search

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

Table 20 - Parcel A4
Sub-Surface Soils
Composite Worker Risk Ratios

Parameter	Target Organs	Site-Wide Exposure Unit (43.3 ac.)				
			Composite Worker			
			RSLs (mg/kg)		Risk Ratios	
		EPC (mg/kg)	Cancer	Non-Cancer	Risk	HQ
Arsenic	**Cardiovascular; Dermal**	10.1	3.00	480	3.4E-06	0.02
Cadmium	**Urinary**	29.2	9,300	980	3.1E-09	0.03
Chromium VI	**Respiratory**	**0.87**	6.30	3,500	1.4E-07	0.0002
Iron	**Gastrointestinal**	82,778		820,000		0.1
Manganese	**Nervous**	10,277		26,000		0.4
Vanadium	**Dermal**	1,889		5,800		0.3
Benz(a)anthracene		1.17	21.0		5.6E-08	
Benzo(a)pyrene	**Developmental**	1.43	2.10	220	6.8E-07	0.007
Benzo(b)fluoranthene		2.13	21.0		1.0E-07	
Dibenz(a,h)anthracene		0.38	2.10		1.8E-07	
Naphthalene	**Nervous; Respiratory**	0.17	17.0	590	1.0E-08	0.0003
					5E-06	↓

Bold indicates maximum result

RSLs were obtained from the EPA Regional Screening Levels at https://epa-prgs.ornl.gov/cgi-bin/chemicals/csl_search

Total HI	Cardiovascular	0
	Dermal	0
	Urinary	0
	Respiratory	0
	Gastrointestinal	0
	Nervous	0
	Developmental	0

Table 21 - Parcel A4
Pooled Soils
Composite Worker Risk Ratios

Parameter	Target Organs	Site-Wide Exposure Unit (43.3 ac.)				
			Composite Worker			
			RSLs (mg/kg)		Risk Ratios	
		EPC (mg/kg)	Cancer	Non-Cancer	Risk	HQ
Arsenic	**Cardiovascular; Dermal**	7.79	3.00	480	2.6E-06	0.02
Cadmium	**Urinary**	19.1	9,300	980	2.1E-09	0.02
Chromium VI	**Respiratory**	2.18	6.30	3,500	3.5E-07	0.0006
Iron	**Gastrointestinal**	98,348		820,000		0.1
Manganese	**Nervous**	12,431		26,000		0.5
Vanadium	**Dermal**	1,129		5,800		0.2
Benz(a)anthracene		3.15	21.0		1.5E-07	
Benzo(a)pyrene	**Developmental**	2.17	2.10	220	1.0E-06	0.01
Benzo(b)fluoranthene		3.42	21.0		1.6E-07	
Dibenz(a,h)anthracene		0.38	2.10		1.8E-07	
Naphthalene	**Nervous; Respiratory**	0.37	17.0	590	2.2E-08	0.0006
					4E-06	↓

RSLs were obtained from the EPA Regional Screening Levels at https://epa-prgs.ornl.gov/cgi-bin/chemicals/csl_search

Total HI	Cardiovascular	0
	Dermal	0
	Urinary	0
	Respiratory	0
	Gastrointestinal	0
	Nervous	0
	Developmental	0

Table 22 - Parcel A4
Surface Soils
Construction Worker Risk Ratios

80 Day		Site-Wide Exposure Unit (43.3 ac.)				
			Construction Worker			
			SSLs (mg/kg)		Risk Ratios	
Parameter	Target Organs	EPC (mg/kg)	Cancer	Non-Cancer	Risk	HQ
Arsenic	Cardiovascular; Dermal	6.30	47.3	301	1.3E-07	0.02
Cadmium	Urinary	1.78	78,681	942	2.3E-11	0.002
Chromium VI	Respiratory	3.58	67.6	2,503	5.3E-08	0.001
Iron	Gastrointestinal	118,009		751,692		0.2
Manganese	Nervous	18,278		13,191		1
Vanadium	Dermal	464		5,008		0.09
Benz(a)anthracene		7.87	436		1.8E-08	
Benzo(a)pyrene	Developmental	3.66	52.9	16.9	6.9E-08	0.2
Benzo(b)fluoranthene		5.73	526		1.1E-08	
Dibenz(a,h)anthracene		0.66	55.7		1.2E-08	
Naphthalene	Nervous; Respiratory	3.91	36.4	53.0	1.1E-07	0.07
					4E-07	↓

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/truck)
3 meter source depth thickness

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

Table 23 - Parcel A4
Sub-Surface Soils
Construction Worker Risk Ratios

80 Day		Site-Wide Exposure Unit (43.3 ac.)				
			Construction Worker			
			SSLs (mg/kg)		Risk Ratios	
Parameter	Target Organs	EPC (mg/kg)	Cancer	Non-Cancer	Risk	HQ
Arsenic	**Cardiovascular; Dermal**	10.1	47.3	301	2.1E-07	0.03
Cadmium	**Urinary**	29.2	78,681	942	3.7E-10	0.03
Chromium VI	**Respiratory**	**0.87**	67.6	2,503	1.3E-08	0.0003
Iron	**Gastrointestinal**	82,778		751,692		0.1
Manganese	**Nervous**	10,277		13,191		0.8
Vanadium	**Dermal**	1,889		5,008		0.4
Benz(a)anthracene		1.17	436		2.7E-09	
Benzo(a)pyrene	**Developmental**	1.43	52.9	16.9	2.7E-08	0.08
Benzo(b)fluoranthene		2.13	526		4.0E-09	
Dibenz(a,h)anthracene		0.38	55.7		6.8E-09	
Naphthalene	**Nervous; Respiratory**	0.17	36.4	53.0	4.7E-09	0.003
					3E-07	↓

Bold indicates maximum result

SSLs calculated using equations in the EPA Supplemental Guidance dated 2002

Guidance Equations Input Assumptions:

5 cars/day (2 tons/car)

5 trucks/day (20 tons/truck)

3 meter source depth thickness

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

Table 24 - Parcel A4
Pooled Soils
Construction Worker Risk Ratios

80 Day		Site-Wide Exposure Unit (43.3 ac.)				
			Construction Worker			
			SSLs (mg/kg)		Risk Ratios	
Parameter	Target Organs	EPC (mg/kg)	Cancer	Non-Cancer	Risk	HQ
Arsenic	Cardiovascular; Dermal	7.79	47.3	301	1.6E-07	0.03
Cadmium	Urinary	19.1	78,681	942	2.4E-10	0.02
Chromium VI	Respiratory	2.18	67.6	2,503	3.2E-08	0.0009
Iron	Gastrointestinal	98,348		751,692		0.1
Manganese	Nervous	12,431		13,191		0.9
Vanadium	Dermal	1,129		5,008		0.2
Benz(a)anthracene		3.15	436		7.2E-09	
Benzo(a)pyrene	Developmental	2.17	52.9	16.9	4.1E-08	0.1
Benzo(b)fluoranthene		3.42	526		6.5E-09	
Dibenz(a,h)anthracene		0.38	55.7		6.8E-09	
Naphthalene	Nervous; Respiratory	0.37	36.4	53.0	1.0E-08	0.007
					3E-07	↓

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/truck)
3 meter source depth thickness

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

APPENDIX A

ARM Group Inc.
Earth Resource Engineers and Consultants

April 13, 2015

Ms. Barbara Brown
Project Coordinator
Maryland Department of the Environment
1800 Washington Boulevard.
Baltimore, Maryland 21230-1719

Re: Building Occupancy Assessment
New Cold Mill Complex
Sparrows Point Terminal Property
Sparrows Point, Maryland
ARM Project M14152

Dear Ms. Brown:

ARM Group, Inc. (ARM), on behalf of EnviroAnalytics Group (EAG), recently completed a Building Occupancy Assessment (BOA) of the New Cold Mill Complex (NCMC) located on the Sparrows Point Terminal, LLC (SPT) property, in Sparrows Point, Maryland. The BOA was completed in accordance with the MDE-approved Work Plan dated March 10, 2015. As SPT is seeking to put the NCMC back into commercial use, the BOA was performed to verify that the current conditions within and below the NCMC would not pose a potential unacceptable risk to commercial workers occupying the NCMC.

The NCMC is located south of Bethlehem Boulevard on the northwest portion of the Sparrows Point Terminal property (the Site). The southeastern portion of the building consists of primarily warehouse space, while the remainder of the building, aside from a small area used as office space, was used for the production of light, flat-rolled sheet steel. The area immediately surrounding the building is paved with asphalt or concrete. The anticipated use of the NCMC would be warehouse/manufacturing/logistics with workers utilizing the warehouse and office space. The exterior of the building would be used only for worker parking and truck traffic.

Background

The fully-automated NCMC produced light, flat-rolled sheet steel from hot-rolled steel; which was supplied from Sparrows Point's hot strip mill. The cold-rolled products from Sparrows Point were used in containers, tubing, machinery, storage tanks, automotive parts, metal furniture, electrical lighting equipment and hardware.

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voice: (410) 290-7775 • fax: (410) 290-7776 • e-mail: info@armgroup.net

The NCMC, which replaced the old cold mill, housed an in-line continuous pickler, which cleaned steel prior to rolling. The pickler was linked to a sheet steel cold reduction section that consisted of a five-stand tandem mill. Additionally, the NCMC contained a hydrogen batch annealing facility, a combination skin pass mill and tension leveling line, a coil build-up and inspection line, a packaging line, cranes, storage areas and offices.

According to the Phase I Environmental Site Assessment (ESA) prepared by Weaver Boos Consultants, dated May 19, 2014, no recognized environmental conditions were identified directly associated with the NCMC. Based on conversations with Weaver Boos consultants, while petroleum products in metal secondary containment and petroleum/chemical storage containers were observed, they and their secondary containment appeared to be in good condition during their site visit and were therefore not identified as recognized environmental conditions.

As part of the Work Plan development process, ARM and EAG conducted a walkthrough inspection of the NCMC on February 13, 2015. During the walk through inspection ARM observed the NCMC to be inactive, and the equipment within the NCMC being decommissioned and prepared for removal from the property.

The following observations of petroleum use were made during the inspection:

- An oil skimmer associated with the cooling water sumps was present along the northern wall of the complex;
- an air compressor room was present in the northwest corner of the building with oil stained floors and floor drains;
- a bulk oil storage room, located south of the compressor room, contained two large tanks surrounded by concrete containment; and
- multiple collection trenches and depressed floor areas throughout the NCMC were noted to contain what appeared to be oil or hydraulic fluid.

Areas of interest observed during the walkthrough and subsequently targeted by the sub-slab soil gas sampling, are provided on **Figure 1** (attached), and the sub-slab soil gas sample locations are provided on **Figure 2** (attached).

Soil Gas Investigation

To determine if historical on-site activities have negatively impacted the soil or groundwater beneath the NCMC, and to determine if there is a potentially unacceptable risk associated with the vapor intrusion to indoor air risk pathway, a total of 19 sub-slab soil gas samples were

collected utilizing temporary soil gas monitoring probes at each of the following locations (which are also provided on **Figure 2**):

- one sample from within the Oil Compressor Room;
- one sample from within the Bulk Oil Storage Room;
- one sample adjacent to the oil skimmer associated with the cooling water sumps along the northern wall of the complex;
- multiple samples associated with the collection trenches and depressed floor areas observed throughout the NCMC where oil or hydraulic fluid were noted; and
- multiple samples throughout the remainder of the building; which were collected to provide an overall sample density of one sample per 40,000 square feet.

To facilitate the collection of each sub-slab soil gas sample, a core-drill was used to create a pilot-hole approximately three-inches in diameter that extended through the concrete floor. The borehole was then extended through the subgrade and into the soil to a final depth of at least eight inches below the bottom of the concrete 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.

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 a 24-hour intake time was attached to the tubing. The soil gas sample was then collected over a period of twenty-four (24) 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.

Laboratory Analysis

EAG contracted Pace Analytical Services, Inc. (PACE) of Greensburg, Pennsylvania to perform the laboratory analysis for this project. The sub-slab soil gas samples were analyzed for Volatile Organic Compounds (VOCs) via USEPA Method TO-15. All sub-slab soil gas samples that were submitted to the laboratory were accompanied by a Chain of Custody (CoC) form.

The laboratory results for the detected compounds have been summarized on **Table 1** (attached), and compared to the MDE Tier 1 and Tier 2 Commercial Target Soil Gas Levels provided on "Table 2 – Commercial Ambient Air" from the MDE's Vapor Intrusion Fact Sheet (September 2012). The laboratory reports showing results for all analyses have been included as **Attachment 1**.

Data Validation

The data provided in this report has not undergone a full EPA level 2B verification/validation review. Once the Data Validation Report (DVR) is provided to ARM, this report will be appended**.**

Summary of Results

As provided on **Table 1**:

- there were no exceedances of the MDE's Tier 1 or Tier 2 Commercial Target Soil Gas Levels identified in any of the sub-slab soil gas samples submitted for analysis;
- detectable but insignificant levels of petroleum hydrocarbon vapors (e.g. BTEX) were identified in each sample submitted for analysis; and
- detectable but insignificant levels of acetone, 2-butanone (MEK), carbon disulfide and chloroform, which are all common laboratory contaminants, were identified in each sample submitted for analysis.

Conclusions

The objective of this Building Occupancy Assessment (BOA) was to evaluate the potential for current conditions within and below the New Cold Mill Complex (NCMC) to cause an unacceptable risk to commercial workers occupying the NCMC. The anticipated use of the NCMC would be warehouse/manufacturing/logistics with workers utilizing the warehouse space and office space. The exterior of the building would be used only for worker parking and truck traffic.

Areas outside of the building to be used by commercial workers for parking, and ingress and egress to the building are paved with asphalt and concrete. Therefore, direct contact with the soil outside of the building, and potential exposure by dermal contact or incidental ingestion or by inhalation of vapors in an excavation, are not pathways of concern.

The building is served by public water and there is no groundwater use on site. Therefore, exposure to groundwater is not a potential concern.

Compounds identified in the sub-slab soil gas samples collected from the locations identified on **Figure 1** were all below the MDE's Tier 1 and Tier 2 Commercial Target Soil Gas Levels; therefore, there is not an unacceptable risk to the health of a commercial worker.

As no unacceptable risk to human health was identified during this BOA, the current conditions within and below the NCMC would not pose a potential unacceptable risk to commercial workers.

We therefore believe the building is suitable for immediate occupancy.

If you have any questions or require additional information please do not hesitate to contact the undersigned at 410-290-7775. Thank you very much.

Respectfully Submitted,

ARM Group Inc.

Eric S. Magdar
Senior Geologist

Attachments: Figure 1
Figure 2
Table 1
Attachment 1

cc: Andrew Fan, EPA Region III

FIGURES

Figure **1**	New Cold Mill Complex Site Drawings March 30, 2015	EnviroAnalytics Group Building Occupancy Assessment	Project No.: M14152 designed ESM	ARM Group Inc. Earth Resource Engineers and Consultants
		Sparrows Point Baltimore County, MD	checked ESM drawn SCK	

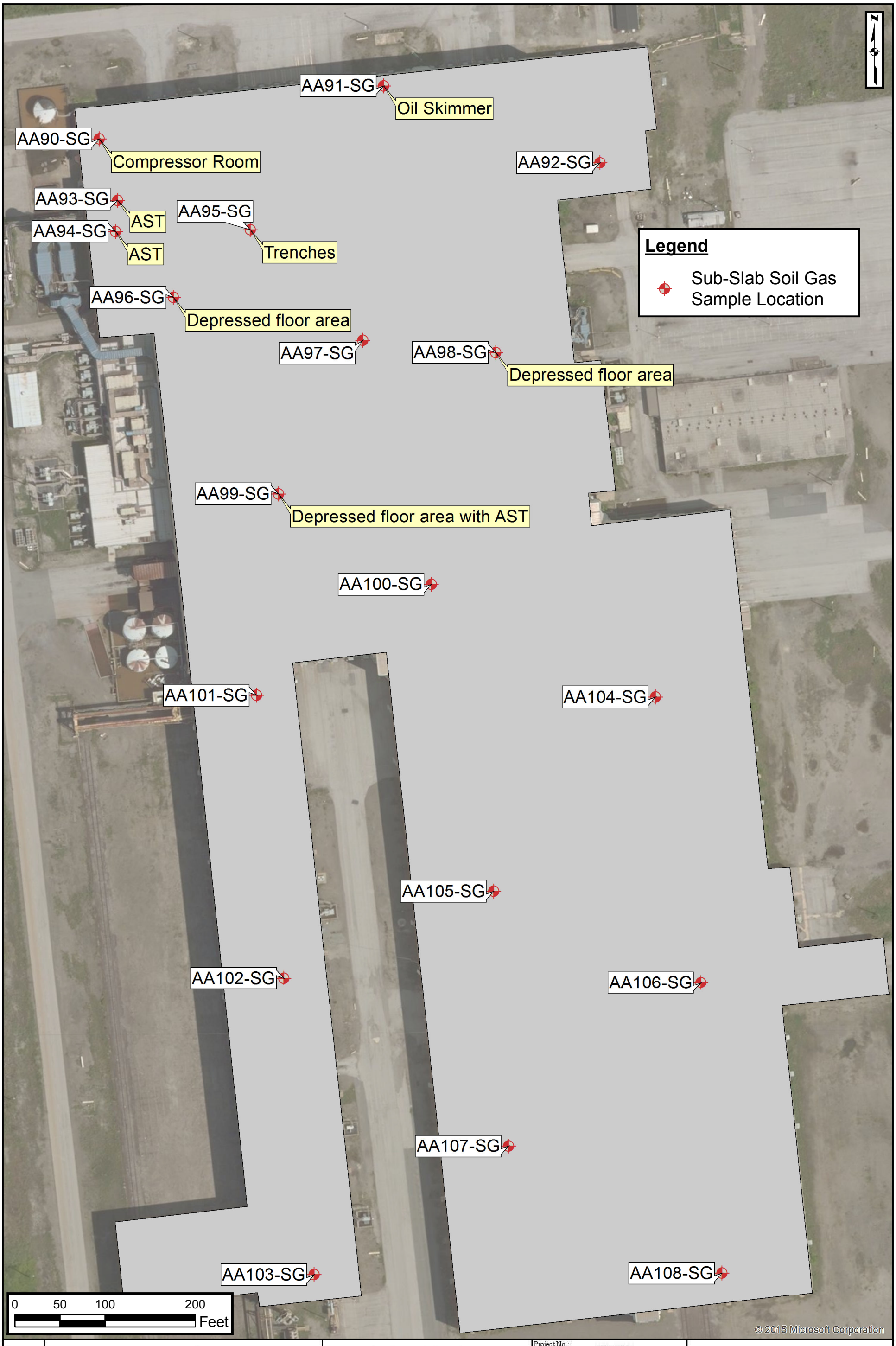

Figure 2	New Cold Mill Complex Sub-Slab Soil Gas Sample Locations March 30, 2015	EnviroAnalytics Group Building Occupancy Assessment	Project No.: M14152 designed ESM	ARM Group Inc. Earth Resource Engineers and Consultants
		Sparrows Point Baltimore County, MD	checked ESM drawn SCK	

TABLES

Building Occupancy Assessment - New Cold Mill Complex

Sub-Slab Soil Gas - Detection and Exceedance Report

Samples Collected - March 20, 2015

Parameter	Result	Unit	MDE Tier I	Exceeds Tier I?	MDE Tier II	Exceeds Tier II?
Sample: *AA100-SG*						
2-Butanone (MEK)	3.80	µg/m3	2,200,000	No	11,000,000	No
Acetone	33.00	µg/m3	14,000,000	No	70,000,000	No
Benzene	3.70	µg/m3	1,600	No	8,000	No
Bromodichloromethane	1.80	µg/m3	340	No	1,700	No
Carbon disulfide	31.80	µg/m3	310,000	No	1,550,000	No
Chloroform	13.30	µg/m3	540	No	2,700	No
Ethylbenzene	1.60	µg/m3	5,000	No	25,000	No
m&p-xylene	5.60	µg/m3	44,000	No	220,000	No
o-xylene	2.30	µg/m3	44,000	No	220,000	No
Styrene	1.10	µg/m3	440,000	No	2,200,000	No
Toluene	8.40	µg/m3	2,200,000	No	11,000,000	No

Parameter	Result	Unit	MDE Tier I	Exceeds Tier I?	MDE Tier II	Exceeds Tier II?
Sample:	*AA101-SG*					
2-Butanone (MEK)	4.10	µg/m3	2,200,000	No	11,000,000	No
Acetone	52.30	µg/m3	14,000,000	No	70,000,000	No
Benzene	3.60	µg/m3	1,600	No	8,000	No
Bromodichloromethane	1.90	µg/m3	340	No	1,700	No
Carbon disulfide	28.40	µg/m3	310,000	No	1,550,000	No
Chloroform	23.30	µg/m3	540	No	2,700	No
m&p-xylene	3.80	µg/m3	44,000	No	220,000	No
o-xylene	1.60	µg/m3	44,000	No	220,000	No
Toluene	6.00	µg/m3	2,200,000	No	11,000,000	No
Sample:	*AA102-SG*					
2-Butanone (MEK)	3.30	µg/m3	2,200,000	No	11,000,000	No
Acetone	33.00	µg/m3	14,000,000	No	70,000,000	No
Benzene	1.60	µg/m3	1,600	No	8,000	No
Carbon disulfide	4.60	µg/m3	310,000	No	1,550,000	No
Chloroform	15.30	µg/m3	540	No	2,700	No
m&p-xylene	4.30	µg/m3	44,000	No	220,000	No
o-xylene	1.80	µg/m3	44,000	No	220,000	No
Toluene	5.20	µg/m3	2,200,000	No	11,000,000	No

Parameter	Result	Unit	MDE Tier I	Exceeds Tier I?	MDE Tier II	Exceeds Tier II?
Sample:	*AA103-SG*					
2-Butanone (MEK)	3.00	µg/m3	2,200,000	No	11,000,000	No
Acetone	38.60	µg/m3	14,000,000	No	70,000,000	No
Benzene	1.00	µg/m3	1,600	No	8,000	No
Carbon disulfide	8.50	µg/m3	310,000	No	1,550,000	No
Chloroform	3.60	µg/m3	540	No	2,700	No
m&p-xylene	3.50	µg/m3	44,000	No	220,000	No
o-xylene	1.60	µg/m3	44,000	No	220,000	No
Toluene	3.70	µg/m3	2,200,000	No	11,000,000	No

Parameter	Result	Unit	MDE Tier I	Exceeds Tier I?	MDE Tier II	Exceeds Tier II?
Sample:	*AA104-SG*					
1,1-Dichloroethane	5.40	µg/m3	7,700	No	38,500	No
2-Butanone (MEK)	4.30	µg/m3	2,200,000	No	11,000,000	No
Acetone	33.70	µg/m3	14,000,000	No	70,000,000	No
Benzene	8.90	µg/m3	1,600	No	8,000	No
Carbon disulfide	174.00	µg/m3	310,000	No	1,550,000	No
Chloroethane	1.50	µg/m3	4,400,000	No	22,000,000	No
Chloroform	54.70	µg/m3	540	No	2,700	No
Chloromethane	10.90	µg/m3	40,000	No	200,000	No
Ethylbenzene	2.60	µg/m3	5,000	No	25,000	No
m&p-xylene	9.20	µg/m3	44,000	No	220,000	No
o-xylene	3.50	µg/m3	44,000	No	220,000	No
Toluene	9.30	µg/m3	2,200,000	No	11,000,000	No

Parameter	Result	Unit	MDE Tier I	Exceeds Tier I?	MDE Tier II	Exceeds Tier II?
Sample:	*AA105-SG*					
2-Butanone (MEK)	4.20	µg/m3	2,200,000	No	11,000,000	No
Acetone	91.50	µg/m3	14,000,000	No	70,000,000	No
Benzene	7.10	µg/m3	1,600	No	8,000	No
Bromodichloromethane	3.50	µg/m3	340	No	1,700	No
Carbon disulfide	21.20	µg/m3	310,000	No	1,550,000	No
Chloroform	49.10	µg/m3	540	No	2,700	No
Ethylbenzene	1.70	µg/m3	5,000	No	25,000	No
m&p-xylene	7.00	µg/m3	44,000	No	220,000	No
o-xylene	2.70	µg/m3	44,000	No	220,000	No
Toluene	14.20	µg/m3	2,200,000	No	11,000,000	No

Parameter	Result	Unit	MDE Tier I	Exceeds Tier I?	MDE Tier II	Exceeds Tier II?
Sample:	*AA106-SG*					
2-Butanone (MEK)	3.30	µg/m3	2,200,000	No	11,000,000	No
Acetone	25.40	µg/m3	14,000,000	No	70,000,000	No
Benzene	1.80	µg/m3	1,600	No	8,000	No
Bromodichloromethane	2.50	µg/m3	340	No	1,700	No
Carbon disulfide	16.20	µg/m3	310,000	No	1,550,000	No
Chloroform	24.90	µg/m3	540	No	2,700	No
Ethylbenzene	1.70	µg/m3	5,000	No	25,000	No
m&p-xylene	6.50	µg/m3	44,000	No	220,000	No
o-xylene	2.60	µg/m3	44,000	No	220,000	No
Toluene	6.90	µg/m3	2,200,000	No	11,000,000	No

Parameter	Result	Unit	MDE Tier I	Exceeds Tier I?	MDE Tier II	Exceeds Tier II?
Sample:	*AA107-SG*					
2-Butanone (MEK)	2.10	µg/m3	2,200,000	No	11,000,000	No
Acetone	40.70	µg/m3	14,000,000	No	70,000,000	No
Benzene	1.70	µg/m3	1,600	No	8,000	No
Carbon disulfide	20.30	µg/m3	310,000	No	1,550,000	No
Chloroform	21.50	µg/m3	540	No	2,700	No
Ethylbenzene	1.40	µg/m3	5,000	No	25,000	No
m&p-xylene	5.50	µg/m3	44,000	No	220,000	No
o-xylene	2.30	µg/m3	44,000	No	220,000	No
Toluene	7.20	µg/m3	2,200,000	No	11,000,000	No
Sample:	*AA108-SG*					
2-Butanone (MEK)	3.70	µg/m3	2,200,000	No	11,000,000	No
Acetone	44.20	µg/m3	14,000,000	No	70,000,000	No
Benzene	1.40	µg/m3	1,600	No	8,000	No
Carbon disulfide	8.60	µg/m3	310,000	No	1,550,000	No
Chloroform	13.00	µg/m3	540	No	2,700	No
Ethylbenzene	1.60	µg/m3	5,000	No	25,000	No
m&p-xylene	6.90	µg/m3	44,000	No	220,000	No
o-xylene	2.90	µg/m3	44,000	No	220,000	No
Toluene	5.50	µg/m3	2,200,000	No	11,000,000	No

Parameter	Result	Unit	MDE Tier I	Exceeds Tier I?	MDE Tier II	Exceeds Tier II?
Sample:	*AA90-SG*					
2-Butanone (MEK)	8.30	µg/m3	2,200,000	No	11,000,000	No
Acetone	72.50	µg/m3	14,000,000	No	70,000,000	No
Benzene	1.70	µg/m3	1,600	No	8,000	No
Carbon disulfide	7.20	µg/m3	310,000	No	1,550,000	No
Chloroform	15.80	µg/m3	540	No	2,700	No
Toluene	5.90	µg/m3	2,200,000	No	11,000,000	No
Sample:	*AA91-SG*					
2-Butanone (MEK)	5.50	µg/m3	2,200,000	No	11,000,000	No
Acetone	58.70	µg/m3	14,000,000	No	70,000,000	No
Benzene	5.80	µg/m3	1,600	No	8,000	No
Bromodichloromethane	6.00	µg/m3	340	No	1,700	No
Bromomethane	1.20	µg/m3	2,200	No	11,000	No
Carbon disulfide	138.00	µg/m3	310,000	No	1,550,000	No
Chloroform	143.00	µg/m3	540	No	2,700	No
Chloromethane	1.60	µg/m3	40,000	No	200,000	No
Ethylbenzene	1.20	µg/m3	5,000	No	25,000	No
m&p-xylene	4.50	µg/m3	44,000	No	220,000	No
o-xylene	1.90	µg/m3	44,000	No	220,000	No
Toluene	6.60	µg/m3	2,200,000	No	11,000,000	No

Parameter	Result	Unit	MDE Tier I	Exceeds Tier I?	MDE Tier II	Exceeds Tier II?
Sample:	*AA92-SG*					
2-Butanone (MEK)	5.10	µg/m3	2,200,000	No	11,000,000	No
Acetone	48.20	µg/m3	14,000,000	No	70,000,000	No
Benzene	2.60	µg/m3	1,600	No	8,000	No
Bromodichloromethane	6.80	µg/m3	340	No	1,700	No
Carbon disulfide	19.60	µg/m3	310,000	No	1,550,000	No
Chloroform	124.00	µg/m3	540	No	2,700	No
Ethylbenzene	1.30	µg/m3	5,000	No	25,000	No
m&p-xylene	4.80	µg/m3	44,000	No	220,000	No
o-xylene	2.10	µg/m3	44,000	No	220,000	No
Toluene	6.10	µg/m3	2,200,000	No	11,000,000	No
Sample:	*AA93-SG*					
2-Butanone (MEK)	2.20	µg/m3	2,200,000	No	11,000,000	No
Acetone	17.50	µg/m3	14,000,000	No	70,000,000	No
Benzene	0.52	µg/m3	1,600	No	8,000	No
Carbon disulfide	9.40	µg/m3	310,000	No	1,550,000	No
Chloroform	2.90	µg/m3	540	No	2,700	No
Toluene	1.40	µg/m3	2,200,000	No	11,000,000	No

Parameter	Result	Unit	MDE Tier I	Exceeds Tier I?	MDE Tier II	Exceeds Tier II?
Sample:	*AA94-SG*					
2-Butanone (MEK)	5.60	µg/m3	2,200,000	No	11,000,000	No
Acetone	55.60	µg/m3	14,000,000	No	70,000,000	No
Benzene	4.80	µg/m3	1,600	No	8,000	No
Bromodichloromethane	5.00	µg/m3	340	No	1,700	No
Carbon disulfide	197.00	µg/m3	310,000	No	1,550,000	No
Chloroform	139.00	µg/m3	540	No	2,700	No
Chloromethane	1.90	µg/m3	40,000	No	200,000	No
Ethylbenzene	1.30	µg/m3	5,000	No	25,000	No
m&p-xylene	4.90	µg/m3	44,000	No	220,000	No
o-xylene	2.20	µg/m3	44,000	No	220,000	No
Toluene	6.10	µg/m3	2,200,000	No	11,000,000	No

Parameter	Result	Unit	MDE Tier I	Exceeds Tier I?	MDE Tier II	Exceeds Tier II?
Sample:	*AA95-SG*					
2-Butanone (MEK)	9.10	µg/m3	2,200,000	No	11,000,000	No
Acetone	117.00	µg/m3	14,000,000	No	70,000,000	No
Benzene	2.00	µg/m3	1,600	No	8,000	No
Bromodichloromethane	4.40	µg/m3	340	No	1,700	No
Carbon disulfide	52.00	µg/m3	310,000	No	1,550,000	No
Chloroform	99.30	µg/m3	540	No	2,700	No
Ethylbenzene	1.20	µg/m3	5,000	No	25,000	No
m&p-xylene	4.20	µg/m3	44,000	No	220,000	No
o-xylene	1.20	µg/m3	44,000	No	220,000	No
Toluene	4.60	µg/m3	2,200,000	No	11,000,000	No

Parameter	Result	Unit	MDE Tier I	Exceeds Tier I?	MDE Tier II	Exceeds Tier II?
Sample:	*AA96-SG*					
2-Butanone (MEK)	4.10	µg/m3	2,200,000	No	11,000,000	No
Acetone	44.80	µg/m3	14,000,000	No	70,000,000	No
Benzene	3.20	µg/m3	1,600	No	8,000	No
Bromodichloromethane	2.20	µg/m3	340	No	1,700	No
Carbon disulfide	22.80	µg/m3	310,000	No	1,550,000	No
Chloroform	40.80	µg/m3	540	No	2,700	No
m&p-xylene	4.20	µg/m3	44,000	No	220,000	No
o-xylene	1.70	µg/m3	44,000	No	220,000	No
Toluene	8.60	µg/m3	2,200,000	No	11,000,000	No
Sample:	*AA97-SG*					
2-Butanone (MEK)	5.80	µg/m3	2,200,000	No	11,000,000	No
Acetone	49.60	µg/m3	14,000,000	No	70,000,000	No
Benzene	3.50	µg/m3	1,600	No	8,000	No
Carbon disulfide	157.00	µg/m3	310,000	No	1,550,000	No
Chloroform	97.20	µg/m3	540	No	2,700	No
Ethylbenzene	1.40	µg/m3	5,000	No	25,000	No
m&p-xylene	4.80	µg/m3	44,000	No	220,000	No
o-xylene	2.00	µg/m3	44,000	No	220,000	No
Toluene	6.40	µg/m3	2,200,000	No	11,000,000	No

Parameter	Result	Unit	MDE Tier I	Exceeds Tier I?	MDE Tier II	Exceeds Tier II?
Sample:	*AA98-SG*					
2-Butanone (MEK)	56.20	µg/m3	2,200,000	No	11,000,000	No
Acetone	188.00	µg/m3	14,000,000	No	70,000,000	No
Benzene	2.50	µg/m3	1,600	No	8,000	No
Carbon disulfide	9.40	µg/m3	310,000	No	1,550,000	No
Chloroform	23.60	µg/m3	540	No	2,700	No
Toluene	55.70	µg/m3	2,200,000	No	11,000,000	No
Sample:	*AA99-SG*					
2-Butanone (MEK)	5.00	µg/m3	2,200,000	No	11,000,000	No
Acetone	39.40	µg/m3	14,000,000	No	70,000,000	No
Benzene	3.60	µg/m3	1,600	No	8,000	No
Bromodichloromethane	3.00	µg/m3	340	No	1,700	No
Carbon disulfide	4.60	µg/m3	310,000	No	1,550,000	No
Chloroform	66.00	µg/m3	540	No	2,700	No
m&p-xylene	4.30	µg/m3	44,000	No	220,000	No
o-xylene	1.90	µg/m3	44,000	No	220,000	No
Toluene	5.30	µg/m3	2,200,000	No	11,000,000	No

ATTACHMENT 1

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

April 10, 2015

James Calenda
Environmental Liability Transfer
1430 Sparrows Point Blvd
Sparrows Point, MD 21219

RE: Project: NCM BOA
Pace Project No.: 10300341

Dear James Calenda:
Enclosed are the analytical results for sample(s) received by the laboratory on March 23, 2015. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

This project was revised to match desired VOC list, per client's request. -NB3 4/1/15

This project was revised to include EDB to the final report

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Nathan Boberg
nathan.boberg@pacelabs.com
Project Manager

Enclosures

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

CERTIFICATIONS

Project: NCM BOA
Pace Project No.: 10300341

Minnesota Certification IDs

1700 Elm Street SE Suite 200, Minneapolis, MN 55414
A2LA Certification #: 2926.01
Alaska Certification #: UST-078
Alaska Certification #MN00064
Alabama Certification #40770
Arizona Certification #: AZ-0014
Arkansas Certification #: 88-0680
California Certification #: 01155CA
Colorado Certification #Pace
Connecticut Certification #: PH-0256
EPA Region 8 Certification #: 8TMS-L
Florida/NELAP Certification #: E87605
Guam Certification #:14-008r
Georgia Certification #: 959
Georgia EPD #: Pace
Idaho Certification #: MN00064
Hawaii Certification #MN00064
Illinois Certification #: 200011
Indiana Certification#C-MN-01
Iowa Certification #: 368
Kansas Certification #: E-10167
Kentucky Dept of Envi. Protection - DW #90062
Kentucky Dept of Envi. Protection - WW #:90062
Louisiana DEQ Certification #: 3086
Louisiana DHH #: LA140001
Maine Certification #: 2013011
Maryland Certification #: 322
Michigan DEPH Certification #: 9909
Minnesota Certification #: 027-053-137
Mississippi Certification #: Pace
Montana Certification #: MT0092
Nevada Certification #: MN_00064
Nebraska Certification #: Pace
New Jersey Certification #: MN-002
New York Certification #: 11647
North Carolina Certification #: 530
North Carolina State Public Health #: 27700
North Dakota Certification #: R-036
Ohio EPA #: 4150
Ohio VAP Certification #: CL101
Oklahoma Certification #: 9507
Oregon Certification #: MN200001
Oregon Certification #: MN300001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification
Saipan (CNMI) #:MP0003
South Carolina #:74003001
Texas Certification #: T104704192
Tennessee Certification #: 02818
Utah Certification #: MN000642013-4
Virginia DGS Certification #: 251
Virginia/VELAP Certification #: Pace
Washington Certification #: C486
West Virginia Certification #: 382
West Virginia DHHR #:9952C
Wisconsin Certification #: 999407970

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SAMPLE SUMMARY

Project: NCM BOA
Pace Project No.: 10300341

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10300341001	**AA108-SG**	Air	03/20/15 09:35	03/23/15 08:50
10300341002	**AA106-SG**	Air	03/20/15 09:37	03/23/15 08:50
10300341003	**AA107-SG**	Air	03/20/15 09:38	03/23/15 08:50
10300341004	**AA105-SG**	Air	03/20/15 09:39	03/23/15 08:50
10300341005	**AA104-SG**	Air	03/20/15 09:41	03/23/15 08:50
10300341006	**AA100-SG**	Air	03/20/15 09:43	03/23/15 08:50
10300341007	**AA97-SG**	Air	03/20/15 09:45	03/23/15 08:50
10300341008	**AA98-SG**	Air	03/20/15 09:46	03/23/15 08:50
10300341009	**AA92-SG**	Air	03/20/15 09:47	03/23/15 08:50
10300341010	**AA91-SG**	Air	03/20/15 09:49	03/23/15 08:50
10300341011	**AA90-SG**	Air	03/20/15 09:50	03/23/15 08:50
10300341012	**AA93-SG**	Air	03/20/15 09:51	03/23/15 08:50
10300341013	**AA94-SG**	Air	03/20/15 09:51	03/23/15 08:50
10300341014	**AA96-SG**	Air	03/20/15 09:52	03/23/15 08:50
10300341015	**AA99-SG**	Air	03/20/15 09:53	03/23/15 08:50
10300341016	**AA101-SG**	Air	03/20/15 09:54	03/23/15 08:50
10300341017	**AA102-SG**	Air	03/20/15 09:56	03/23/15 08:50
10300341018	**AA103-SG**	Air	03/20/15 09:57	03/23/15 08:50
10300341019	**AA95-SG**	Air	03/21/15 11:30	03/23/15 08:50

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
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(612)607-1700

SAMPLE ANALYTE COUNT

Project: NCM BOA
Pace Project No.: 10300341

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10300341001	**AA108-SG**	TO-15	MLS	37	PASI-M
10300341002	**AA106-SG**	TO-15	MLS	37	PASI-M
10300341003	**AA107-SG**	TO-15	MLS	37	PASI-M
10300341004	**AA105-SG**	TO-15	MLS	37	PASI-M
10300341005	**AA104-SG**	TO-15	MLS	37	PASI-M
10300341006	**AA100-SG**	TO-15	MLS	37	PASI-M
10300341007	**AA97-SG**	TO-15	MLS	37	PASI-M
10300341008	**AA98-SG**	TO-15	MLS	37	PASI-M
10300341009	**AA92-SG**	TO-15	MLS	37	PASI-M
10300341010	**AA91-SG**	TO-15	MLS	37	PASI-M
10300341011	**AA90-SG**	TO-15	MLS	37	PASI-M
10300341012	**AA93-SG**	TO-15	MLS	37	PASI-M
10300341013	**AA94-SG**	TO-15	MLS	37	PASI-M
10300341014	**AA96-SG**	TO-15	MLS	37	PASI-M
10300341015	**AA99-SG**	TO-15	MLS	37	PASI-M
10300341016	**AA101-SG**	TO-15	MLS	37	PASI-M
10300341017	**AA102-SG**	TO-15	MLS	37	PASI-M
10300341018	**AA103-SG**	TO-15	MLS	37	PASI-M
10300341019	**AA95-SG**	TO-15	MLS	37	PASI-M

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PROJECT NARRATIVE

Project: NCM BOA
Pace Project No.: 10300341

Method: **TO-15**
Description: TO15 MSV AIR
Client: Enviro Analytics Group
Date: April 10, 2015

General Information:
19 samples were analyzed for TO-15. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

QC Batch: AIR/22835

IQ: The internal standard recoveries associated with this sample exceed the lower control limit. The reported results should be considered estimated values.

- AA108-SG (Lab ID: 10300341001)
- AA93-SG (Lab ID: 10300341012)

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

QC Batch: AIR/22835

R1: RPD value was outside control limits.

- DUP (Lab ID: 1926218)
  - Acetone

Additional Comments:

Analyte Comments:

QC Batch: AIR/22835

E: Analyte concentration exceeded the calibration range. The reported result is estimated.

- AA105-SG (Lab ID: 10300341004)
  - Acetone
- AA95-SG (Lab ID: 10300341019)
  - Acetone

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PROJECT NARRATIVE

Project: NCM BOA
Pace Project No.: 10300341

Method: **TO-15**
Description: TO15 MSV AIR
Client: Enviro Analytics Group
Date: April 10, 2015

Analyte Comments:

QC Batch: AIR/22835

E: Analyte concentration exceeded the calibration range. The reported result is estimated.

- DUP (Lab ID: 1926218)
  - Carbon disulfide
  - Acetone

This data package has been reviewed for quality and completeness and is approved for release.

Pace Analytical Services, Inc.
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ANALYTICAL RESULTS

Project: NCM BOA
Pace Project No.: 10300341

Sample: AA108-SG **Lab ID: 10300341001** Collected: 03/20/15 09:35 Received: 03/23/15 08:50 Matrix: Air

Parameters	Results	Units	PQL	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15							
Acetone	**44.2**	ug/m3	3.5	1.44		03/25/15 15:34	67-64-1	
Benzene	**1.4**	ug/m3	0.47	1.44		03/25/15 15:34	71-43-2	
Bromodichloromethane	**1.2J**	ug/m3	2.0	1.44		03/25/15 15:34	75-27-4	
Bromoform	**<0.47**	ug/m3	7.6	1.44		03/25/15 15:34	75-25-2	
Bromomethane	**<0.39**	ug/m3	1.1	1.44		03/25/15 15:34	74-83-9	
2-Butanone (MEK)	**3.7**	ug/m3	0.86	1.44		03/25/15 15:34	78-93-3	
Carbon disulfide	**8.6**	ug/m3	0.91	1.44		03/25/15 15:34	75-15-0	
Carbon tetrachloride	**<0.46**	ug/m3	0.92	1.44		03/25/15 15:34	56-23-5	
Chlorobenzene	**<0.15**	ug/m3	1.4	1.44		03/25/15 15:34	108-90-7	
Chloroethane	**<0.23**	ug/m3	0.78	1.44		03/25/15 15:34	75-00-3	
Chloroform	**13.0**	ug/m3	0.71	1.44		03/25/15 15:34	67-66-3	
Chloromethane	**<0.28**	ug/m3	0.60	1.44		03/25/15 15:34	74-87-3	
Dibromochloromethane	**<1.2**	ug/m3	2.5	1.44		03/25/15 15:34	124-48-1	
1,2-Dibromoethane (EDB)	**<0.34**	ug/m3	2.2	1.44		03/25/15 15:34	106-93-4	
1,1-Dichloroethane	**<0.20**	ug/m3	1.2	1.44		03/25/15 15:34	75-34-3	
1,2-Dichloroethane	**<0.17**	ug/m3	0.59	1.44		03/25/15 15:34	107-06-2	
1,1-Dichloroethene	**<0.15**	ug/m3	1.2	1.44		03/25/15 15:34	75-35-4	
cis-1,2-Dichloroethene	**<0.28**	ug/m3	2.9	1.44		03/25/15 15:34	156-59-2	
trans-1,2-Dichloroethene	**<0.23**	ug/m3	1.2	1.44		03/25/15 15:34	156-60-5	
1,2-Dichloropropane	**<0.22**	ug/m3	1.4	1.44		03/25/15 15:34	78-87-5	
cis-1,3-Dichloropropene	**<0.20**	ug/m3	1.3	1.44		03/25/15 15:34	10061-01-5	
trans-1,3-Dichloropropene	**<0.22**	ug/m3	1.3	1.44		03/25/15 15:34	10061-02-6	
Ethylbenzene	**1.6**	ug/m3	1.3	1.44		03/25/15 15:34	100-41-4	
Isopropylbenzene (Cumene)	**<0.72**	ug/m3	3.6	1.44		03/25/15 15:34	98-82-8	
Methylene Chloride	**<0.33**	ug/m3	5.1	1.44		03/25/15 15:34	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<0.25**	ug/m3	3.0	1.44		03/25/15 15:34	108-10-1	
Methyl-tert-butyl ether	**<0.13**	ug/m3	1.1	1.44		03/25/15 15:34	1634-04-4	
Styrene	**0.95J**	ug/m3	1.3	1.44		03/25/15 15:34	100-42-5	
1,1,2,2-Tetrachloroethane	**<0.34**	ug/m3	1.0	1.44		03/25/15 15:34	79-34-5	
Tetrachloroethene	**<0.27**	ug/m3	0.99	1.44		03/25/15 15:34	127-18-4	
Toluene	**5.5**	ug/m3	1.1	1.44		03/25/15 15:34	108-88-3	
1,1,1-Trichloroethane	**<0.20**	ug/m3	1.0	1.44		03/25/15 15:34	71-55-6	
1,1,2-Trichloroethane	**<0.35**	ug/m3	0.80	1.44		03/25/15 15:34	79-00-5	
Trichloroethene	**<0.26**	ug/m3	0.79	1.44		03/25/15 15:34	79-01-6	
Vinyl chloride	**<0.13**	ug/m3	0.37	1.44		03/25/15 15:34	75-01-4	
m&p-Xylene	**6.9**	ug/m3	2.5	1.44		03/25/15 15:34	179601-23-1	
o-Xylene	**2.9**	ug/m3	1.3	1.44		03/25/15 15:34	95-47-6	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: NCM BOA
Pace Project No.: 10300341

Sample: AA106-SG **Lab ID: 10300341002** Collected: 03/20/15 09:37 Received: 03/23/15 08:50 Matrix: Air

Parameters	Results	Units	PQL	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15							
Acetone	**25.4**	ug/m3	3.4	1.39		03/25/15 16:02	67-64-1	
Benzene	**1.8**	ug/m3	0.45	1.39		03/25/15 16:02	71-43-2	
Bromodichloromethane	**2.5**	ug/m3	1.9	1.39		03/25/15 16:02	75-27-4	
Bromoform	**<0.45**	ug/m3	7.3	1.39		03/25/15 16:02	75-25-2	
Bromomethane	**<0.38**	ug/m3	1.1	1.39		03/25/15 16:02	74-83-9	
2-Butanone (MEK)	**3.3**	ug/m3	0.83	1.39		03/25/15 16:02	78-93-3	
Carbon disulfide	**16.2**	ug/m3	0.88	1.39		03/25/15 16:02	75-15-0	
Carbon tetrachloride	**<0.44**	ug/m3	0.89	1.39		03/25/15 16:02	56-23-5	
Chlorobenzene	**<0.15**	ug/m3	1.3	1.39		03/25/15 16:02	108-90-7	
Chloroethane	**<0.22**	ug/m3	0.75	1.39		03/25/15 16:02	75-00-3	
Chloroform	**24.9**	ug/m3	0.69	1.39		03/25/15 16:02	67-66-3	
Chloromethane	**<0.27**	ug/m3	0.58	1.39		03/25/15 16:02	74-87-3	
Dibromochloromethane	**<1.2**	ug/m3	2.4	1.39		03/25/15 16:02	124-48-1	
1,2-Dibromoethane (EDB)	**<0.33**	ug/m3	2.2	1.39		03/25/15 16:02	106-93-4	
1,1-Dichloroethane	**<0.19**	ug/m3	1.1	1.39		03/25/15 16:02	75-34-3	
1,2-Dichloroethane	**<0.17**	ug/m3	0.57	1.39		03/25/15 16:02	107-06-2	
1,1-Dichloroethene	**<0.14**	ug/m3	1.1	1.39		03/25/15 16:02	75-35-4	
cis-1,2-Dichloroethene	**<0.27**	ug/m3	2.8	1.39		03/25/15 16:02	156-59-2	
trans-1,2-Dichloroethene	**<0.23**	ug/m3	1.1	1.39		03/25/15 16:02	156-60-5	
1,2-Dichloropropane	**<0.21**	ug/m3	1.3	1.39		03/25/15 16:02	78-87-5	
cis-1,3-Dichloropropene	**<0.19**	ug/m3	1.3	1.39		03/25/15 16:02	10061-01-5	
trans-1,3-Dichloropropene	**<0.21**	ug/m3	1.3	1.39		03/25/15 16:02	10061-02-6	
Ethylbenzene	**1.7**	ug/m3	1.2	1.39		03/25/15 16:02	100-41-4	
Isopropylbenzene (Cumene)	**<0.70**	ug/m3	3.5	1.39		03/25/15 16:02	98-82-8	
Methylene Chloride	**1.8J**	ug/m3	4.9	1.39		03/25/15 16:02	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<0.24**	ug/m3	2.9	1.39		03/25/15 16:02	108-10-1	
Methyl-tert-butyl ether	**<0.12**	ug/m3	1.0	1.39		03/25/15 16:02	1634-04-4	
Styrene	**<0.19**	ug/m3	1.2	1.39		03/25/15 16:02	100-42-5	
1,1,2,2-Tetrachloroethane	**<0.32**	ug/m3	0.97	1.39		03/25/15 16:02	79-34-5	
Tetrachloroethene	**<0.26**	ug/m3	0.96	1.39		03/25/15 16:02	127-18-4	
Toluene	**6.9**	ug/m3	1.1	1.39		03/25/15 16:02	108-88-3	
1,1,1-Trichloroethane	**<0.19**	ug/m3	0.97	1.39		03/25/15 16:02	71-55-6	
1,1,2-Trichloroethane	**<0.34**	ug/m3	0.77	1.39		03/25/15 16:02	79-00-5	
Trichloroethene	**<0.25**	ug/m3	0.76	1.39		03/25/15 16:02	79-01-6	
Vinyl chloride	**<0.13**	ug/m3	0.36	1.39		03/25/15 16:02	75-01-4	
m&p-Xylene	**6.5**	ug/m3	2.4	1.39		03/25/15 16:02	179601-23-1	
o-Xylene	**2.6**	ug/m3	1.2	1.39		03/25/15 16:02	95-47-6	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
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ANALYTICAL RESULTS

Project: NCM BOA
Pace Project No.: 10300341

Sample: AA107-SG **Lab ID: 10300341003** Collected: 03/20/15 09:38 Received: 03/23/15 08:50 Matrix: Air

Parameters	Results	Units	PQL	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15							
Acetone	**40.7**	ug/m3	3.5	1.44		03/25/15 16:30	67-64-1	
Benzene	**1.7**	ug/m3	0.47	1.44		03/25/15 16:30	71-43-2	
Bromodichloromethane	**1.6J**	ug/m3	2.0	1.44		03/25/15 16:30	75-27-4	
Bromoform	**<0.47**	ug/m3	7.6	1.44		03/25/15 16:30	75-25-2	
Bromomethane	**<0.39**	ug/m3	1.1	1.44		03/25/15 16:30	74-83-9	
2-Butanone (MEK)	**2.1**	ug/m3	0.86	1.44		03/25/15 16:30	78-93-3	
Carbon disulfide	**20.3**	ug/m3	0.91	1.44		03/25/15 16:30	75-15-0	
Carbon tetrachloride	**<0.46**	ug/m3	0.92	1.44		03/25/15 16:30	56-23-5	
Chlorobenzene	**<0.15**	ug/m3	1.4	1.44		03/25/15 16:30	108-90-7	
Chloroethane	**<0.23**	ug/m3	0.78	1.44		03/25/15 16:30	75-00-3	
Chloroform	**21.5**	ug/m3	0.71	1.44		03/25/15 16:30	67-66-3	
Chloromethane	**0.37J**	ug/m3	0.60	1.44		03/25/15 16:30	74-87-3	
Dibromochloromethane	**<1.2**	ug/m3	2.5	1.44		03/25/15 16:30	124-48-1	
1,2-Dibromoethane (EDB)	**<0.34**	ug/m3	2.2	1.44		03/25/15 16:30	106-93-4	
1,1-Dichloroethane	**<0.20**	ug/m3	1.2	1.44		03/25/15 16:30	75-34-3	
1,2-Dichloroethane	**<0.17**	ug/m3	0.59	1.44		03/25/15 16:30	107-06-2	
1,1-Dichloroethene	**<0.15**	ug/m3	1.2	1.44		03/25/15 16:30	75-35-4	
cis-1,2-Dichloroethene	**<0.28**	ug/m3	2.9	1.44		03/25/15 16:30	156-59-2	
trans-1,2-Dichloroethene	**<0.23**	ug/m3	1.2	1.44		03/25/15 16:30	156-60-5	
1,2-Dichloropropane	**<0.22**	ug/m3	1.4	1.44		03/25/15 16:30	78-87-5	
cis-1,3-Dichloropropene	**<0.20**	ug/m3	1.3	1.44		03/25/15 16:30	10061-01-5	
trans-1,3-Dichloropropene	**<0.22**	ug/m3	1.3	1.44		03/25/15 16:30	10061-02-6	
Ethylbenzene	**1.4**	ug/m3	1.3	1.44		03/25/15 16:30	100-41-4	
Isopropylbenzene (Cumene)	**<0.72**	ug/m3	3.6	1.44		03/25/15 16:30	98-82-8	
Methylene Chloride	**<0.33**	ug/m3	5.1	1.44		03/25/15 16:30	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<0.25**	ug/m3	3.0	1.44		03/25/15 16:30	108-10-1	
Methyl-tert-butyl ether	**<0.13**	ug/m3	1.1	1.44		03/25/15 16:30	1634-04-4	
Styrene	**0.89J**	ug/m3	1.3	1.44		03/25/15 16:30	100-42-5	
1,1,2,2-Tetrachloroethane	**<0.34**	ug/m3	1.0	1.44		03/25/15 16:30	79-34-5	
Tetrachloroethene	**<0.27**	ug/m3	0.99	1.44		03/25/15 16:30	127-18-4	
Toluene	**7.2**	ug/m3	1.1	1.44		03/25/15 16:30	108-88-3	
1,1,1-Trichloroethane	**<0.20**	ug/m3	1.0	1.44		03/25/15 16:30	71-55-6	
1,1,2-Trichloroethane	**<0.35**	ug/m3	0.80	1.44		03/25/15 16:30	79-00-5	
Trichloroethene	**<0.26**	ug/m3	0.79	1.44		03/25/15 16:30	79-01-6	
Vinyl chloride	**<0.13**	ug/m3	0.37	1.44		03/25/15 16:30	75-01-4	
m&p-Xylene	**5.5**	ug/m3	2.5	1.44		03/25/15 16:30	179601-23-1	
o-Xylene	**2.3**	ug/m3	1.3	1.44		03/25/15 16:30	95-47-6	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: NCM BOA
Pace Project No.: 10300341

Sample: AA105-SG **Lab ID: 10300341004** Collected: 03/20/15 09:39 Received: 03/23/15 08:50 Matrix: Air

Parameters	Results	Units	PQL	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15							
Acetone	**91.5**	ug/m3	3.2	1.34		03/25/15 16:57	67-64-1	E
Benzene	**7.1**	ug/m3	0.44	1.34		03/25/15 16:57	71-43-2	
Bromodichloromethane	**3.5**	ug/m3	1.8	1.34		03/25/15 16:57	75-27-4	
Bromoform	**<0.43**	ug/m3	7.0	1.34		03/25/15 16:57	75-25-2	
Bromomethane	**<0.36**	ug/m3	1.1	1.34		03/25/15 16:57	74-83-9	
2-Butanone (MEK)	**4.2**	ug/m3	0.80	1.34		03/25/15 16:57	78-93-3	
Carbon disulfide	**21.2**	ug/m3	0.84	1.34		03/25/15 16:57	75-15-0	
Carbon tetrachloride	**<0.43**	ug/m3	0.86	1.34		03/25/15 16:57	56-23-5	
Chlorobenzene	**<0.14**	ug/m3	1.3	1.34		03/25/15 16:57	108-90-7	
Chloroethane	**<0.22**	ug/m3	0.72	1.34		03/25/15 16:57	75-00-3	
Chloroform	**49.1**	ug/m3	0.66	1.34		03/25/15 16:57	67-66-3	
Chloromethane	**0.36J**	ug/m3	0.56	1.34		03/25/15 16:57	74-87-3	
Dibromochloromethane	**<1.2**	ug/m3	2.3	1.34		03/25/15 16:57	124-48-1	
1,2-Dibromoethane (EDB)	**<0.31**	ug/m3	2.1	1.34		03/25/15 16:57	106-93-4	
1,1-Dichloroethane	**<0.19**	ug/m3	1.1	1.34		03/25/15 16:57	75-34-3	
1,2-Dichloroethane	**<0.16**	ug/m3	0.55	1.34		03/25/15 16:57	107-06-2	
1,1-Dichloroethene	**<0.14**	ug/m3	1.1	1.34		03/25/15 16:57	75-35-4	
cis-1,2-Dichloroethene	**<0.26**	ug/m3	2.7	1.34		03/25/15 16:57	156-59-2	
trans-1,2-Dichloroethene	**<0.22**	ug/m3	1.1	1.34		03/25/15 16:57	156-60-5	
1,2-Dichloropropane	**<0.20**	ug/m3	1.3	1.34		03/25/15 16:57	78-87-5	
cis-1,3-Dichloropropene	**<0.18**	ug/m3	1.2	1.34		03/25/15 16:57	10061-01-5	
trans-1,3-Dichloropropene	**<0.20**	ug/m3	1.2	1.34		03/25/15 16:57	10061-02-6	
Ethylbenzene	**1.7**	ug/m3	1.2	1.34		03/25/15 16:57	100-41-4	
Isopropylbenzene (Cumene)	**<0.67**	ug/m3	3.4	1.34		03/25/15 16:57	98-82-8	
Methylene Chloride	**1.1J**	ug/m3	4.7	1.34		03/25/15 16:57	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<0.23**	ug/m3	2.8	1.34		03/25/15 16:57	108-10-1	
Methyl-tert-butyl ether	**<0.12**	ug/m3	0.98	1.34		03/25/15 16:57	1634-04-4	
Styrene	**0.85J**	ug/m3	1.2	1.34		03/25/15 16:57	100-42-5	
1,1,2,2-Tetrachloroethane	**<0.31**	ug/m3	0.94	1.34		03/25/15 16:57	79-34-5	
Tetrachloroethene	**<0.25**	ug/m3	0.92	1.34		03/25/15 16:57	127-18-4	
Toluene	**14.2**	ug/m3	1.0	1.34		03/25/15 16:57	108-88-3	
1,1,1-Trichloroethane	**<0.19**	ug/m3	0.94	1.34		03/25/15 16:57	71-55-6	
1,1,2-Trichloroethane	**<0.33**	ug/m3	0.74	1.34		03/25/15 16:57	79-00-5	
Trichloroethene	**<0.24**	ug/m3	0.73	1.34		03/25/15 16:57	79-01-6	
Vinyl chloride	**<0.12**	ug/m3	0.35	1.34		03/25/15 16:57	75-01-4	
m&p-Xylene	**7.0**	ug/m3	2.4	1.34		03/25/15 16:57	179601-23-1	
o-Xylene	**2.7**	ug/m3	1.2	1.34		03/25/15 16:57	95-47-6	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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ANALYTICAL RESULTS

Project: NCM BOA
Pace Project No.: 10300341

Sample: AA104-SG **Lab ID: 10300341005** Collected: 03/20/15 09:41 Received: 03/23/15 08:50 Matrix: Air

Parameters	Results	Units	PQL	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15							
Acetone	**33.7**	ug/m3	3.4	1.39		03/25/15 17:26	67-64-1	
Benzene	**8.9**	ug/m3	0.45	1.39		03/25/15 17:26	71-43-2	
Bromodichloromethane	**1.5J**	ug/m3	1.9	1.39		03/25/15 17:26	75-27-4	
Bromoform	**<0.45**	ug/m3	7.3	1.39		03/25/15 17:26	75-25-2	
Bromomethane	**<0.38**	ug/m3	1.1	1.39		03/25/15 17:26	74-83-9	
2-Butanone (MEK)	**4.3**	ug/m3	0.83	1.39		03/25/15 17:26	78-93-3	
Carbon disulfide	**174**	ug/m3	17.5	27.8		03/27/15 09:01	75-15-0	
Carbon tetrachloride	**<0.44**	ug/m3	0.89	1.39		03/25/15 17:26	56-23-5	
Chlorobenzene	**<0.15**	ug/m3	1.3	1.39		03/25/15 17:26	108-90-7	
Chloroethane	**1.5**	ug/m3	0.75	1.39		03/25/15 17:26	75-00-3	
Chloroform	**54.7**	ug/m3	0.69	1.39		03/25/15 17:26	67-66-3	
Chloromethane	**10.9**	ug/m3	0.58	1.39		03/25/15 17:26	74-87-3	
Dibromochloromethane	**<1.2**	ug/m3	2.4	1.39		03/25/15 17:26	124-48-1	
1,2-Dibromoethane (EDB)	**<0.33**	ug/m3	2.2	1.39		03/25/15 17:26	106-93-4	
1,1-Dichloroethane	**5.4**	ug/m3	1.1	1.39		03/25/15 17:26	75-34-3	
1,2-Dichloroethane	**<0.17**	ug/m3	0.57	1.39		03/25/15 17:26	107-06-2	
1,1-Dichloroethene	**<0.14**	ug/m3	1.1	1.39		03/25/15 17:26	75-35-4	
cis-1,2-Dichloroethene	**<0.27**	ug/m3	2.8	1.39		03/25/15 17:26	156-59-2	
trans-1,2-Dichloroethene	**<0.23**	ug/m3	1.1	1.39		03/25/15 17:26	156-60-5	
1,2-Dichloropropane	**<0.21**	ug/m3	1.3	1.39		03/25/15 17:26	78-87-5	
cis-1,3-Dichloropropene	**<0.19**	ug/m3	1.3	1.39		03/25/15 17:26	10061-01-5	
trans-1,3-Dichloropropene	**<0.21**	ug/m3	1.3	1.39		03/25/15 17:26	10061-02-6	
Ethylbenzene	**2.6**	ug/m3	1.2	1.39		03/25/15 17:26	100-41-4	
Isopropylbenzene (Cumene)	**<0.70**	ug/m3	3.5	1.39		03/25/15 17:26	98-82-8	
Methylene Chloride	**3.5J**	ug/m3	4.9	1.39		03/25/15 17:26	75-09-2	
4-Methyl-2-pentanone (MIBK)	**1.0J**	ug/m3	2.9	1.39		03/25/15 17:26	108-10-1	
Methyl-tert-butyl ether	**<0.12**	ug/m3	1.0	1.39		03/25/15 17:26	1634-04-4	
Styrene	**0.94J**	ug/m3	1.2	1.39		03/25/15 17:26	100-42-5	
1,1,2,2-Tetrachloroethane	**<0.32**	ug/m3	0.97	1.39		03/25/15 17:26	79-34-5	
Tetrachloroethene	**0.71J**	ug/m3	0.96	1.39		03/25/15 17:26	127-18-4	
Toluene	**9.3**	ug/m3	1.1	1.39		03/25/15 17:26	108-88-3	
1,1,1-Trichloroethane	**<0.19**	ug/m3	0.97	1.39		03/25/15 17:26	71-55-6	
1,1,2-Trichloroethane	**<0.34**	ug/m3	0.77	1.39		03/25/15 17:26	79-00-5	
Trichloroethene	**<0.25**	ug/m3	0.76	1.39		03/25/15 17:26	79-01-6	
Vinyl chloride	**<0.13**	ug/m3	0.36	1.39		03/25/15 17:26	75-01-4	
m&p-Xylene	**9.2**	ug/m3	2.4	1.39		03/25/15 17:26	179601-23-1	
o-Xylene	**3.5**	ug/m3	1.2	1.39		03/25/15 17:26	95-47-6	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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ANALYTICAL RESULTS

Project: NCM BOA
Pace Project No.: 10300341

Sample: AA100-SG **Lab ID: 10300341006** Collected: 03/20/15 09:43 Received: 03/23/15 08:50 Matrix: Air

Parameters	Results	Units	PQL	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15							
Acetone	**33.0**	ug/m3	3.0	1.26		03/25/15 17:53	67-64-1	
Benzene	**3.7**	ug/m3	0.41	1.26		03/25/15 17:53	71-43-2	
Bromodichloromethane	**1.8**	ug/m3	1.7	1.26		03/25/15 17:53	75-27-4	
Bromoform	**<0.41**	ug/m3	6.6	1.26		03/25/15 17:53	75-25-2	
Bromomethane	**<0.34**	ug/m3	1.0	1.26		03/25/15 17:53	74-83-9	
2-Butanone (MEK)	**3.8**	ug/m3	0.76	1.26		03/25/15 17:53	78-93-3	
Carbon disulfide	**31.8**	ug/m3	0.79	1.26		03/25/15 17:53	75-15-0	
Carbon tetrachloride	**<0.40**	ug/m3	0.81	1.26		03/25/15 17:53	56-23-5	
Chlorobenzene	**<0.13**	ug/m3	1.2	1.26		03/25/15 17:53	108-90-7	
Chloroethane	**<0.20**	ug/m3	0.68	1.26		03/25/15 17:53	75-00-3	
Chloroform	**13.3**	ug/m3	0.62	1.26		03/25/15 17:53	67-66-3	
Chloromethane	**<0.24**	ug/m3	0.53	1.26		03/25/15 17:53	74-87-3	
Dibromochloromethane	**<1.1**	ug/m3	2.2	1.26		03/25/15 17:53	124-48-1	
1,2-Dibromoethane (EDB)	**<0.29**	ug/m3	2.0	1.26		03/25/15 17:53	106-93-4	
1,1-Dichloroethane	**<0.18**	ug/m3	1.0	1.26		03/25/15 17:53	75-34-3	
1,2-Dichloroethane	**<0.15**	ug/m3	0.52	1.26		03/25/15 17:53	107-06-2	
1,1-Dichloroethene	**<0.13**	ug/m3	1.0	1.26		03/25/15 17:53	75-35-4	
cis-1,2-Dichloroethene	**<0.25**	ug/m3	2.5	1.26		03/25/15 17:53	156-59-2	
trans-1,2-Dichloroethene	**<0.21**	ug/m3	1.0	1.26		03/25/15 17:53	156-60-5	
1,2-Dichloropropane	**<0.19**	ug/m3	1.2	1.26		03/25/15 17:53	78-87-5	
cis-1,3-Dichloropropene	**<0.17**	ug/m3	1.2	1.26		03/25/15 17:53	10061-01-5	
trans-1,3-Dichloropropene	**<0.19**	ug/m3	1.2	1.26		03/25/15 17:53	10061-02-6	
Ethylbenzene	**1.6**	ug/m3	1.1	1.26		03/25/15 17:53	100-41-4	
Isopropylbenzene (Cumene)	**<0.63**	ug/m3	3.2	1.26		03/25/15 17:53	98-82-8	
Methylene Chloride	**1.7J**	ug/m3	4.4	1.26		03/25/15 17:53	75-09-2	
4-Methyl-2-pentanone (MIBK)	**0.52J**	ug/m3	2.6	1.26		03/25/15 17:53	108-10-1	
Methyl-tert-butyl ether	**<0.11**	ug/m3	0.92	1.26		03/25/15 17:53	1634-04-4	
Styrene	**1.1**	ug/m3	1.1	1.26		03/25/15 17:53	100-42-5	
1,1,2,2-Tetrachloroethane	**<0.29**	ug/m3	0.88	1.26		03/25/15 17:53	79-34-5	
Tetrachloroethene	**<0.24**	ug/m3	0.87	1.26		03/25/15 17:53	127-18-4	
Toluene	**8.4**	ug/m3	0.97	1.26		03/25/15 17:53	108-88-3	
1,1,1-Trichloroethane	**<0.18**	ug/m3	0.88	1.26		03/25/15 17:53	71-55-6	
1,1,2-Trichloroethane	**<0.31**	ug/m3	0.70	1.26		03/25/15 17:53	79-00-5	
Trichloroethene	**<0.22**	ug/m3	0.69	1.26		03/25/15 17:53	79-01-6	
Vinyl chloride	**<0.12**	ug/m3	0.33	1.26		03/25/15 17:53	75-01-4	
m&p-Xylene	**5.6**	ug/m3	2.2	1.26		03/25/15 17:53	179601-23-1	
o-Xylene	**2.3**	ug/m3	1.1	1.26		03/25/15 17:53	95-47-6	

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ANALYTICAL RESULTS

Project: NCM BOA
Pace Project No.: 10300341

Sample: AA97-SG **Lab ID: 10300341007** Collected: 03/20/15 09:45 Received: 03/23/15 08:50 Matrix: Air

Parameters	Results	Units	PQL	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15							
Acetone	**49.6**	ug/m3	33.6	13.9		03/27/15 10:11	67-64-1	
Benzene	**3.5**	ug/m3	0.45	1.39		03/25/15 18:21	71-43-2	
Bromodichloromethane	**1.9J**	ug/m3	1.9	1.39		03/25/15 18:21	75-27-4	
Bromoform	**<0.45**	ug/m3	7.3	1.39		03/25/15 18:21	75-25-2	
Bromomethane	**0.58J**	ug/m3	1.1	1.39		03/25/15 18:21	74-83-9	
2-Butanone (MEK)	**5.8**	ug/m3	0.83	1.39		03/25/15 18:21	78-93-3	
Carbon disulfide	**157**	ug/m3	8.8	13.9		03/27/15 10:11	75-15-0	
Carbon tetrachloride	**<0.44**	ug/m3	0.89	1.39		03/25/15 18:21	56-23-5	
Chlorobenzene	**<0.15**	ug/m3	1.3	1.39		03/25/15 18:21	108-90-7	
Chloroethane	**<0.22**	ug/m3	0.75	1.39		03/25/15 18:21	75-00-3	
Chloroform	**97.2**	ug/m3	0.69	1.39		03/25/15 18:21	67-66-3	
Chloromethane	**<0.27**	ug/m3	0.58	1.39		03/25/15 18:21	74-87-3	
Dibromochloromethane	**<1.2**	ug/m3	2.4	1.39		03/25/15 18:21	124-48-1	
1,2-Dibromoethane (EDB)	**<0.33**	ug/m3	2.2	1.39		03/25/15 18:21	106-93-4	
1,1-Dichloroethane	**<0.19**	ug/m3	1.1	1.39		03/25/15 18:21	75-34-3	
1,2-Dichloroethane	**<0.17**	ug/m3	0.57	1.39		03/25/15 18:21	107-06-2	
1,1-Dichloroethene	**<0.14**	ug/m3	1.1	1.39		03/25/15 18:21	75-35-4	
cis-1,2-Dichloroethene	**<0.27**	ug/m3	2.8	1.39		03/25/15 18:21	156-59-2	
trans-1,2-Dichloroethene	**<0.23**	ug/m3	1.1	1.39		03/25/15 18:21	156-60-5	
1,2-Dichloropropane	**<0.21**	ug/m3	1.3	1.39		03/25/15 18:21	78-87-5	
cis-1,3-Dichloropropene	**<0.19**	ug/m3	1.3	1.39		03/25/15 18:21	10061-01-5	
trans-1,3-Dichloropropene	**<0.21**	ug/m3	1.3	1.39		03/25/15 18:21	10061-02-6	
Ethylbenzene	**1.4**	ug/m3	1.2	1.39		03/25/15 18:21	100-41-4	
Isopropylbenzene (Cumene)	**<0.70**	ug/m3	3.5	1.39		03/25/15 18:21	98-82-8	
Methylene Chloride	**1.8J**	ug/m3	4.9	1.39		03/25/15 18:21	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<0.24**	ug/m3	2.9	1.39		03/25/15 18:21	108-10-1	
Methyl-tert-butyl ether	**<0.12**	ug/m3	1.0	1.39		03/25/15 18:21	1634-04-4	
Styrene	**0.84J**	ug/m3	1.2	1.39		03/25/15 18:21	100-42-5	
1,1,2,2-Tetrachloroethane	**<0.32**	ug/m3	0.97	1.39		03/25/15 18:21	79-34-5	
Tetrachloroethene	**<0.26**	ug/m3	0.96	1.39		03/25/15 18:21	127-18-4	
Toluene	**6.4**	ug/m3	1.1	1.39		03/25/15 18:21	108-88-3	
1,1,1-Trichloroethane	**<0.19**	ug/m3	0.97	1.39		03/25/15 18:21	71-55-6	
1,1,2-Trichloroethane	**<0.34**	ug/m3	0.77	1.39		03/25/15 18:21	79-00-5	
Trichloroethene	**<0.25**	ug/m3	0.76	1.39		03/25/15 18:21	79-01-6	
Vinyl chloride	**<0.13**	ug/m3	0.36	1.39		03/25/15 18:21	75-01-4	
m&p-Xylene	**4.8**	ug/m3	2.4	1.39		03/25/15 18:21	179601-23-1	
o-Xylene	**2.0**	ug/m3	1.2	1.39		03/25/15 18:21	95-47-6	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
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ANALYTICAL RESULTS

Project: NCM BOA
Pace Project No.: 10300341

Sample: AA98-SG **Lab ID: 10300341008** Collected: 03/20/15 09:46 Received: 03/23/15 08:50 Matrix: Air

Parameters	Results	Units	PQL	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15							
Acetone	**188**	ug/m3	8.9	3.67		03/25/15 19:20	67-64-1	
Benzene	**2.5**	ug/m3	1.2	3.67		03/25/15 19:20	71-43-2	
Bromodichloromethane	**<0.67**	ug/m3	5.0	3.67		03/25/15 19:20	75-27-4	
Bromoform	**<1.2**	ug/m3	19.3	3.67		03/25/15 19:20	75-25-2	
Bromomethane	**<0.99**	ug/m3	2.9	3.67		03/25/15 19:20	74-83-9	
2-Butanone (MEK)	**56.2**	ug/m3	2.2	3.67		03/25/15 19:20	78-93-3	
Carbon disulfide	**9.4**	ug/m3	2.3	3.67		03/25/15 19:20	75-15-0	
Carbon tetrachloride	**<1.2**	ug/m3	2.3	3.67		03/25/15 19:20	56-23-5	
Chlorobenzene	**<0.39**	ug/m3	3.4	3.67		03/25/15 19:20	108-90-7	
Chloroethane	**<0.59**	ug/m3	2.0	3.67		03/25/15 19:20	75-00-3	
Chloroform	**23.6**	ug/m3	1.8	3.67		03/25/15 19:20	67-66-3	
Chloromethane	**<0.70**	ug/m3	1.5	3.67		03/25/15 19:20	74-87-3	
Dibromochloromethane	**<3.2**	ug/m3	6.3	3.67		03/25/15 19:20	124-48-1	
1,2-Dibromoethane (EDB)	**<0.86**	ug/m3	5.7	3.67		03/25/15 19:20	106-93-4	
1,1-Dichloroethane	**<0.51**	ug/m3	3.0	3.67		03/25/15 19:20	75-34-3	
1,2-Dichloroethane	**<0.44**	ug/m3	1.5	3.67		03/25/15 19:20	107-06-2	
1,1-Dichloroethene	**<0.38**	ug/m3	3.0	3.67		03/25/15 19:20	75-35-4	
cis-1,2-Dichloroethene	**<0.72**	ug/m3	7.4	3.67		03/25/15 19:20	156-59-2	
trans-1,2-Dichloroethene	**<0.60**	ug/m3	3.0	3.67		03/25/15 19:20	156-60-5	
1,2-Dichloropropane	**<0.56**	ug/m3	3.4	3.67		03/25/15 19:20	78-87-5	
cis-1,3-Dichloropropene	**<0.50**	ug/m3	3.4	3.67		03/25/15 19:20	10061-01-5	
trans-1,3-Dichloropropene	**<0.55**	ug/m3	3.4	3.67		03/25/15 19:20	10061-02-6	
Ethylbenzene	**1.8J**	ug/m3	3.2	3.67		03/25/15 19:20	100-41-4	
Isopropylbenzene (Cumene)	**<1.8**	ug/m3	9.2	3.67		03/25/15 19:20	98-82-8	
Methylene Chloride	**6.6J**	ug/m3	13.0	3.67		03/25/15 19:20	75-09-2	
4-Methyl-2-pentanone (MIBK)	**4.5J**	ug/m3	7.6	3.67		03/25/15 19:20	108-10-1	
Methyl-tert-butyl ether	**<0.33**	ug/m3	2.7	3.67		03/25/15 19:20	1634-04-4	
Styrene	**<0.50**	ug/m3	3.2	3.67		03/25/15 19:20	100-42-5	
1,1,2,2-Tetrachloroethane	**<0.86**	ug/m3	2.6	3.67		03/25/15 19:20	79-34-5	
Tetrachloroethene	**<0.69**	ug/m3	2.5	3.67		03/25/15 19:20	127-18-4	
Toluene	**55.7**	ug/m3	2.8	3.67		03/25/15 19:20	108-88-3	
1,1,1-Trichloroethane	**<0.51**	ug/m3	2.6	3.67		03/25/15 19:20	71-55-6	
1,1,2-Trichloroethane	**<0.89**	ug/m3	2.0	3.67		03/25/15 19:20	79-00-5	
Trichloroethene	**<0.65**	ug/m3	2.0	3.67		03/25/15 19:20	79-01-6	
Vinyl chloride	**<0.34**	ug/m3	0.95	3.67		03/25/15 19:20	75-01-4	
m&p-Xylene	**6.4J**	ug/m3	6.5	3.67		03/25/15 19:20	179601-23-1	
o-Xylene	**2.6J**	ug/m3	3.2	3.67		03/25/15 19:20	95-47-6	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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ANALYTICAL RESULTS

Project: NCM BOA
Pace Project No.: 10300341

Sample: AA92-SG **Lab ID: 10300341009** Collected: 03/20/15 09:47 Received: 03/23/15 08:50 Matrix: Air

Parameters	Results	Units	PQL	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15							
Acetone	**48.2**	ug/m3	3.0	1.26		03/25/15 20:21	67-64-1	
Benzene	**2.6**	ug/m3	0.41	1.26		03/25/15 20:21	71-43-2	
Bromodichloromethane	**6.8**	ug/m3	1.7	1.26		03/25/15 20:21	75-27-4	
Bromoform	**<0.41**	ug/m3	6.6	1.26		03/25/15 20:21	75-25-2	
Bromomethane	**<0.34**	ug/m3	1.0	1.26		03/25/15 20:21	74-83-9	
2-Butanone (MEK)	**5.1**	ug/m3	0.76	1.26		03/25/15 20:21	78-93-3	
Carbon disulfide	**19.6**	ug/m3	0.79	1.26		03/25/15 20:21	75-15-0	
Carbon tetrachloride	**<0.40**	ug/m3	0.81	1.26		03/25/15 20:21	56-23-5	
Chlorobenzene	**<0.13**	ug/m3	1.2	1.26		03/25/15 20:21	108-90-7	
Chloroethane	**<0.20**	ug/m3	0.68	1.26		03/25/15 20:21	75-00-3	
Chloroform	**124**	ug/m3	0.62	1.26		03/25/15 20:21	67-66-3	
Chloromethane	**0.42J**	ug/m3	0.53	1.26		03/25/15 20:21	74-87-3	
Dibromochloromethane	**<1.1**	ug/m3	2.2	1.26		03/25/15 20:21	124-48-1	
1,2-Dibromoethane (EDB)	**<0.29**	ug/m3	2.0	1.26		03/25/15 20:21	106-93-4	
1,1-Dichloroethane	**<0.18**	ug/m3	1.0	1.26		03/25/15 20:21	75-34-3	
1,2-Dichloroethane	**<0.15**	ug/m3	0.52	1.26		03/25/15 20:21	107-06-2	
1,1-Dichloroethene	**<0.13**	ug/m3	1.0	1.26		03/25/15 20:21	75-35-4	
cis-1,2-Dichloroethene	**<0.25**	ug/m3	2.5	1.26		03/25/15 20:21	156-59-2	
trans-1,2-Dichloroethene	**<0.21**	ug/m3	1.0	1.26		03/25/15 20:21	156-60-5	
1,2-Dichloropropane	**<0.19**	ug/m3	1.2	1.26		03/25/15 20:21	78-87-5	
cis-1,3-Dichloropropene	**<0.17**	ug/m3	1.2	1.26		03/25/15 20:21	10061-01-5	
trans-1,3-Dichloropropene	**<0.19**	ug/m3	1.2	1.26		03/25/15 20:21	10061-02-6	
Ethylbenzene	**1.3**	ug/m3	1.1	1.26		03/25/15 20:21	100-41-4	
Isopropylbenzene (Cumene)	**<0.63**	ug/m3	3.2	1.26		03/25/15 20:21	98-82-8	
Methylene Chloride	**1.7J**	ug/m3	4.4	1.26		03/25/15 20:21	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<0.22**	ug/m3	2.6	1.26		03/25/15 20:21	108-10-1	
Methyl-tert-butyl ether	**<0.11**	ug/m3	0.92	1.26		03/25/15 20:21	1634-04-4	
Styrene	**0.80J**	ug/m3	1.1	1.26		03/25/15 20:21	100-42-5	
1,1,2,2-Tetrachloroethane	**<0.29**	ug/m3	0.88	1.26		03/25/15 20:21	79-34-5	
Tetrachloroethene	**<0.24**	ug/m3	0.87	1.26		03/25/15 20:21	127-18-4	
Toluene	**6.1**	ug/m3	0.97	1.26		03/25/15 20:21	108-88-3	
1,1,1-Trichloroethane	**<0.18**	ug/m3	0.88	1.26		03/25/15 20:21	71-55-6	
1,1,2-Trichloroethane	**<0.31**	ug/m3	0.70	1.26		03/25/15 20:21	79-00-5	
Trichloroethene	**<0.22**	ug/m3	0.69	1.26		03/25/15 20:21	79-01-6	
Vinyl chloride	**<0.12**	ug/m3	0.33	1.26		03/25/15 20:21	75-01-4	
m&p-Xylene	**4.8**	ug/m3	2.2	1.26		03/25/15 20:21	179601-23-1	
o-Xylene	**2.1**	ug/m3	1.1	1.26		03/25/15 20:21	95-47-6	

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ANALYTICAL RESULTS

Project: NCM BOA
Pace Project No.: 10300341

Sample: AA91-SG **Lab ID: 10300341010** Collected: 03/20/15 09:49 Received: 03/23/15 08:50 Matrix: Air

Parameters	Results	Units	PQL	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15							
Acetone	**58.7**	ug/m3	3.0	1.26		03/25/15 20:54	67-64-1	
Benzene	**5.8**	ug/m3	0.41	1.26		03/25/15 20:54	71-43-2	
Bromodichloromethane	**6.0**	ug/m3	1.7	1.26		03/25/15 20:54	75-27-4	
Bromoform	**<0.41**	ug/m3	6.6	1.26		03/25/15 20:54	75-25-2	
Bromomethane	**1.2**	ug/m3	1.0	1.26		03/25/15 20:54	74-83-9	
2-Butanone (MEK)	**5.5**	ug/m3	0.76	1.26		03/25/15 20:54	78-93-3	
Carbon disulfide	**138**	ug/m3	7.9	12.61		03/27/15 09:48	75-15-0	
Carbon tetrachloride	**0.73J**	ug/m3	0.81	1.26		03/25/15 20:54	56-23-5	
Chlorobenzene	**<0.13**	ug/m3	1.2	1.26		03/25/15 20:54	108-90-7	
Chloroethane	**<0.20**	ug/m3	0.68	1.26		03/25/15 20:54	75-00-3	
Chloroform	**143**	ug/m3	6.3	12.61		03/27/15 09:48	67-66-3	
Chloromethane	**1.6**	ug/m3	0.53	1.26		03/25/15 20:54	74-87-3	
Dibromochloromethane	**<1.1**	ug/m3	2.2	1.26		03/25/15 20:54	124-48-1	
1,2-Dibromoethane (EDB)	**<0.29**	ug/m3	2.0	1.26		03/25/15 20:54	106-93-4	
1,1-Dichloroethane	**<0.18**	ug/m3	1.0	1.26		03/25/15 20:54	75-34-3	
1,2-Dichloroethane	**<0.15**	ug/m3	0.52	1.26		03/25/15 20:54	107-06-2	
1,1-Dichloroethene	**<0.13**	ug/m3	1.0	1.26		03/25/15 20:54	75-35-4	
cis-1,2-Dichloroethene	**<0.25**	ug/m3	2.5	1.26		03/25/15 20:54	156-59-2	
trans-1,2-Dichloroethene	**<0.21**	ug/m3	1.0	1.26		03/25/15 20:54	156-60-5	
1,2-Dichloropropane	**<0.19**	ug/m3	1.2	1.26		03/25/15 20:54	78-87-5	
cis-1,3-Dichloropropene	**<0.17**	ug/m3	1.2	1.26		03/25/15 20:54	10061-01-5	
trans-1,3-Dichloropropene	**<0.19**	ug/m3	1.2	1.26		03/25/15 20:54	10061-02-6	
Ethylbenzene	**1.2**	ug/m3	1.1	1.26		03/25/15 20:54	100-41-4	
Isopropylbenzene (Cumene)	**<0.63**	ug/m3	3.2	1.26		03/25/15 20:54	98-82-8	
Methylene Chloride	**1.6J**	ug/m3	4.4	1.26		03/25/15 20:54	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<0.22**	ug/m3	2.6	1.26		03/25/15 20:54	108-10-1	
Methyl-tert-butyl ether	**<0.11**	ug/m3	0.92	1.26		03/25/15 20:54	1634-04-4	
Styrene	**0.82J**	ug/m3	1.1	1.26		03/25/15 20:54	100-42-5	
1,1,2,2-Tetrachloroethane	**<0.29**	ug/m3	0.88	1.26		03/25/15 20:54	79-34-5	
Tetrachloroethene	**<0.24**	ug/m3	0.87	1.26		03/25/15 20:54	127-18-4	
Toluene	**6.6**	ug/m3	0.97	1.26		03/25/15 20:54	108-88-3	
1,1,1-Trichloroethane	**<0.18**	ug/m3	0.88	1.26		03/25/15 20:54	71-55-6	
1,1,2-Trichloroethane	**<0.31**	ug/m3	0.70	1.26		03/25/15 20:54	79-00-5	
Trichloroethene	**<0.22**	ug/m3	0.69	1.26		03/25/15 20:54	79-01-6	
Vinyl chloride	**<0.12**	ug/m3	0.33	1.26		03/25/15 20:54	75-01-4	
m&p-Xylene	**4.5**	ug/m3	2.2	1.26		03/25/15 20:54	179601-23-1	
o-Xylene	**1.9**	ug/m3	1.1	1.26		03/25/15 20:54	95-47-6	

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ANALYTICAL RESULTS

Project: NCM BOA
Pace Project No.: 10300341

Sample: AA90-SG **Lab ID: 10300341011** Collected: 03/20/15 09:50 Received: 03/23/15 08:50 Matrix: Air

Parameters	Results	Units	PQL	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15							
Acetone	**72.5**	ug/m3	9.8	4.04		03/25/15 21:26	67-64-1	
Benzene	**1.7**	ug/m3	1.3	4.04		03/25/15 21:26	71-43-2	
Bromodichloromethane	**<0.74**	ug/m3	5.5	4.04		03/25/15 21:26	75-27-4	
Bromoform	**<1.3**	ug/m3	21.2	4.04		03/25/15 21:26	75-25-2	
Bromomethane	**<1.1**	ug/m3	3.2	4.04		03/25/15 21:26	74-83-9	
2-Butanone (MEK)	**8.3**	ug/m3	2.4	4.04		03/25/15 21:26	78-93-3	
Carbon disulfide	**7.2**	ug/m3	2.5	4.04		03/25/15 21:26	75-15-0	
Carbon tetrachloride	**<1.3**	ug/m3	2.6	4.04		03/25/15 21:26	56-23-5	
Chlorobenzene	**<0.43**	ug/m3	3.8	4.04		03/25/15 21:26	108-90-7	
Chloroethane	**<0.65**	ug/m3	2.2	4.04		03/25/15 21:26	75-00-3	
Chloroform	**15.8**	ug/m3	2.0	4.04		03/25/15 21:26	67-66-3	
Chloromethane	**<0.78**	ug/m3	1.7	4.04		03/25/15 21:26	74-87-3	
Dibromochloromethane	**<3.5**	ug/m3	7.0	4.04		03/25/15 21:26	124-48-1	
1,2-Dibromoethane (EDB)	**<0.95**	ug/m3	6.3	4.04		03/25/15 21:26	106-93-4	
1,1-Dichloroethane	**<0.57**	ug/m3	3.3	4.04		03/25/15 21:26	75-34-3	
1,2-Dichloroethane	**<0.48**	ug/m3	1.7	4.04		03/25/15 21:26	107-06-2	
1,1-Dichloroethene	**<0.42**	ug/m3	3.3	4.04		03/25/15 21:26	75-35-4	
cis-1,2-Dichloroethene	**<0.79**	ug/m3	8.1	4.04		03/25/15 21:26	156-59-2	
trans-1,2-Dichloroethene	**<0.66**	ug/m3	3.3	4.04		03/25/15 21:26	156-60-5	
1,2-Dichloropropane	**<0.61**	ug/m3	3.8	4.04		03/25/15 21:26	78-87-5	
cis-1,3-Dichloropropene	**<0.55**	ug/m3	3.7	4.04		03/25/15 21:26	10061-01-5	
trans-1,3-Dichloropropene	**<0.61**	ug/m3	3.7	4.04		03/25/15 21:26	10061-02-6	
Ethylbenzene	**<0.72**	ug/m3	3.6	4.04		03/25/15 21:26	100-41-4	
Isopropylbenzene (Cumene)	**<2.0**	ug/m3	10.1	4.04		03/25/15 21:26	98-82-8	
Methylene Chloride	**4.3J**	ug/m3	14.3	4.04		03/25/15 21:26	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<0.69**	ug/m3	8.4	4.04		03/25/15 21:26	108-10-1	
Methyl-tert-butyl ether	**<0.36**	ug/m3	2.9	4.04		03/25/15 21:26	1634-04-4	
Styrene	**<0.55**	ug/m3	3.5	4.04		03/25/15 21:26	100-42-5	
1,1,2,2-Tetrachloroethane	**<0.94**	ug/m3	2.8	4.04		03/25/15 21:26	79-34-5	
Tetrachloroethene	**<0.76**	ug/m3	2.8	4.04		03/25/15 21:26	127-18-4	
Toluene	**5.9**	ug/m3	3.1	4.04		03/25/15 21:26	108-88-3	
1,1,1-Trichloroethane	**<0.56**	ug/m3	2.8	4.04		03/25/15 21:26	71-55-6	
1,1,2-Trichloroethane	**<0.98**	ug/m3	2.2	4.04		03/25/15 21:26	79-00-5	
Trichloroethene	**<0.72**	ug/m3	2.2	4.04		03/25/15 21:26	79-01-6	
Vinyl chloride	**<0.38**	ug/m3	1.1	4.04		03/25/15 21:26	75-01-4	
m&p-Xylene	**3.9J**	ug/m3	7.1	4.04		03/25/15 21:26	179601-23-1	
o-Xylene	**1.9J**	ug/m3	3.6	4.04		03/25/15 21:26	95-47-6	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: NCM BOA
Pace Project No.: 10300341

Sample: AA93-SG **Lab ID: 10300341012** Collected: 03/20/15 09:51 Received: 03/23/15 08:50 Matrix: Air

Parameters	Results	Units	PQL	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15							
Acetone	**17.5**	ug/m3	3.4	1.39		03/25/15 21:59	67-64-1	
Benzene	**0.52**	ug/m3	0.45	1.39		03/25/15 21:59	71-43-2	
Bromodichloromethane	**<0.25**	ug/m3	1.9	1.39		03/25/15 21:59	75-27-4	
Bromoform	**<0.45**	ug/m3	7.3	1.39		03/25/15 21:59	75-25-2	
Bromomethane	**<0.38**	ug/m3	1.1	1.39		03/25/15 21:59	74-83-9	
2-Butanone (MEK)	**2.2**	ug/m3	0.83	1.39		03/25/15 21:59	78-93-3	
Carbon disulfide	**9.4**	ug/m3	0.88	1.39		03/25/15 21:59	75-15-0	
Carbon tetrachloride	**<0.44**	ug/m3	0.89	1.39		03/25/15 21:59	56-23-5	
Chlorobenzene	**<0.15**	ug/m3	1.3	1.39		03/25/15 21:59	108-90-7	
Chloroethane	**<0.22**	ug/m3	0.75	1.39		03/25/15 21:59	75-00-3	
Chloroform	**2.9**	ug/m3	0.69	1.39		03/25/15 21:59	67-66-3	
Chloromethane	**<0.27**	ug/m3	0.58	1.39		03/25/15 21:59	74-87-3	
Dibromochloromethane	**<1.2**	ug/m3	2.4	1.39		03/25/15 21:59	124-48-1	
1,2-Dibromoethane (EDB)	**<0.33**	ug/m3	2.2	1.39		03/25/15 21:59	106-93-4	
1,1-Dichloroethane	**<0.19**	ug/m3	1.1	1.39		03/25/15 21:59	75-34-3	
1,2-Dichloroethane	**<0.17**	ug/m3	0.57	1.39		03/25/15 21:59	107-06-2	
1,1-Dichloroethene	**<0.14**	ug/m3	1.1	1.39		03/25/15 21:59	75-35-4	
cis-1,2-Dichloroethene	**<0.27**	ug/m3	2.8	1.39		03/25/15 21:59	156-59-2	
trans-1,2-Dichloroethene	**<0.23**	ug/m3	1.1	1.39		03/25/15 21:59	156-60-5	
1,2-Dichloropropane	**<0.21**	ug/m3	1.3	1.39		03/25/15 21:59	78-87-5	
cis-1,3-Dichloropropene	**<0.19**	ug/m3	1.3	1.39		03/25/15 21:59	10061-01-5	
trans-1,3-Dichloropropene	**<0.21**	ug/m3	1.3	1.39		03/25/15 21:59	10061-02-6	
Ethylbenzene	**<0.25**	ug/m3	1.2	1.39		03/25/15 21:59	100-41-4	
Isopropylbenzene (Cumene)	**<0.70**	ug/m3	3.5	1.39		03/25/15 21:59	98-82-8	
Methylene Chloride	**<0.32**	ug/m3	4.9	1.39		03/25/15 21:59	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<0.24**	ug/m3	2.9	1.39		03/25/15 21:59	108-10-1	
Methyl-tert-butyl ether	**<0.12**	ug/m3	1.0	1.39		03/25/15 21:59	1634-04-4	
Styrene	**<0.19**	ug/m3	1.2	1.39		03/25/15 21:59	100-42-5	
1,1,2,2-Tetrachloroethane	**<0.32**	ug/m3	0.97	1.39		03/25/15 21:59	79-34-5	
Tetrachloroethene	**<0.26**	ug/m3	0.96	1.39		03/25/15 21:59	127-18-4	
Toluene	**1.4**	ug/m3	1.1	1.39		03/25/15 21:59	108-88-3	
1,1,1-Trichloroethane	**<0.19**	ug/m3	0.97	1.39		03/25/15 21:59	71-55-6	
1,1,2-Trichloroethane	**<0.34**	ug/m3	0.77	1.39		03/25/15 21:59	79-00-5	
Trichloroethene	**<0.25**	ug/m3	0.76	1.39		03/25/15 21:59	79-01-6	
Vinyl chloride	**<0.13**	ug/m3	0.36	1.39		03/25/15 21:59	75-01-4	
m&p-Xylene	**0.87J**	ug/m3	2.4	1.39		03/25/15 21:59	179601-23-1	
o-Xylene	**<0.61**	ug/m3	1.2	1.39		03/25/15 21:59	95-47-6	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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Minneapolis, MN 55414
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ANALYTICAL RESULTS

Project: NCM BOA
Pace Project No.: 10300341

Sample: AA94-SG **Lab ID: 10300341013** Collected: 03/20/15 09:51 Received: 03/23/15 08:50 Matrix: Air

Parameters	Results	Units	PQL	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15							
Acetone	**55.6**	ug/m3	3.4	1.39		03/25/15 22:29	67-64-1	
Benzene	**4.8**	ug/m3	0.45	1.39		03/25/15 22:29	71-43-2	
Bromodichloromethane	**5.0**	ug/m3	1.9	1.39		03/25/15 22:29	75-27-4	
Bromoform	**<0.45**	ug/m3	7.3	1.39		03/25/15 22:29	75-25-2	
Bromomethane	**<0.38**	ug/m3	1.1	1.39		03/25/15 22:29	74-83-9	
2-Butanone (MEK)	**5.6**	ug/m3	0.83	1.39		03/25/15 22:29	78-93-3	
Carbon disulfide	**197**	ug/m3	8.8	13.9		03/27/15 09:24	75-15-0	
Carbon tetrachloride	**0.56J**	ug/m3	0.89	1.39		03/25/15 22:29	56-23-5	
Chlorobenzene	**<0.15**	ug/m3	1.3	1.39		03/25/15 22:29	108-90-7	
Chloroethane	**<0.22**	ug/m3	0.75	1.39		03/25/15 22:29	75-00-3	
Chloroform	**139**	ug/m3	6.9	13.9		03/27/15 09:24	67-66-3	
Chloromethane	**1.9**	ug/m3	0.58	1.39		03/25/15 22:29	74-87-3	
Dibromochloromethane	**<1.2**	ug/m3	2.4	1.39		03/25/15 22:29	124-48-1	
1,2-Dibromoethane (EDB)	**<0.33**	ug/m3	2.2	1.39		03/25/15 22:29	106-93-4	
1,1-Dichloroethane	**<0.19**	ug/m3	1.1	1.39		03/25/15 22:29	75-34-3	
1,2-Dichloroethane	**<0.17**	ug/m3	0.57	1.39		03/25/15 22:29	107-06-2	
1,1-Dichloroethene	**<0.14**	ug/m3	1.1	1.39		03/25/15 22:29	75-35-4	
cis-1,2-Dichloroethene	**<0.27**	ug/m3	2.8	1.39		03/25/15 22:29	156-59-2	
trans-1,2-Dichloroethene	**<0.23**	ug/m3	1.1	1.39		03/25/15 22:29	156-60-5	
1,2-Dichloropropane	**<0.21**	ug/m3	1.3	1.39		03/25/15 22:29	78-87-5	
cis-1,3-Dichloropropene	**<0.19**	ug/m3	1.3	1.39		03/25/15 22:29	10061-01-5	
trans-1,3-Dichloropropene	**<0.21**	ug/m3	1.3	1.39		03/25/15 22:29	10061-02-6	
Ethylbenzene	**1.3**	ug/m3	1.2	1.39		03/25/15 22:29	100-41-4	
Isopropylbenzene (Cumene)	**<0.70**	ug/m3	3.5	1.39		03/25/15 22:29	98-82-8	
Methylene Chloride	**1.7J**	ug/m3	4.9	1.39		03/25/15 22:29	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<0.24**	ug/m3	2.9	1.39		03/25/15 22:29	108-10-1	
Methyl-tert-butyl ether	**<0.12**	ug/m3	1.0	1.39		03/25/15 22:29	1634-04-4	
Styrene	**0.90J**	ug/m3	1.2	1.39		03/25/15 22:29	100-42-5	
1,1,2,2-Tetrachloroethane	**<0.32**	ug/m3	0.97	1.39		03/25/15 22:29	79-34-5	
Tetrachloroethene	**<0.26**	ug/m3	0.96	1.39		03/25/15 22:29	127-18-4	
Toluene	**6.1**	ug/m3	1.1	1.39		03/25/15 22:29	108-88-3	
1,1,1-Trichloroethane	**<0.19**	ug/m3	0.97	1.39		03/25/15 22:29	71-55-6	
1,1,2-Trichloroethane	**<0.34**	ug/m3	0.77	1.39		03/25/15 22:29	79-00-5	
Trichloroethene	**<0.25**	ug/m3	0.76	1.39		03/25/15 22:29	79-01-6	
Vinyl chloride	**<0.13**	ug/m3	0.36	1.39		03/25/15 22:29	75-01-4	
m&p-Xylene	**4.9**	ug/m3	2.4	1.39		03/25/15 22:29	179601-23-1	
o-Xylene	**2.2**	ug/m3	1.2	1.39		03/25/15 22:29	95-47-6	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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ANALYTICAL RESULTS

Project: NCM BOA
Pace Project No.: 10300341

Sample: AA96-SG **Lab ID: 10300341014** Collected: 03/20/15 09:52 Received: 03/23/15 08:50 Matrix: Air

Parameters	Results	Units	PQL	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15							
Acetone	**44.8**	ug/m3	3.6	1.49		03/25/15 23:01	67-64-1	
Benzene	**3.2**	ug/m3	0.48	1.49		03/25/15 23:01	71-43-2	
Bromodichloromethane	**2.2**	ug/m3	2.0	1.49		03/25/15 23:01	75-27-4	
Bromoform	**<0.48**	ug/m3	7.8	1.49		03/25/15 23:01	75-25-2	
Bromomethane	**<0.40**	ug/m3	1.2	1.49		03/25/15 23:01	74-83-9	
2-Butanone (MEK)	**4.1**	ug/m3	0.89	1.49		03/25/15 23:01	78-93-3	
Carbon disulfide	**22.8**	ug/m3	0.94	1.49		03/25/15 23:01	75-15-0	
Carbon tetrachloride	**<0.48**	ug/m3	0.95	1.49		03/25/15 23:01	56-23-5	
Chlorobenzene	**<0.16**	ug/m3	1.4	1.49		03/25/15 23:01	108-90-7	
Chloroethane	**<0.24**	ug/m3	0.80	1.49		03/25/15 23:01	75-00-3	
Chloroform	**40.8**	ug/m3	0.74	1.49		03/25/15 23:01	67-66-3	
Chloromethane	**<0.29**	ug/m3	0.63	1.49		03/25/15 23:01	74-87-3	
Dibromochloromethane	**<1.3**	ug/m3	2.6	1.49		03/25/15 23:01	124-48-1	
1,2-Dibromoethane (EDB)	**<0.35**	ug/m3	2.3	1.49		03/25/15 23:01	106-93-4	
1,1-Dichloroethane	**<0.21**	ug/m3	1.2	1.49		03/25/15 23:01	75-34-3	
1,2-Dichloroethane	**<0.18**	ug/m3	0.61	1.49		03/25/15 23:01	107-06-2	
1,1-Dichloroethene	**<0.15**	ug/m3	1.2	1.49		03/25/15 23:01	75-35-4	
cis-1,2-Dichloroethene	**<0.29**	ug/m3	3.0	1.49		03/25/15 23:01	156-59-2	
trans-1,2-Dichloroethene	**<0.24**	ug/m3	1.2	1.49		03/25/15 23:01	156-60-5	
1,2-Dichloropropane	**<0.23**	ug/m3	1.4	1.49		03/25/15 23:01	78-87-5	
cis-1,3-Dichloropropene	**<0.20**	ug/m3	1.4	1.49		03/25/15 23:01	10061-01-5	
trans-1,3-Dichloropropene	**<0.22**	ug/m3	1.4	1.49		03/25/15 23:01	10061-02-6	
Ethylbenzene	**1.2J**	ug/m3	1.3	1.49		03/25/15 23:01	100-41-4	
Isopropylbenzene (Cumene)	**<0.74**	ug/m3	3.7	1.49		03/25/15 23:01	98-82-8	
Methylene Chloride	**2.8J**	ug/m3	5.3	1.49		03/25/15 23:01	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<0.25**	ug/m3	3.1	1.49		03/25/15 23:01	108-10-1	
Methyl-tert-butyl ether	**<0.13**	ug/m3	1.1	1.49		03/25/15 23:01	1634-04-4	
Styrene	**0.91J**	ug/m3	1.3	1.49		03/25/15 23:01	100-42-5	
1,1,2,2-Tetrachloroethane	**<0.35**	ug/m3	1.0	1.49		03/25/15 23:01	79-34-5	
Tetrachloroethene	**<0.28**	ug/m3	1.0	1.49		03/25/15 23:01	127-18-4	
Toluene	**8.6**	ug/m3	1.1	1.49		03/25/15 23:01	108-88-3	
1,1,1-Trichloroethane	**<0.21**	ug/m3	1.0	1.49		03/25/15 23:01	71-55-6	
1,1,2-Trichloroethane	**<0.36**	ug/m3	0.83	1.49		03/25/15 23:01	79-00-5	
Trichloroethene	**<0.27**	ug/m3	0.81	1.49		03/25/15 23:01	79-01-6	
Vinyl chloride	**<0.14**	ug/m3	0.39	1.49		03/25/15 23:01	75-01-4	
m&p-Xylene	**4.2**	ug/m3	2.6	1.49		03/25/15 23:01	179601-23-1	
o-Xylene	**1.7**	ug/m3	1.3	1.49		03/25/15 23:01	95-47-6	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
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ANALYTICAL RESULTS

Project: NCM BOA
Pace Project No.: 10300341

Sample: AA99-SG **Lab ID: 10300341015** Collected: 03/20/15 09:53 Received: 03/23/15 08:50 Matrix: Air

Parameters	Results	Units	PQL	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15							
Acetone	**39.4**	ug/m3	3.4	1.39		03/25/15 23:29	67-64-1	
Benzene	**3.6**	ug/m3	0.45	1.39		03/25/15 23:29	71-43-2	
Bromodichloromethane	**3.0**	ug/m3	1.9	1.39		03/25/15 23:29	75-27-4	
Bromoform	**<0.45**	ug/m3	7.3	1.39		03/25/15 23:29	75-25-2	
Bromomethane	**<0.38**	ug/m3	1.1	1.39		03/25/15 23:29	74-83-9	
2-Butanone (MEK)	**5.0**	ug/m3	0.83	1.39		03/25/15 23:29	78-93-3	
Carbon disulfide	**4.6**	ug/m3	0.88	1.39		03/25/15 23:29	75-15-0	
Carbon tetrachloride	**<0.44**	ug/m3	0.89	1.39		03/25/15 23:29	56-23-5	
Chlorobenzene	**<0.15**	ug/m3	1.3	1.39		03/25/15 23:29	108-90-7	
Chloroethane	**<0.22**	ug/m3	0.75	1.39		03/25/15 23:29	75-00-3	
Chloroform	**66.0**	ug/m3	0.69	1.39		03/25/15 23:29	67-66-3	
Chloromethane	**<0.27**	ug/m3	0.58	1.39		03/25/15 23:29	74-87-3	
Dibromochloromethane	**<1.2**	ug/m3	2.4	1.39		03/25/15 23:29	124-48-1	
1,2-Dibromoethane (EDB)	**<0.33**	ug/m3	2.2	1.39		03/25/15 23:29	106-93-4	
1,1-Dichloroethane	**<0.19**	ug/m3	1.1	1.39		03/25/15 23:29	75-34-3	
1,2-Dichloroethane	**<0.17**	ug/m3	0.57	1.39		03/25/15 23:29	107-06-2	
1,1-Dichloroethene	**<0.14**	ug/m3	1.1	1.39		03/25/15 23:29	75-35-4	
cis-1,2-Dichloroethene	**<0.27**	ug/m3	2.8	1.39		03/25/15 23:29	156-59-2	
trans-1,2-Dichloroethene	**<0.23**	ug/m3	1.1	1.39		03/25/15 23:29	156-60-5	
1,2-Dichloropropane	**<0.21**	ug/m3	1.3	1.39		03/25/15 23:29	78-87-5	
cis-1,3-Dichloropropene	**<0.19**	ug/m3	1.3	1.39		03/25/15 23:29	10061-01-5	
trans-1,3-Dichloropropene	**<0.21**	ug/m3	1.3	1.39		03/25/15 23:29	10061-02-6	
Ethylbenzene	**1.1J**	ug/m3	1.2	1.39		03/25/15 23:29	100-41-4	
Isopropylbenzene (Cumene)	**<0.70**	ug/m3	3.5	1.39		03/25/15 23:29	98-82-8	
Methylene Chloride	**<0.32**	ug/m3	4.9	1.39		03/25/15 23:29	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<0.24**	ug/m3	2.9	1.39		03/25/15 23:29	108-10-1	
Methyl-tert-butyl ether	**<0.12**	ug/m3	1.0	1.39		03/25/15 23:29	1634-04-4	
Styrene	**0.82J**	ug/m3	1.2	1.39		03/25/15 23:29	100-42-5	
1,1,2,2-Tetrachloroethane	**<0.32**	ug/m3	0.97	1.39		03/25/15 23:29	79-34-5	
Tetrachloroethene	**<0.26**	ug/m3	0.96	1.39		03/25/15 23:29	127-18-4	
Toluene	**5.3**	ug/m3	1.1	1.39		03/25/15 23:29	108-88-3	
1,1,1-Trichloroethane	**<0.19**	ug/m3	0.97	1.39		03/25/15 23:29	71-55-6	
1,1,2-Trichloroethane	**<0.34**	ug/m3	0.77	1.39		03/25/15 23:29	79-00-5	
Trichloroethene	**<0.25**	ug/m3	0.76	1.39		03/25/15 23:29	79-01-6	
Vinyl chloride	**<0.13**	ug/m3	0.36	1.39		03/25/15 23:29	75-01-4	
m&p-Xylene	**4.3**	ug/m3	2.4	1.39		03/25/15 23:29	179601-23-1	
o-Xylene	**1.9**	ug/m3	1.2	1.39		03/25/15 23:29	95-47-6	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
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ANALYTICAL RESULTS

Project: NCM BOA
Pace Project No.: 10300341

Sample: AA101-SG **Lab ID: 10300341016** Collected: 03/20/15 09:54 Received: 03/23/15 08:50 Matrix: Air

Parameters	Results	Units	PQL	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15							
Acetone	**52.3**	ug/m3	3.2	1.34		03/25/15 23:57	67-64-1	
Benzene	**3.6**	ug/m3	0.44	1.34		03/25/15 23:57	71-43-2	
Bromodichloromethane	**1.9**	ug/m3	1.8	1.34		03/25/15 23:57	75-27-4	
Bromoform	**<0.43**	ug/m3	7.0	1.34		03/25/15 23:57	75-25-2	
Bromomethane	**<0.36**	ug/m3	1.1	1.34		03/25/15 23:57	74-83-9	
2-Butanone (MEK)	**4.1**	ug/m3	0.80	1.34		03/25/15 23:57	78-93-3	
Carbon disulfide	**28.4**	ug/m3	0.84	1.34		03/25/15 23:57	75-15-0	
Carbon tetrachloride	**<0.43**	ug/m3	0.86	1.34		03/25/15 23:57	56-23-5	
Chlorobenzene	**<0.14**	ug/m3	1.3	1.34		03/25/15 23:57	108-90-7	
Chloroethane	**<0.22**	ug/m3	0.72	1.34		03/25/15 23:57	75-00-3	
Chloroform	**23.3**	ug/m3	0.66	1.34		03/25/15 23:57	67-66-3	
Chloromethane	**<0.26**	ug/m3	0.56	1.34		03/25/15 23:57	74-87-3	
Dibromochloromethane	**<1.2**	ug/m3	2.3	1.34		03/25/15 23:57	124-48-1	
1,2-Dibromoethane (EDB)	**<0.31**	ug/m3	2.1	1.34		03/25/15 23:57	106-93-4	
1,1-Dichloroethane	**<0.19**	ug/m3	1.1	1.34		03/25/15 23:57	75-34-3	
1,2-Dichloroethane	**<0.16**	ug/m3	0.55	1.34		03/25/15 23:57	107-06-2	
1,1-Dichloroethene	**<0.14**	ug/m3	1.1	1.34		03/25/15 23:57	75-35-4	
cis-1,2-Dichloroethene	**<0.26**	ug/m3	2.7	1.34		03/25/15 23:57	156-59-2	
trans-1,2-Dichloroethene	**<0.22**	ug/m3	1.1	1.34		03/25/15 23:57	156-60-5	
1,2-Dichloropropane	**<0.20**	ug/m3	1.3	1.34		03/25/15 23:57	78-87-5	
cis-1,3-Dichloropropene	**<0.18**	ug/m3	1.2	1.34		03/25/15 23:57	10061-01-5	
trans-1,3-Dichloropropene	**<0.20**	ug/m3	1.2	1.34		03/25/15 23:57	10061-02-6	
Ethylbenzene	**1.0J**	ug/m3	1.2	1.34		03/25/15 23:57	100-41-4	
Isopropylbenzene (Cumene)	**<0.67**	ug/m3	3.4	1.34		03/25/15 23:57	98-82-8	
Methylene Chloride	**<0.31**	ug/m3	4.7	1.34		03/25/15 23:57	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<0.23**	ug/m3	2.8	1.34		03/25/15 23:57	108-10-1	
Methyl-tert-butyl ether	**<0.12**	ug/m3	0.98	1.34		03/25/15 23:57	1634-04-4	
Styrene	**0.77J**	ug/m3	1.2	1.34		03/25/15 23:57	100-42-5	
1,1,2,2-Tetrachloroethane	**<0.31**	ug/m3	0.94	1.34		03/25/15 23:57	79-34-5	
Tetrachloroethene	**<0.25**	ug/m3	0.92	1.34		03/25/15 23:57	127-18-4	
Toluene	**6.0**	ug/m3	1.0	1.34		03/25/15 23:57	108-88-3	
1,1,1-Trichloroethane	**<0.19**	ug/m3	0.94	1.34		03/25/15 23:57	71-55-6	
1,1,2-Trichloroethane	**<0.33**	ug/m3	0.74	1.34		03/25/15 23:57	79-00-5	
Trichloroethene	**<0.24**	ug/m3	0.73	1.34		03/25/15 23:57	79-01-6	
Vinyl chloride	**<0.12**	ug/m3	0.35	1.34		03/25/15 23:57	75-01-4	
m&p-Xylene	**3.8**	ug/m3	2.4	1.34		03/25/15 23:57	179601-23-1	
o-Xylene	**1.6**	ug/m3	1.2	1.34		03/25/15 23:57	95-47-6	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: NCM BOA
Pace Project No.: 10300341

Sample: AA102-SG **Lab ID: 10300341017** Collected: 03/20/15 09:56 Received: 03/23/15 08:50 Matrix: Air

Parameters	Results	Units	PQL	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15							
Acetone	**33.0**	ug/m3	3.4	1.39		03/26/15 00:25	67-64-1	
Benzene	**1.6**	ug/m3	0.45	1.39		03/26/15 00:25	71-43-2	
Bromodichloromethane	**0.96J**	ug/m3	1.9	1.39		03/26/15 00:25	75-27-4	
Bromoform	**<0.45**	ug/m3	7.3	1.39		03/26/15 00:25	75-25-2	
Bromomethane	**<0.38**	ug/m3	1.1	1.39		03/26/15 00:25	74-83-9	
2-Butanone (MEK)	**3.3**	ug/m3	0.83	1.39		03/26/15 00:25	78-93-3	
Carbon disulfide	**4.6**	ug/m3	0.88	1.39		03/26/15 00:25	75-15-0	
Carbon tetrachloride	**<0.44**	ug/m3	0.89	1.39		03/26/15 00:25	56-23-5	
Chlorobenzene	**<0.15**	ug/m3	1.3	1.39		03/26/15 00:25	108-90-7	
Chloroethane	**<0.22**	ug/m3	0.75	1.39		03/26/15 00:25	75-00-3	
Chloroform	**15.3**	ug/m3	0.69	1.39		03/26/15 00:25	67-66-3	
Chloromethane	**<0.27**	ug/m3	0.58	1.39		03/26/15 00:25	74-87-3	
Dibromochloromethane	**<1.2**	ug/m3	2.4	1.39		03/26/15 00:25	124-48-1	
1,2-Dibromoethane (EDB)	**<0.33**	ug/m3	2.2	1.39		03/26/15 00:25	106-93-4	
1,1-Dichloroethane	**<0.19**	ug/m3	1.1	1.39		03/26/15 00:25	75-34-3	
1,2-Dichloroethane	**<0.17**	ug/m3	0.57	1.39		03/26/15 00:25	107-06-2	
1,1-Dichloroethene	**<0.14**	ug/m3	1.1	1.39		03/26/15 00:25	75-35-4	
cis-1,2-Dichloroethene	**<0.27**	ug/m3	2.8	1.39		03/26/15 00:25	156-59-2	
trans-1,2-Dichloroethene	**<0.23**	ug/m3	1.1	1.39		03/26/15 00:25	156-60-5	
1,2-Dichloropropane	**<0.21**	ug/m3	1.3	1.39		03/26/15 00:25	78-87-5	
cis-1,3-Dichloropropene	**<0.19**	ug/m3	1.3	1.39		03/26/15 00:25	10061-01-5	
trans-1,3-Dichloropropene	**<0.21**	ug/m3	1.3	1.39		03/26/15 00:25	10061-02-6	
Ethylbenzene	**1.1J**	ug/m3	1.2	1.39		03/26/15 00:25	100-41-4	
Isopropylbenzene (Cumene)	**<0.70**	ug/m3	3.5	1.39		03/26/15 00:25	98-82-8	
Methylene Chloride	**<0.32**	ug/m3	4.9	1.39		03/26/15 00:25	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<0.24**	ug/m3	2.9	1.39		03/26/15 00:25	108-10-1	
Methyl-tert-butyl ether	**<0.12**	ug/m3	1.0	1.39		03/26/15 00:25	1634-04-4	
Styrene	**0.82J**	ug/m3	1.2	1.39		03/26/15 00:25	100-42-5	
1,1,2,2-Tetrachloroethane	**<0.32**	ug/m3	0.97	1.39		03/26/15 00:25	79-34-5	
Tetrachloroethene	**<0.26**	ug/m3	0.96	1.39		03/26/15 00:25	127-18-4	
Toluene	**5.2**	ug/m3	1.1	1.39		03/26/15 00:25	108-88-3	
1,1,1-Trichloroethane	**<0.19**	ug/m3	0.97	1.39		03/26/15 00:25	71-55-6	
1,1,2-Trichloroethane	**<0.34**	ug/m3	0.77	1.39		03/26/15 00:25	79-00-5	
Trichloroethene	**<0.25**	ug/m3	0.76	1.39		03/26/15 00:25	79-01-6	
Vinyl chloride	**<0.13**	ug/m3	0.36	1.39		03/26/15 00:25	75-01-4	
m&p-Xylene	**4.3**	ug/m3	2.4	1.39		03/26/15 00:25	179601-23-1	
o-Xylene	**1.8**	ug/m3	1.2	1.39		03/26/15 00:25	95-47-6	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: NCM BOA
Pace Project No.: 10300341

Sample: AA103-SG **Lab ID: 10300341018** Collected: 03/20/15 09:57 Received: 03/23/15 08:50 Matrix: Air

Parameters	Results	Units	PQL	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15							
Acetone	**38.6**	ug/m3	3.0	1.26		03/26/15 00:53	67-64-1	
Benzene	**1.0**	ug/m3	0.41	1.26		03/26/15 00:53	71-43-2	
Bromodichloromethane	**<0.23**	ug/m3	1.7	1.26		03/26/15 00:53	75-27-4	
Bromoform	**<0.41**	ug/m3	6.6	1.26		03/26/15 00:53	75-25-2	
Bromomethane	**<0.34**	ug/m3	1.0	1.26		03/26/15 00:53	74-83-9	
2-Butanone (MEK)	**3.0**	ug/m3	0.76	1.26		03/26/15 00:53	78-93-3	
Carbon disulfide	**8.5**	ug/m3	0.79	1.26		03/26/15 00:53	75-15-0	
Carbon tetrachloride	**<0.40**	ug/m3	0.81	1.26		03/26/15 00:53	56-23-5	
Chlorobenzene	**<0.13**	ug/m3	1.2	1.26		03/26/15 00:53	108-90-7	
Chloroethane	**<0.20**	ug/m3	0.68	1.26		03/26/15 00:53	75-00-3	
Chloroform	**3.6**	ug/m3	0.62	1.26		03/26/15 00:53	67-66-3	
Chloromethane	**<0.24**	ug/m3	0.53	1.26		03/26/15 00:53	74-87-3	
Dibromochloromethane	**<1.1**	ug/m3	2.2	1.26		03/26/15 00:53	124-48-1	
1,2-Dibromoethane (EDB)	**<0.29**	ug/m3	2.0	1.26		03/26/15 00:53	106-93-4	
1,1-Dichloroethane	**<0.18**	ug/m3	1.0	1.26		03/26/15 00:53	75-34-3	
1,2-Dichloroethane	**<0.15**	ug/m3	0.52	1.26		03/26/15 00:53	107-06-2	
1,1-Dichloroethene	**<0.13**	ug/m3	1.0	1.26		03/26/15 00:53	75-35-4	
cis-1,2-Dichloroethene	**<0.25**	ug/m3	2.5	1.26		03/26/15 00:53	156-59-2	
trans-1,2-Dichloroethene	**<0.21**	ug/m3	1.0	1.26		03/26/15 00:53	156-60-5	
1,2-Dichloropropane	**<0.19**	ug/m3	1.2	1.26		03/26/15 00:53	78-87-5	
cis-1,3-Dichloropropene	**<0.17**	ug/m3	1.2	1.26		03/26/15 00:53	10061-01-5	
trans-1,3-Dichloropropene	**<0.19**	ug/m3	1.2	1.26		03/26/15 00:53	10061-02-6	
Ethylbenzene	**0.99J**	ug/m3	1.1	1.26		03/26/15 00:53	100-41-4	
Isopropylbenzene (Cumene)	**<0.63**	ug/m3	3.2	1.26		03/26/15 00:53	98-82-8	
Methylene Chloride	**<0.29**	ug/m3	4.4	1.26		03/26/15 00:53	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<0.22**	ug/m3	2.6	1.26		03/26/15 00:53	108-10-1	
Methyl-tert-butyl ether	**<0.11**	ug/m3	0.92	1.26		03/26/15 00:53	1634-04-4	
Styrene	**0.75J**	ug/m3	1.1	1.26		03/26/15 00:53	100-42-5	
1,1,2,2-Tetrachloroethane	**<0.29**	ug/m3	0.88	1.26		03/26/15 00:53	79-34-5	
Tetrachloroethene	**<0.24**	ug/m3	0.87	1.26		03/26/15 00:53	127-18-4	
Toluene	**3.7**	ug/m3	0.97	1.26		03/26/15 00:53	108-88-3	
1,1,1-Trichloroethane	**<0.18**	ug/m3	0.88	1.26		03/26/15 00:53	71-55-6	
1,1,2-Trichloroethane	**<0.31**	ug/m3	0.70	1.26		03/26/15 00:53	79-00-5	
Trichloroethene	**<0.22**	ug/m3	0.69	1.26		03/26/15 00:53	79-01-6	
Vinyl chloride	**<0.12**	ug/m3	0.33	1.26		03/26/15 00:53	75-01-4	
m&p-Xylene	**3.5**	ug/m3	2.2	1.26		03/26/15 00:53	179601-23-1	
o-Xylene	**1.6**	ug/m3	1.1	1.26		03/26/15 00:53	95-47-6	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: NCM BOA
Pace Project No.: 10300341

Sample: AA95-SG **Lab ID: 10300341019** Collected: 03/21/15 11:30 Received: 03/23/15 08:50 Matrix: Air

Parameters	Results	Units	PQL	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15							
Acetone	**117**	ug/m3	3.0	1.26		03/26/15 01:20	67-64-1	E
Benzene	**2.0**	ug/m3	0.41	1.26		03/26/15 01:20	71-43-2	
Bromodichloromethane	**4.4**	ug/m3	1.7	1.26		03/26/15 01:20	75-27-4	
Bromoform	**<0.41**	ug/m3	6.6	1.26		03/26/15 01:20	75-25-2	
Bromomethane	**<0.34**	ug/m3	1.0	1.26		03/26/15 01:20	74-83-9	
2-Butanone (MEK)	**9.1**	ug/m3	0.76	1.26		03/26/15 01:20	78-93-3	
Carbon disulfide	**52.0**	ug/m3	0.79	1.26		03/26/15 01:20	75-15-0	
Carbon tetrachloride	**<0.40**	ug/m3	0.81	1.26		03/26/15 01:20	56-23-5	
Chlorobenzene	**<0.13**	ug/m3	1.2	1.26		03/26/15 01:20	108-90-7	
Chloroethane	**<0.20**	ug/m3	0.68	1.26		03/26/15 01:20	75-00-3	
Chloroform	**99.3**	ug/m3	0.62	1.26		03/26/15 01:20	67-66-3	
Chloromethane	**<0.24**	ug/m3	0.53	1.26		03/26/15 01:20	74-87-3	
Dibromochloromethane	**<1.1**	ug/m3	2.2	1.26		03/26/15 01:20	124-48-1	
1,2-Dibromoethane (EDB)	**<0.29**	ug/m3	2.0	1.26		03/26/15 01:20	106-93-4	
1,1-Dichloroethane	**<0.18**	ug/m3	1.0	1.26		03/26/15 01:20	75-34-3	
1,2-Dichloroethane	**<0.15**	ug/m3	0.52	1.26		03/26/15 01:20	107-06-2	
1,1-Dichloroethene	**<0.13**	ug/m3	1.0	1.26		03/26/15 01:20	75-35-4	
cis-1,2-Dichloroethene	**<0.25**	ug/m3	2.5	1.26		03/26/15 01:20	156-59-2	
trans-1,2-Dichloroethene	**<0.21**	ug/m3	1.0	1.26		03/26/15 01:20	156-60-5	
1,2-Dichloropropane	**<0.19**	ug/m3	1.2	1.26		03/26/15 01:20	78-87-5	
cis-1,3-Dichloropropene	**<0.17**	ug/m3	1.2	1.26		03/26/15 01:20	10061-01-5	
trans-1,3-Dichloropropene	**<0.19**	ug/m3	1.2	1.26		03/26/15 01:20	10061-02-6	
Ethylbenzene	**1.2**	ug/m3	1.1	1.26		03/26/15 01:20	100-41-4	
Isopropylbenzene (Cumene)	**<0.63**	ug/m3	3.2	1.26		03/26/15 01:20	98-82-8	
Methylene Chloride	**1.0J**	ug/m3	4.4	1.26		03/26/15 01:20	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<0.22**	ug/m3	2.6	1.26		03/26/15 01:20	108-10-1	
Methyl-tert-butyl ether	**<0.11**	ug/m3	0.92	1.26		03/26/15 01:20	1634-04-4	
Styrene	**0.71J**	ug/m3	1.1	1.26		03/26/15 01:20	100-42-5	
1,1,2,2-Tetrachloroethane	**<0.29**	ug/m3	0.88	1.26		03/26/15 01:20	79-34-5	
Tetrachloroethene	**<0.24**	ug/m3	0.87	1.26		03/26/15 01:20	127-18-4	
Toluene	**4.6**	ug/m3	0.97	1.26		03/26/15 01:20	108-88-3	
1,1,1-Trichloroethane	**<0.18**	ug/m3	0.88	1.26		03/26/15 01:20	71-55-6	
1,1,2-Trichloroethane	**<0.31**	ug/m3	0.70	1.26		03/26/15 01:20	79-00-5	
Trichloroethene	**<0.22**	ug/m3	0.69	1.26		03/26/15 01:20	79-01-6	
Vinyl chloride	**<0.12**	ug/m3	0.33	1.26		03/26/15 01:20	75-01-4	
m&p-Xylene	**4.2**	ug/m3	2.2	1.26		03/26/15 01:20	179601-23-1	
o-Xylene	**1.2**	ug/m3	1.1	1.26		03/26/15 01:20	95-47-6	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: NCM BOA
Pace Project No.: 10300341

QC Batch: AIR/22835 Analysis Method: TO-15
QC Batch Method: TO-15 Analysis Description: TO15 MSV AIR Low Level
Associated Lab Samples: 10300341001, 10300341002, 10300341003, 10300341004, 10300341005, 10300341006, 10300341007, 10300341008, 10300341009, 10300341010, 10300341011, 10300341012, 10300341013, 10300341014, 10300341015, 10300341016, 10300341017, 10300341018, 10300341019

METHOD BLANK: 1925412 Matrix: Air
Associated Lab Samples: 10300341001, 10300341002, 10300341003, 10300341004, 10300341005, 10300341006, 10300341007, 10300341008, 10300341009, 10300341010, 10300341011, 10300341012, 10300341013, 10300341014, 10300341015, 10300341016, 10300341017, 10300341018, 10300341019

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/m3	<0.14	0.70	03/25/15 15:00	
1,1,2,2-Tetrachloroethane	ug/m3	<0.23	0.70	03/25/15 15:00	
1,1,2-Trichloroethane	ug/m3	<0.24	0.56	03/25/15 15:00	
1,1-Dichloroethane	ug/m3	<0.14	0.82	03/25/15 15:00	
1,1-Dichloroethene	ug/m3	<0.10	0.81	03/25/15 15:00	
1,2-Dibromoethane (EDB)	ug/m3	<0.23	1.6	03/25/15 15:00	
1,2-Dichloroethane	ug/m3	<0.12	0.41	03/25/15 15:00	
1,2-Dichloropropane	ug/m3	<0.15	0.94	03/25/15 15:00	
2-Butanone (MEK)	ug/m3	<0.27	0.60	03/25/15 15:00	
4-Methyl-2-pentanone (MIBK)	ug/m3	<0.17	2.1	03/25/15 15:00	
Acetone	ug/m3	<1.2	2.4	03/25/15 15:00	
Benzene	ug/m3	<0.12	0.32	03/25/15 15:00	
Bromodichloromethane	ug/m3	<0.18	1.4	03/25/15 15:00	
Bromoform	ug/m3	<0.32	5.3	03/25/15 15:00	
Bromomethane	ug/m3	<0.27	0.79	03/25/15 15:00	
Carbon disulfide	ug/m3	<0.072	0.63	03/25/15 15:00	
Carbon tetrachloride	ug/m3	<0.32	0.64	03/25/15 15:00	
Chlorobenzene	ug/m3	<0.11	0.94	03/25/15 15:00	
Chloroethane	ug/m3	<0.16	0.54	03/25/15 15:00	
Chloroform	ug/m3	<0.18	0.50	03/25/15 15:00	
Chloromethane	ug/m3	<0.19	0.42	03/25/15 15:00	
cis-1,2-Dichloroethene	ug/m3	<0.20	2.0	03/25/15 15:00	
cis-1,3-Dichloropropene	ug/m3	<0.14	0.92	03/25/15 15:00	
Dibromochloromethane	ug/m3	<0.87	1.7	03/25/15 15:00	
Ethylbenzene	ug/m3	<0.18	0.88	03/25/15 15:00	
Isopropylbenzene (Cumene)	ug/m3	<0.50	2.5	03/25/15 15:00	
m&p-Xylene	ug/m3	<0.14	1.8	03/25/15 15:00	
Methyl-tert-butyl ether	ug/m3	<0.089	0.73	03/25/15 15:00	
Methylene Chloride	ug/m3	<0.23	3.5	03/25/15 15:00	
o-Xylene	ug/m3	<0.44	0.88	03/25/15 15:00	
Styrene	ug/m3	<0.14	0.87	03/25/15 15:00	
Tetrachloroethene	ug/m3	<0.19	0.69	03/25/15 15:00	
Toluene	ug/m3	<0.14	0.77	03/25/15 15:00	
trans-1,2-Dichloroethene	ug/m3	<0.16	0.81	03/25/15 15:00	
trans-1,3-Dichloropropene	ug/m3	<0.15	0.92	03/25/15 15:00	
Trichloroethene	ug/m3	<0.18	0.55	03/25/15 15:00	
Vinyl chloride	ug/m3	<0.093	0.26	03/25/15 15:00	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: NCM BOA
Pace Project No.: 10300341

LABORATORY CONTROL SAMPLE: 1925413

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/m3	55.5	57.6	104	72-140	
1,1,2,2-Tetrachloroethane	ug/m3	69.8	78.3	112	68-137	
1,1,2-Trichloroethane	ug/m3	55.5	54.7	98	66-138	
1,1-Dichloroethane	ug/m3	41.2	34.0	83	68-137	
1,1-Dichloroethene	ug/m3	40.3	33.5	83	73-138	
1,2-Dibromoethane (EDB)	ug/m3	78.1	101	129	75-132	
1,2-Dichloroethane	ug/m3	41.2	37.6	91	73-139	
1,2-Dichloropropane	ug/m3	47	52.1	111	70-130	
2-Butanone (MEK)	ug/m3	30	24.5	82	67-131	
4-Methyl-2-pentanone (MIBK)	ug/m3	41.7	51.1	123	68-134	
Acetone	ug/m3	24.2	21.9	90	63-144	
Benzene	ug/m3	32.5	30.2	93	64-139	
Bromodichloromethane	ug/m3	68.2	79.1	116	75-134	
Bromoform	ug/m3	105	117	112	72-130	
Bromomethane	ug/m3	39.5	30.8	78	71-132	
Carbon disulfide	ug/m3	31.7	26.2	83	56-139	
Carbon tetrachloride	ug/m3	64	73.8	115	75-150	
Chlorobenzene	ug/m3	46.8	45.9	98	71-132	
Chloroethane	ug/m3	26.8	21.5	80	71-129	
Chloroform	ug/m3	49.7	46.9	94	73-136	
Chloromethane	ug/m3	21	16.2	77	52-143	
cis-1,2-Dichloroethene	ug/m3	40.3	37.0	92	64-137	
cis-1,3-Dichloropropene	ug/m3	46.2	46.5	101	75-128	
Dibromochloromethane	ug/m3	86.6	99.1	114	75-136	
Ethylbenzene	ug/m3	44.2	52.6	119	71-136	
Isopropylbenzene (Cumene)	ug/m3	50	59.0	118	72-139	
m&p-Xylene	ug/m3	88.3	104	118	71-134	
Methyl-tert-butyl ether	ug/m3	36.7	34.2	93	73-134	
Methylene Chloride	ug/m3	35.3	27.4	78	64-130	
o-Xylene	ug/m3	44.2	51.5	117	75-134	
Styrene	ug/m3	43.3	45.2	104	75-133	
Tetrachloroethene	ug/m3	69	73.7	107	66-137	
Toluene	ug/m3	38.3	36.8	96	70-129	
trans-1,2-Dichloroethene	ug/m3	40.3	33.2	82	61-140	
trans-1,3-Dichloropropene	ug/m3	46.2	46.6	101	75-134	
Trichloroethene	ug/m3	54.6	49.5	91	70-134	
Vinyl chloride	ug/m3	26	19.9	77	72-129	

SAMPLE DUPLICATE: 1926218

Parameter	Units	10300341007 Result	Dup Result	RPD	Max RPD	Qualifiers
1,1,1-Trichloroethane	ug/m3	<0.19	<0.19		25	
1,1,2,2-Tetrachloroethane	ug/m3	<0.32	<0.32		25	
1,1,2-Trichloroethane	ug/m3	<0.34	<0.34		25	
1,1-Dichloroethane	ug/m3	<0.19	<0.19		25	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: NCM BOA
Pace Project No.: 10300341

SAMPLE DUPLICATE: 1926218

Parameter	Units	10300341007 Result	Dup Result	RPD	Max RPD	Qualifiers
1,1-Dichloroethene	ug/m3	<0.14	<0.14		25	
1,2-Dibromoethane (EDB)	ug/m3	<0.33	<0.33		25	
1,2-Dichloroethane	ug/m3	<0.17	<0.17		25	
1,2-Dichloropropane	ug/m3	<0.21	<0.21		25	
2-Butanone (MEK)	ug/m3	5.8	5.3	9	25	
4-Methyl-2-pentanone (MIBK)	ug/m3	<0.24	<0.24		25	
Acetone	ug/m3	49.6	88.7	57	25	E,R1
Benzene	ug/m3	3.5	3.4	4	25	
Bromodichloromethane	ug/m3	1.9J	1.8J		25	
Bromoform	ug/m3	<0.45	<0.45		25	
Bromomethane	ug/m3	0.58J	0.56J		25	
Carbon disulfide	ug/m3	157	170	8	25	E
Carbon tetrachloride	ug/m3	<0.44	<0.44		25	
Chlorobenzene	ug/m3	<0.15	<0.15		25	
Chloroethane	ug/m3	<0.22	<0.22		25	
Chloroform	ug/m3	97.2	93.5	4	25	
Chloromethane	ug/m3	<0.27	<0.27		25	
cis-1,2-Dichloroethene	ug/m3	<0.27	<0.27		25	
cis-1,3-Dichloropropene	ug/m3	<0.19	<0.19		25	
Dibromochloromethane	ug/m3	<1.2	<1.2		25	
Ethylbenzene	ug/m3	1.4	1.4	3	25	
Isopropylbenzene (Cumene)	ug/m3	<0.70	<0.70		25	
m&p-Xylene	ug/m3	4.8	5.0	4	25	
Methyl-tert-butyl ether	ug/m3	<0.12	<0.12		25	
Methylene Chloride	ug/m3	1.8J	1.8J		25	
o-Xylene	ug/m3	2.0	2.2	7	25	
Styrene	ug/m3	0.84J	0.86J		25	
Tetrachloroethene	ug/m3	<0.26	<0.26		25	
Toluene	ug/m3	6.4	6.2	3	25	
trans-1,2-Dichloroethene	ug/m3	<0.23	<0.23		25	
trans-1,3-Dichloropropene	ug/m3	<0.21	<0.21		25	
Trichloroethene	ug/m3	<0.25	<0.25		25	
Vinyl chloride	ug/m3	<0.13	<0.13		25	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALIFIERS

Project: NCM BOA
Pace Project No.: 10300341

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-M	Pace Analytical Services - Minneapolis

SAMPLE QUALIFIERS

Sample: 10300341001

[1]	The internal standard recoveries associated with this sample exceed the lower control limit. The reported results should be considered estimated values.

Sample: 10300341012

[1]	The internal standard recoveries associated with this sample exceed the lower control limit. The reported results should be considered estimated values.

ANALYTE QUALIFIERS

E	Analyte concentration exceeded the calibration range. The reported result is estimated.
R1	RPD value was outside control limits.

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: NCM BOA
Pace Project No.: 10300341

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10300341001	**AA108-SG**	TO-15	AIR/22835		
10300341002	**AA106-SG**	TO-15	AIR/22835		
10300341003	**AA107-SG**	TO-15	AIR/22835		
10300341004	**AA105-SG**	TO-15	AIR/22835		
10300341005	**AA104-SG**	TO-15	AIR/22835		
10300341006	**AA100-SG**	TO-15	AIR/22835		
10300341007	**AA97-SG**	TO-15	AIR/22835		
10300341008	**AA98-SG**	TO-15	AIR/22835		
10300341009	**AA92-SG**	TO-15	AIR/22835		
10300341010	**AA91-SG**	TO-15	AIR/22835		
10300341011	**AA90-SG**	TO-15	AIR/22835		
10300341012	**AA93-SG**	TO-15	AIR/22835		
10300341013	**AA94-SG**	TO-15	AIR/22835		
10300341014	**AA96-SG**	TO-15	AIR/22835		
10300341015	**AA99-SG**	TO-15	AIR/22835		
10300341016	**AA101-SG**	TO-15	AIR/22835		
10300341017	**AA102-SG**	TO-15	AIR/22835		
10300341018	**AA103-SG**	TO-15	AIR/22835		
10300341019	**AA95-SG**	TO-15	AIR/22835		

1030341

Pace Analytical®
www.pacelabs.com

AIR: CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

14389

Section A Required Client Information:

Company: EnviroAnalytics Group
Address: 1430 Sparrows Point Blvd
Sparrows Point, MD 21219
Email To: jcalenda@enviroanalyticsgroup.com
Phone: 314-620-3056 Fax:
Requested Due Date/TAT: 3 Day

Section B Required Project Information:

Report To: James Calenda
Copy To:
Purchase Order No.: EAG-SPT-2527
Project Name: NCM BOA
Project Number:

Section C Invoice Information:

Attention: Laura Sargent
Company Name: EnviroAnalytics Group
Address: 1650 Des Peres Rd, Suite 303 St. Louis, MO 63131
Pace Quote Reference: 00018597
Pace Project Manager/Sales Rep.: Rachael Christner
Pace Profile #:

Program: UST Superfund Emissions Clean Air Act Voluntary Clean Up Dry Clean RCRA Other

Location of Sampling by State:

Reporting Units: ug/m³ mg/m³ PPBV PPMV Other

Report Level II. III. IV. Other

'Section D Required Client Information

AIR SAMPLE ID
Sample IDs MUST BE UNIQUE

Valid Media Codes

MEDIA	CODE
Tedlar Bag	TB
1 Liter Summa Can	1LC
6 Liter Summa Can	6LC
Low Volume Puff	LVP
High Volume Puff	HVP
Other	PM10

ITEM #	AIR SAMPLE ID	MEDIA CODE	PID Reading (Client only)	COLLECTED COMPOSITE START END/GRAB DATE	COLLECTED COMPOSITE START END/GRAB TIME	COLLECTED COMPOSITE - DATE	COLLECTED COMPOSITE - TIME	Canister Pressure (Initial Field - psig)	Canister Pressure (Final Field - psig)	Summa Can Number	Flow Control Number	Method: PM10	3C- Fixed Gas (%)	TO-3	TO-3M (Methane)	TO-4 (PCBs)	TO-13 (PAH)	TO-14	TO-15	TO15 Short List*	Pace Lab ID
1	AA108-SG			3-19-15	9:35	3-20-15	9:35	-30	-4	2390								X			001
2	AA106-SG				9:37		9:37	-30	-4	1486											002
3	AA107-SG				9:38		9:38	-30	-4	0657											003
4	AA105-SG				9:39		9:39	-30	-4	0399											004
5	AA104-SG				9:41		9:41	-28	-3	570											005
6	AA100-SG				9:43		9:43	-26	-2	1289											006
7	AA97-SG				9:45		9:45	-30	-3	2742											007
8	AA98-SG				9:46		9:46	-27	-20	0839											008
9	AA92-SG				9:47		9:47	-30	-1	682											009
10	AA91-SG				9:49		9:49	-28	-1	2808											010
11	AA90-SG				9:50		9:50	-29	-21	2702											011
12	AA93-SG				9:51		9:51	-30	-4	859											012

Comments :

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Stew Kabis/EAG	3/21/15	12:45	Pace	32315	0850

SAMPLE CONDITIONS

Temp in °C	Received on Ice	Custody Sealed Cooler	Samples Intact
AmB	(Y/N)	(Y/N)	(Y/N)
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Stew Kabis
SIGNATURE of SAMPLER: [signature] DATE Signed (MM / DD / YY): 3-21-15

ORIGINAL

1030341

Pace Analytical®
www.pacelabs.com

AIR: CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

14388

Section A Required Client Information:

Company: EnviroAnalytics Group
Address: 1430 Sparrows Point Blvd
Sparrows Point, MD 21219
Email To: jcalenda@enviroanalyticsgroup.com
Phone: 314-620-3056 Fax:
Requested Due Date/TAT: 3-Day

Section B Required Project Information:

Report To: James Calenda
Copy To:
Purchase Order No.: EAG-SPT-2527
Project Name: NCM BOA
Project Number:

Section C Invoice Information:

Attention: Laura Sargent
Company Name: EnviroAnalytics Group
Address: 1650 Des Peres Rd, Suite 303 St. Louis, MO 63131
Pace Quote Reference: 00018597
Pace Project Manager/Sales Rep.: Rachael Christner
Pace Profile #:

Program: UST Superfund Emissions Clean Air Act Voluntary Clean Up Dry Clean RCRA Other

Location of Sampling by State:

Reporting Units: ug/m³ mg/m³ PPBV PPMV Other

Report Level II. III. IV. Other

ITEM #	'Section D Required Client Information AIR SAMPLE ID (Sample IDs MUST BE UNIQUE)	MEDIA CODE	PID Reading (Client only)	COLLECTED COMPOSITE START END/GRAB DATE	TIME	COMPOSITE - DATE	TIME	Canister Pressure (Initial Field - psig)	Canister Pressure (Final Field - psig)	Summa Can Number	Flow Control Number	Method: PM10	3C: Fixed Gas (%)	TO-3	TO-3M (Methane)	TO-4 (PCBs)	TO-13 (PAH)	TO-14	TO-15	TO15 Short List*	Pace Lab ID
1	AA94-SG			3-19-15	9:51	3-20	9:51	-30	-4	2094								X			013
2	AA96-SG			3-19-15	9:52	3-20	9:52	-30	-6	955											014
3	AA99-SG			3-19-15	9:53	3-20	9:53	-28	-1.5	2335											015
4	AA101-SG			3-19-15	9:54	3-20	9:54	-30	-2	2749											016
5	AA102-SG			3-19-15	9:56	3-20	9:56	-30	-4	1666											017
6	AA103-SG			3-19-15	9:57	3-20	9:57	-30	-1	963											018
7	AA95-SG			3-20-15	11:30	3-21-15	11:30	-28	-4	1046											019
8																					
9																					
10																					
11																					
12																					

Valid Media Codes: Tedlar Bag TB; 1 Liter Summa Can 1LC; 6 Liter Summa Can 6LC; Low Volume Puff LVP; High Volume Puff HVP; Other PM10

Comments :

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Steve Kabis/EAG	3-21-15	12:45	[signature] Pace	32315	0850

SAMPLE CONDITIONS

Amb	Y/N	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N	Y/N
	Temp in °C	Received on Ice	Custody Sealed Cooler	Samples Intact

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Steve Kabis

SIGNATURE of SAMPLER: [signature] DATE Signed (MM / DD / YY): 3-21-15

ORIGINAL

1700 Elm Street SE, Suite 200, Minneapolis, MN 55414 Air Technical Phone: 612.607.6386

Pace Analytical	Document Name: **SCUR Exceptions Form**	Document Revised: 16Apr2012 Page 1 of 1
	Document No.: **F-MN-L-220-Rev.00**	Issuing Authority: Pace Minnesota Quality Office

Workorder #: _____

Issue	Sample ID	Container Type/#
6322 3807 7425		
6322 3807 7447		
6322 3807 7458		
6322 3807 7414		
6322 3807 7436		

Pace Analytical®	Document Name: Air Sample Condition Upon Receipt	Document Revised: 26Dec2013 Page 1 of 1
	Document No.: F-MN-A-106-rev.09	Issuing Authority: Pace Minnesota Quality Office

Air Sample Condition Upon Receipt

Client Name: enviro Analytics Group

Project #: WO# : 10300341

10300341

Courier: ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace ☐ Other: _____

Tracking Number: on other sheet

Custody Seal on Cooler/Box Present? ☐ Yes ☒ No **Seals Intact?** ☐ Yes ☒ No

Optional: Proj. Due Date: Proj. Name:

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☒ Foam ☐ None ☐ Other: _____ **Temp Blank rec:** ☐ Yes ☒ No

Temp. (TO17 and TO13 samples only) (°C): _____ **Corrected Temp (°C):** _____ **Thermom. Used:** ☐ B88A912167504 ☐ B88A9132521491 ☐ 72337080 ☐ 80512447

Temp should be above freezing to 6°C **Correction Factor:** _____ **Date & Initials of Person Examining Contents:** 3/23/15

Type of ice Received ☐ Blue ☐ Wet ☒ None

				Comments:
Chain of Custody Present?	☒ Yes	☐ No	☐ N/A	1.
Chain of Custody Filled Out?	☒ Yes	☐ No	☐ N/A	2.
Chain of Custody Relinquished?	☒ Yes	☐ No	☐ N/A	3.
Sampler Name and/or Signature on COC?	☒ Yes	☐ No	☐ N/A	4.
Samples Arrived within Hold Time?	☒ Yes	☐ No	☐ N/A	5.
Short Hold Time Analysis (<72 hr)?	☐ Yes	☒ No	☐ N/A	6.
Rush Turn Around Time Requested?	☒ Yes	☐ No	☐ N/A	7. 3 day
Sufficient Volume?	☒ Yes	☐ No	☐ N/A	8.
Correct Containers Used?	☒ Yes	☐ No	☐ N/A	9.
-Pace Containers Used?	☒ Yes	☐ No	☐ N/A	
Containers Intact?	☒ Yes	☐ No	☐ N/A	10.
Media: air can				11.
Sample Labels Match COC?	☒ Yes	☐ No	☐ N/A	12.

Samples Received:

Canisters		Flow Controllers		Stand Alone G	
Sample Number	Can ID	Sample Number	Can ID	Sample Number	Can ID
108	2390	0146	90	2702	0745
106	1486	1052	93	0859	0279
107	0657	0376	94	2094	0437
105	0399	0752	96	0955	0743
104	0570	1046	99	2335	0892
100	1289	0069	101	2749	0742
97	2742	0389	102	1666	0210
98	0839	0313	103	0963	0306
92	0682	0094	95	1046	0543
91	2808	0599			

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** ☐ Yes ☐ No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

Project Manager Review: _____ **Date:** 3/23/15

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

APPENDIX B

Parcel A4 Sampling Plan Summary
Former Sparrows Point Steel Mill
Sparrows Point, Maryland

Table 1 - Soil Sampling Summary

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
Pipe Mill Trenches/Sump	SWMU 49	DCC Figure 3-1	The Pipe Mill Trenches/Sumps were identified as a unit associated with piping designed to transport process wastewater from the Pipe Mill to the Tin Mill Canal Discharge Pipes and ultimately to the TMC. This unit was dismantled in 1983 and no longer discharges to the TMC.	2	A4-001 and A4-002	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, O&G, PCBs (0-1')
Hydraulic Oil Storage Area	AOC O	DCC Figure 3-1	AOC O was described as containing approximately 30 drums containing non-hazardous, water-based hydraulic oil stored outside on soil and gravel. During a 1997 site inspection, the area contained no drums and was overgrown with vegetation and general debris.	2	A4-003 and A4-004	Total depth of 20 feet or groundwater.	0-1', 4-5', 9-10' bgs. 4-5' interval may be adjusted in the field based on observations or field screening.	VOC, SVOC, Metals, O&G, PCBs (0-1'), DRO/GRO
Acid Storage Tanks		Drawing 5149	Investigate potential impacts related to acid storage tanks.	2	A4-005 and A4-006	Total depth of 20 feet or groundwater.	0-1', 4-5', 9-10' bgs. 4-5' interval may be adjusted in the field based on observations or field screening.	VOC, SVOC, Metals, O&G, PCBs (0-1')
Waste Oil Tank		Drawing 5154	Investigate potential impacts from waste oil tank.	2	A4-007 and A4-008	Total depth of 20 feet or groundwater.	0-1', 4-5', 9-10' bgs. 4-5' interval may be adjusted in the field based on observations or field screening.	VOC, SVOC, Metals, O&G, PCBs (0-1'), DRO/GRO
Parcel A4 Coverage			Investigate potential impacts related to historical activities.	20	A4-009 through A4-028	Total depth of 20 feet or groundwater.	0-1', 4-5', 9-10' bgs. 4-5' interval may be adjusted in the field based on observations or field screening.	VOC, SVOC, Metals, O&G, PCBs (0-1')
			Total:	28				

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

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

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

No Engineered Barrier (33.3 acres) = **23 Samples**

Engineered Barrier - Paving/Buildings (28.1 acres)

Roads/Parking (10.0 acres) = **5 Samples**

Building Footprints (18.1 acres) = **N/A** (Covered by Soil Gas, see Appendix B)

VOCs - Volatile Organic Compounds (Target Compound List)

SVOCs - Semivolatile Organic Compounds (Target Compound List)

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

O&G - Oil and Grease

PCBs - Polychlorinated Biphenyls

DRO/GRO - Diesel Range Organics/Gasoline Range Organics

bgs - Below Ground Surface

Parcel A4 Sampling Plan Summary
Former Sparrows Point Steel Mill
Sparrows Point, Maryland

Table 2 - Groundwater Sampling Summary

Source Area/ Description	REC & Finding/ SWMU/AOC	Figure or Drawing of Reference	Condition of Existing Well	Number of Locations	Sample Locations	Boring Depth	Screen Interval	Analytical Parameters: Groundwater Samples†
Pipe Mill Trenches/Sump	SWMU 49	DCC Figure 3-1	*N/A*	1	A4-001	Total depth of 7 feet below water table.	7 feet below water table to 3 feet above water table.	VOC, SVOC, O&G, Dissolved Metals
Waste Oil Tank		Drawing 5154	*N/A*	1	A4-007	Total depth of 7 feet below water table.	7 feet below water table to 3 feet above water table.	VOC, SVOC, O&G, Dissolved Metals, DRO/GRO
Acid Storage Tanks		Drawing 5149	*N/A*	1	A4-005	Total depth of 7 feet below water table.	8 feet below water table to 3 feet above water table.	VOC, SVOC, O&G, Dissolved Metals
Parcel A4 Coverage			*N/A*	4	A4-010, A4-012 through A4-014	Total depth of 7 feet below water table.	7 feet below water table to 3 feet above water table.	VOC, SVOC, O&G, Dissolved Metals
Existing Groundwater Well			To be inspected prior to the start of parcel work.	1	SW04-PZM001*	Total depth of 13 feet bgs.	13 feet to 3 feet bgs.	VOC, SVOC, O&G, Dissolved Metals
			Total:	8				

*SW04-PZM001 could not be located in the field and was replaced with shallow piezometer A4-019-PZ

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

APPENDIX C

ARM Group Inc.
Earth Resource Engineers and Consultants

Boring ID: A4-001-SB

(page 1 of 1)

Client	: EnviroAnalytics Group
ARM Project No.	: 150298M-2-3
Project Description	: Sparrows Point - Parcel A4
Site Location	: Sparrows Point, MD
ARM Representative	: L. Perrin
Checked by	: P. Vogel, P.G.
Drilling Company	: Green Services, Inc
Driller	: Kevin Pumphrey
Drilling Equipment	: Geoprobe 7822DT

Date Started	: 11-2-15
Weather	: Cloudy/ 60s
Northing (US ft)	: 571,105.00
Easting (US ft)	: 1,458,076.32

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No:	DESCRIPTION	USCS	REMARKS
0		-	A4-001-SB-1	(0-1.5') Topsoil, brown, moist	OL	
		5.9		(1.5-1.83') Slag, brown, medium grained sand and gravel sized, soft, dry	SW	
	70	6.9		(1.83-2.08') Asphalt, dry	- GP-SW	
		10.6		(2.08-2.75') Slag, brown, medium grained sand to gravel sized with asphalt, soft, dry		
		7.7	A4-001-SB-5	(2.75-6') SAND and gravel, light beige, medium grained sand and quartz gravel, loose, soft, 1" layer of orange wet sand at 4' bgs	SW-GP	
5		-				
		3.9				
	60	-		(6-8.58') SAND and gravel, light beige, medium grained sand with gray quartz gravels, loose, soft	SW-GW	Wet at 7.5' bgs
		4.2		(8.58-9.75') GRAVEL, gray, wet, loose, hard	GW	
		2.4		(9.75-10') CLAY, gray, with gravel, moist, high cohesion, high plasticity	CH	
10		-		(10-16.5') No Recovery		
		-				
	0	-				
		-				
		-				
15		-				
		-				
		-		(16.5-17.5') SAND, gray, grading to clayey sand, soft, moist to very moist	SW-SC	
	70	0.0		(17.5-20') CLAY, gray to orangish gray, firm, moist, high cohesion, high plasticity	CH	
		-				
20		-				Boring terminated at 20' bgs

Total Borehole Depth: 20' bgs.

ARM Group Inc.
Earth Resource Engineers and Consultants

Boring ID: A4-002-SB

(page 1 of 1)

Client	: EnviroAnalytics Group
ARM Project No.	: 150298M-2-3
Project Description	: Sparrows Point - Parcel A4
Site Location	: Sparrows Point, MD
ARM Representative	: L. Perrin
Checked by	: P. Vogel, P.G.
Drilling Company	: Green Services, Inc
Driller	: Kevin Pumphrey
Drilling Equipment	: Geoprobe 7822DT

Date Started	: 11-2-15
Weather	: Cloudy/ 60s
Northing (US ft)	: 571,102.640
Easting (US ft)	: 1,458,051.366

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No:	DESCRIPTION	USCS	REMARKS
0		-	A4-002-SB-1	(0-2') Slag with gravelly sand, loose, brown, dry	SW	
		0.9				
	76	5.7		(2.0-2.42') SAND, firm, orange, dry, medium grained,	SW	
		32.0		(2.42-4.58') Slag, brown to dark brown, medium grained to gravel sized	SW	
		80.1	A4-002-SB-5			
5		-		(4.58-6') CLAY with SAND, light brown, soft, moist, high cohesion, very high plasticity	CH	
		-		(6-10') GRAVEL with SAND, gray, black oily water with shean, fill		
	40	-			GW	Wet at 8' bgs Petroleum odor
		-				
		-	A4-002-SB-10			
10						Boring terminated at 10' bgs
15						
20						

Total Borehole Depth: 10' bgs.

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ARM Group Inc.
Earth Resource Engineers and Consultants

Boring ID: A4-003-SB

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Client	: EnviroAnalytics Group
ARM Project No.	: 150298M-2-3
Project Description	: Sparrows Point - Parcel A4
Site Location	: Sparrows Point, MD
ARM Representative	: L. Perrin
Checked by	: P. Vogel, P.G.
Drilling Company	: Green Services, Inc
Driller	: Kevin Pumphrey
Drilling Equipment	: Geoprobe 7822DT

Date Started	: 11-2-15
Weather	: Cloudy/ 60s
Northing (US ft)	: 571,058.994
Easting (US ft)	: 1,458,171.019

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No:	DESCRIPTION	USCS	REMARKS
0		0.4	A4-003-SB-1	(0-3') SAND fine to medium grained, loose, brown, dry,	SW	
		3.0				
	80	3.8				
		2.4		(3-3.33') Concrete, light gray, sand to gravel sized, moist, loose	SW	
				(3.33-3.58') Asphalt, black, sand to gravel sized, moist, loose, soft	SW	
		3.5		(3.58-5') Slag, loose, gray to black, moist, gravel sized	GP	
5		-		(5-8.5') Slag, loose, black, slightly moist, fine to coarse grained, rust coated	SW-GP	
		58.5				
	80	316.6	A4-003-SB-7.5			Wet at 7.5' bgs
		110.3		(8.5-9.5') SAND and GRAVEL, loose, orangish red to black and white, moist, coarse grained sand	SW-GP	
		50.5		(9.5-11') Slag, loose, black, wet, coarse grained to gravel sized, with clay	SW-SC	
10		-				
		-		(11-14') Sandy CLAY, dark brown to black, with slag gravels, wet, medium cohesion, low plasticity	CL	
	50	-				
		-				
		-		(14-15') CLAY, beige, rust stained, wet, high cohesion, high plasticity	CH	Boring terminated at 15' bgs
15						

Total Borehole Depth: 15' bgs.

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ARM Group Inc.
Earth Resource Engineers and Consultants

Boring ID: A4-004-SB

(page 1 of 1)

Client	: EnviroAnalytics Group
ARM Project No.	: 150298M-2-3
Project Description	: Sparrows Point - Parcel A4
Site Location	: Sparrows Point, MD
ARM Representative	: L. Perrin
Checked by	: P. Vogel, P.G.
Drilling Company	: Green Services, Inc
Driller	: Kevin Pumphrey
Drilling Equipment	: Geoprobe 7822DT

Date Started	: 11-2-15
Weather	: Cloudy/ 60s
Northing (US ft)	: 571,174.530
Easting (US ft)	: 1,458,159.990

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No:	DESCRIPTION	USCS	REMARKS
0		3.7	A4-004-SB-1	(0.5-1.5') CLAY with SAND w some gravel slag, brown, moist, high cohesion, moderate plasticity	CH	
		13.6		(1.5-2') CLAY with SAND w some gravel slag, black, moist, high cohesion, high plasticity	CH	
	90	220.7		(2-5') CLAY with SAND, soft to very soft, brown, moist, high cohesion, moderate plasticity, 2-2" layers of asphalt gravel	CL	
		697.0				
		802.3	A4-004-SB-5			
5		-		(5-7') SAND with GRAVEL, loose, brown, dry	GP-SW	
		259.2				
				(7-7.4') SAND and concrete gravel, white & gray, dry	GP-SW	
	80	566.7		(7.4-8.6') SAND with GRAVEL slag, loose, brown, dry	SW	
		510.6		(8.6-9.0') CLAY with asphalt gravel, tan, moderate cohesion, moderate plasticity	CL	Wet at 9' bgs
		2.2		(9-10') CLAY with SILT, black and dark frown, very moist, moderate cohesiveness, low plasticity	CL	
10		-		(12.5-14.2') CLAY with GRAVEL, tan, moist, high cohesiveness, high plasticity	CH	
		-				
	50	-				
		-				
		-		(14.2-15') GRAVEL slag with SAND, loose, black, wet	GP-SW	
15						Boring terminated at 15' bgs

Total Borehole Depth: 15' bgs.

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ARM Group Inc.
Earth Resource Engineers and Consultants

Boring ID: A4-005-SB

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Client	: EnviroAnalytics Group
ARM Project No.	: 150298M-2-3
Project Description	: Sparrows Point - Parcel A4
Site Location	: Sparrows Point, MD
ARM Representative	: L. Perrin
Checked by	: P. Vogel, P.G.
Drilling Company	: Green Services, Inc
Driller	: Kevin Pumphrey
Drilling Equipment	: Geoprobe 7822DT

Date Started	: 11-4-15
Weather	: Sunny, 70s
Northing (US ft)	: 571,744.657
Easting (US ft)	: 1,458,067.106

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No:	DESCRIPTION	USCS	REMARKS
0		0.6	A4-005-SB-1	(0-0.25') Topsoil, brown, soft, loose, trace fines, dry	OL	
		0.5		(0.25-4.75') Slag, brown and black, medium grained to gravel sized, loose, dry	GP	
	100	8.1				
		21.3				
		141.8	A4-005-SB-5			
5		-		(4.75-5') GRAVEL, gray, with sand, dry	GP	
		5.2		(5-7.5') Slag, black, coarse grained to gravel sized, wet, loose	SW-GP	Wet at 6.5' bgs (perched)
	70	0.1		(7.5-10') CLAY, light brown, very soft, very moist, very high cohesion, very high plasticity	CH	
		0.2				
		0.1	A4-005-SB-10	Soft and high cohesion and plasticity at 8.83' bgs		
10		0.0		(10-10.33') Slag, black, coarse grained, wet	SW	
		0.0		(10.33-15') CLAY, light gray to beige, hard, high cohesion, high plasticity	CH	
	100	0.0				
		0.0				
		-				
15		0.0		(15-19') CLAY, light gray, trace sand, with orange mottling	CH	
		0.0				
	100	0.0				
		0.0				
		-		(19-20') CLAY, dark gray, trace sand, with orange mottling	CH	
20		-		(20-20.42') CLAY, dark gray, very moist, very soft, very high cohesion, very high plasticity	CH	
		-		(20.42-22.5') SAND, dark gray, wet, soft	SW	
	100	-		(22.5-25') CLAY, dark gray, very moist, very soft, very high cohesion, very high plasticity	CH	Wet at 23' bgs
		-				
		-				Boring terminated at 25' bgs
25						

Total Borehole Depth: 25' bgs.

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ARM Group Inc.
Earth Resource Engineers and Consultants

Boring ID: A4-006-SB

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Client	: EnviroAnalytics Group
ARM Project No.	: 150298M-2-3
Project Description	: Sparrows Point - Parcel A4
Site Location	: Sparrows Point, MD
ARM Representative	: L. Perrin
Checked by	: P. Vogel, P.G.
Drilling Company	: Green Services, Inc
Driller	: Kevin Pumphrey
Drilling Equipment	: Geoprobe 7822DT

Date Started	: 11-4-15
Weather	: Cloudy/ 60s
Northing (US ft)	: 571,824.945
Easting (US ft)	: 1,458,064.94

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No:	DESCRIPTION	USCS	REMARKS
0		-	A4-006-SB-1	(0-2.5') SAND and quartz gravel, brown, medium to coarse grained, soft, loose, dry	SW	
	60	4.5		(2.5-4.33') Sandy SILT to sand, brown, dry to wet at 3.5' bgs, low cohesion, no plasticity	SW-SM	Wet at 3.5' (perched)
		11.9		(4.33-5') Concrete, light gray, hard	-	
5		-	A4-006-SB-6	(5-7.58') GRAVEL and sand, brown to light gray, dry, loose	GP-SW	
	63	57.9		(7.58-8.25') GRAVEL and sand, gray to black, wet, loose	GP-SW	Wet at 8' bgs (perched)
		0.4		(8.25-9.25') Sandy CLAY, black ,very moist, very soft, high cohesion, high plasticity	CH	Wet at 10' bgs (perched)
		1.9	A4-006-SB-10	(9.25-9.66') SILT, light gray, trace sand, hard, low cohesion, no plasticity	ML	
10		-		(9.66-10') Clayey SAND, gray, very soft, wet, low cohesion, low plasticity	SC	
		-		(10-12.42') SAND, brown, wet	SW	
	60	0.0		(12.42-15') CLAY, beige to gray, trace sand, firm, moist, high cohesion, medium plasticity	CH	
		0.0				
15		-		(15-20') CLAY, light gray, hard, with orange mottling, moist, high cohesion, high plasticity	CH	
		-				
	80	0.0				
		0.0				
20		-				Boring terminated at 20' bgs

Total Borehole Depth: 20' bgs.

ARM Group Inc.
Earth Resource Engineers and Consultants

Boring ID: A4-007-SB

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Client	: EnviroAnalytics Group
ARM Project No.	: 150298M-2-3
Project Description	: Sparrows Point - Parcel A4
Site Location	: Sparrows Point, MD
ARM Representative	: L. Perrin
Checked by	: P. Vogel, P.G.
Drilling Company	: Green Services, Inc
Driller	: Kevin Pumphrey
Drilling Equipment	: Geoprobe 7822DT

Date Started	: 11-3-15
Weather	: Cloudy/ 60s
Northing (US ft)	: 572,372.75
Easting (US ft)	: 1,457,964.554

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No:	DESCRIPTION	USCS	REMARKS
0		-	A4-007-SB-1	(0-1.25') Topsoil, brown, dry	OL	
		0.8		(1.25-3.25') SAND, light beige, medium grained with quartz gravels, silt lens at 2' bgs	SW	
	80	26.2				
		11.4		(3.25-3.50') Slag, glassy, black, hard	GM	
		7.9	A4-007-SB-5	(3.50-4.66') Sandy CLAY, brown, soft, dry, high cohesion, high plasticity	CH	
5		-		(4.66-5') CLAY, light gray with orange mottling, dry, medium cohesion, medium plasticity	CL	
		1.5		(5-6.83') Clayey SAND, orangish brown, soft, moist, medium cohesion, medium plasticity	SW-SC	
		5.1		(6.83-7.33') Sandy CLAY, dark beige, firm, moist, high cohesion, high plasticity	CH	
	70				SW	
		2.7		(7.33-7.66') SAND, brown, moist, soft		
		0.4	A4-007-SB-10	(7.66-10') CLAY, light gray, moist, soft, high cohesion, high plasticity	CH	
10		-		(10-13.5') CLAY, gray with orange mottling, slighty soft, trace sand, high cohesion, high plasticity	CH	
		-				
	60	0.0				
		0.0		(13.5-15') CLAY, dark gray, very moist, very soft, very high cohesion, very high plasticity	CH	
		0.0				
15		-		(15-19.33') CLAY, dark gray, very moist, very soft, very high cohesion, very high plasticity	CH	
		0.0				
	80	-				
		-				
		-				Wet at 19.4' bgs
20				(19.33-20') SAND, gray, soft, trace clay, wet	SW	Boring terminated at 20' bgs

Total Borehole Depth: 20' bgs.

ARM Group Inc.
Earth Resource Engineers and Consultants

Boring ID: A4-008-SB

(page 1 of 1)

Client	: EnviroAnalytics Group
ARM Project No.	: 150298M-2-3
Project Description	: Sparrows Point - Parcel A4
Site Location	: Sparrows Point, MD
ARM Representative	: L. Perrin
Checked by	: P. Vogel, P.G.
Drilling Company	: Green Services, Inc
Driller	: Kevin Pumphrey
Drilling Equipment	: Geoprobe 7822DT

Date Started	: 11-3-15
Weather	: Sunny 60s
Northing (US ft)	: 572411.15
Easting (US ft)	: 1,457,999.03

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No:	DESCRIPTION	USCS	REMARKS
0		-	A4-008-SB-1	(0-2.5') SAND, light beige, medium grained with quartz gravel, soft, dry	SW	
		-				
	60	7.6		(2.5-3') Concrete, gray to black, hard, dry	-	
		6.8		(3-4') SAND, light beige with orange mottling, very dry, firm	SW	
		5.2	A4-008-SB-5	(4-5') SILT, light gray with orange mottling, very dry, very firm, low cohesion, no plasticity	ML	
5		1.2		(5-7') Clayey SAND, light gray to beige with orange mottling with depth	SW-SC	
		0.7				
	100	0.0		(7-12') CLAY, light gray with orange mottling, soft to very soft, moist, trace sand, very high cohesion, very high plasticity	CH	
		0.0				
		0.0	A4-008-SB-10			
10		-		(12.33-15') Sandy CLAY, grayish brown, wet, very soft, visible water present, very high plasticity, very high cohesion	CH	
		-				
	13	-				
		-				
		-				
15		-		(15-19.66') CLAY, dark gray, very soft, very moist, very high cohesion, very high plasticity, grading to sandy clay with depth	CH	
		-				
	80	0.0				
		0.0				
		-				Wet at 19.5' bgs
20				(19.66-20') SAND, dark gray, soft, wet	SW	Boring terminated at 20' bgs

Total Borehole Depth: 20' bgs.

ARM Group Inc.
Earth Resource Engineers and Consultants

Boring ID: A4-009-SB

(page 1 of 1)

Client	: EnviroAnalytics Group
ARM Project No.	: 150298M-2-3
Project Description	: Sparrows Point - Parcel A4
Site Location	: Sparrows Point, MD
ARM Representative	: L. Perrin
Checked by	: P. Vogel, P.G.
Drilling Company	: Green Services, Inc
Driller	: Kevin Pumphrey
Drilling Equipment	: Geoprobe 7822DT

Date Started	: 11-3-15
Weather	: Sunny 60s
Northing (US ft)	: 572,598.976
Easting (US ft)	: 1,458,099.535

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No:	DESCRIPTION	USCS	REMARKS
0		0.2	A4-009-SB-1	(0-3') SILT, brown grading to light gray, hard, bits of clay sand and roots throughout, medium cohesion, no plasticity	ML	
		0.3				
	100	0.3				
		0.3		(3-4.83') SAND, light gray, trace silt, moist, soft, 2" of beige-orange sand at 4.5' bgs	SW	
		0.4	A4-009-SB-5			
5		0.3		(4.83-5') Clayey SAND, light gray, soft, slightly moist, slight cohesion, slight plasticity	SC SW	
				(5-5.66') SAND, orange, soft, moist		
		1.2		(5.66-7.58') CLAY, light gray with orange mottling, trace sand, moist, high cohesion, high plasticity	CH	
	90	2.2				
		3.1		(7.58-8.58') CLAY, dark brown with orange mottling, trace sand, moist, high cohesion, high plasticity	CH	
		2.9		(8.58-9.66') Clayey SAND, light brown, very moist, soft, low cohesion, medium plasticity	SC	
10		-		(9.66-10') CLAY, light gray, trace sand, firm, moist, high cohesion, high plasticity	CH	
		-		(10-15') CLAY, beige grading to dark gray, soft, high cohesion, high plasticity	CH	
	60	0.0				
		0.0				
		-				
15		-		(15-20') CLAY, dark gray, very moist, very soft, very high cohesion, very high plasticity	CH	
		-				
	80	0.0				
		0.0				
		-				
20						Boring terminated at 20' bgs

Total Borehole Depth: 20' bgs.

ARM Group Inc.
Earth Resource Engineers and Consultants

Boring ID: A4-010-SB

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Client	: EnviroAnalytics Group
ARM Project No.	: 150298M-2-3
Project Description	: Sparrows Point - Parcel A4
Site Location	: Sparrows Point, MD
ARM Representative	: L. Perrin
Checked by	: P. Vogel, P.G.
Drilling Company	: Green Services, Inc
Driller	: Kevin Pumphrey
Drilling Equipment	: Geoprobe 7822DT

Date Started	: 11-3-15
Weather	: Sunny 70s
Northing (US ft)	: 572,638.796
Easting (US ft)	: 1,458,700.221

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No:	DESCRIPTION	USCS	REMARKS
0		1.2	A4-010-SB-1	(0-1.66') Topsoil, brown, dry	OL	
		4.9				
	90	8.7		(1.66-2.5') Clayey SAND, tan, moist, soft, 3" quartz gravel layer	SC	
				(2.5-2.83') Asphalt, black, dry, loose, gravel sized	-	
		33.9		(2.83-3.5') SAND, light beige, medium to coarse grained with gravel slag, wet	SW/GP	Wet at 3' bgs (perched)
		97.7	A4-010-SB-5	(3.5-5') Slag, black, cinder ballast, soft, loose, dry, fine to coarse grained with gravel	SW/GP	
5		0.1		(5-9.66') CLAY, light gray with orange mottling, moist, soft, high cohesion, high plasticity, sand mixed in at 9' bgs		
		0.2				
	100	0.3			CH	
		0.3				
		0.2	A4-010-SB-10			
10		-		(9.66-10') Cinder ballast, black, fine grained, rust colored sand, very moist, soft	SW	
		-		(10-15') CLAY, beige grading to dark gray, soft, high cohesion, very high plasticity		
	70	-			CH	
		-				
		-				
15		-		(15-19.66') CLAY, dark gray, very moist, very soft, very high cohesion, very high plasticity		
		-				
	60	-			CH	
		-				
		-				Wet at 19.5' bgs
20				(19.66-20') SAND, dark gray, wet, soft	SW	Boring terminated at 20' bgs

Total Borehole Depth: 20' bgs.

ARM Group Inc.
Earth Resource Engineers and Consultants

Boring ID: A4-011-SB

(page 1 of 1)

Client	: EnviroAnalytics Group
ARM Project No.	: 150298M-2-3
Project Description	: Sparrows Point - Parcel A4
Site Location	: Sparrows Point, MD
ARM Representative	: L. Perrin
Checked by	: P. Vogel, P.G.
Drilling Company	: Green Services, Inc
Driller	: Kevin Pumphrey
Drilling Equipment	: Geoprobe 7822DT

Date Started	: 11-2-15
Weather	: Cloudy 60s
Northing (US ft)	: 570,753.379
Easting (US ft)	: 1,458,168.971

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No:	DESCRIPTION	USCS	REMARKS
0		411.3	A4-011-SB-1 MS/MSD	(0-3.42') SAND, brown, soft, loose, very fine to medium grained, trace silt,clay, and gravel slag, dry, moist at 2.92'	SW	Solvent odor
		400.6				
	92	213.3				
		46.6		(3.42-3.75') Asphalt, black	-	
		6.8	A4-011-SB-5	(3.75-4.25') SAND, brown, soft, loose, very fine to medium grained, moist, trace silt,clay, and gravel slag	SW	
5		-		(4.25-4.5') Cinder ballast, black, sand sized, moist	SW	
		-		(4.5-4.83') Slag, beige, sand to gravel sized, moist, soft	SW	
				(4.83-5') Cinder ballast, black, moist		
	40	-		(5-8.33') Cinder ballast, black, coarse grained with slag gravels, dry, loose	GP	
		7.2		(8.33-9.83') Slag, black, sand and gravel sized, dry	SW/GP	
10		-		(9.83-10') Slag, black, gravel sized with brown clay, soft, moist, low plasticity, low cohesion	GC	
		-		(10-17.83) No Recovery		
		-				
	0	-			-	
		-				
15		-				
		-				
	43	-				
		-		(17.83-20') Slag, gray, with fine to coarse grained sand, wet, black water	GP	Wet at 18' bgs
		-				
20						Boring terminated at 20' bgs

Total Borehole Depth: 20' bgs.

ARM Group Inc.
Earth Resource Engineers and Consultants

Boring ID: A4-012-SB

(page 1 of 1)

Client	: EnviroAnalytics Group
ARM Project No.	: 150298M-2-3
Project Description	: Sparrows Point - Parcel A4
Site Location	: Sparrows Point, MD
ARM Representative	: L. Perrin
Checked by	: P. Vogel, P.G.
Drilling Company	: Green Services, Inc
Driller	: Don Marchese
Drilling Equipment	: Geoprobe 7822DT

Date Started	: 11-5-15
Weather	: Rainy
Northing (US ft)	: 570,367.940
Easting (US ft)	: 1,458,231.260

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No:	DESCRIPTION	USCS	REMARKS
0		1.0	A4-012-SB-1	(0-5') SAND, brown grading to black, medium to coarse grained with gravel slag, dry, loose, soft, no cohesion, no plasticity, moist at 4' bgs	SW/GP	
		24.6				
	90	52.5				
		47.4				
		18.3	A4-012-SB-5			
5		15.2		(5-8') SAND, brown, medium to coarse grained with gravel slag and trace clay, dry, loose, soft, no cohesion, no plasticity	GW/GP	
		30.6				
	90	21.9				
		15.6		(8-9') Sandy CLAY, brown, very soft, very moist, medium cohesion, medium plasticity	CL/SC	
		14.1	A4-012-SB-10	(9-9.5') Slag, brown to black, gravel sized with coarse sand, wet	GP	Wet at 9' bgs
10		-		(9.5-10') Sandy CLAY, brown with black mottling, very moist, soft, medium cohesion, medium plasticity	CL/SC	
		-		(10-12.66') Clayey SAND with gravel slag, greenish brown, wet	GP	
	50	0.0		(12.66-13.16') CLAY, mint green, with trace sand, soft, moist, high cohesion, high plasticity	CH	
		0.0		(13.16-13.66') SAND, grading to Sandy CLAY, beige, soft, wet, clay exhibits medium cohesion, medium plasticity	SW-SC	
		0.0		(13.66-15') SAND, dark beige, soft, wet	SW	
15		-		(15-17.83') Clayey SAND with gravel slag, greenish brown, wet	SP-SC	
		-				
	60	-		(17.83-18.5') CLAY, green with black streaks, slight odor, very soft, very moist, high cohesion, high plasticity	CH	Odor
		0.0		(18.5-20') CLAY, light gray with orange mottling, moist	CH	
		0.0		(20-21.16') Clayey SAND, greenish gray, wet	SW-SC	
20		-		(21.16-21.5') CLAY, brown, soft, moist, high cohesion, high plasticity	CH	
		-		(21.5-25') SAND, orange, medium to coarse grained, soft, wet	SW	
	87	0.0				
		0.0				
25		-				Boring terminated at 25' bgs

Total Borehole Depth: 25' bgs.

ARM Group Inc.
Earth Resource Engineers and Consultants

Boring ID: A4-013-SB

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Client	: EnviroAnalytics Group
ARM Project No.	: 150298M-2-3
Project Description	: Sparrows Point - Parcel A4
Site Location	: Sparrows Point, MD
ARM Representative	: L. Perrin
Checked by	: P. Vogel, P.G.
Drilling Company	: Green Services, Inc
Driller	: Don Marchese
Drilling Equipment	: Geoprobe 7822DT

Date Started	: 11-5-15
Weather	: Cloudy/ 60s
Northing (US ft)	: 570,659.629
Easting (US ft)	: 1,458,543.971

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No:	DESCRIPTION	USCS	REMARKS
0		-	A4-013-SB-1	(0-2') Topsoil, brown, soft, with fines, dry	OH	
		4.0				
	70	18.3		(2-5') Slag, black to beige, coarse sand to gravel sized, loose, salmon colored fat clay at 4' bgs, dry	SW/GP	
		240.0	A4-013-SB-4			
		112.9				
5		-		(5-6') Slag, brown to black, with medium to coarse grained sand, dry	GP/SW	
		-		(6-10') Slag, brown to black, wet, strong petroleum odor, loose, soft	GP/SW	Wet at 6' bgs Petroleum odor
	70	65.4				
		248.5				
		136.3				
10		-		(10-15') Sandy CLAY, greenish black, with gravels, very wet, soft	GP/SC	
		-				
	40	-				
		-				Petroleum odor
		-				
15						

Total Borehole Depth: 15' bgs.

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ARM Group Inc.
Earth Resource Engineers and Consultants

Boring ID: A4-014-SB

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Client	: EnviroAnalytics Group
ARM Project No.	: 150298M-2-3
Project Description	: Sparrows Point - Parcel A4
Site Location	: Sparrows Point, MD
ARM Representative	: L. Perrin
Checked by	: P. Vogel, P.G.
Drilling Company	: Green Services, Inc
Driller	: Don Marchese
Drilling Equipment	: Geoprobe 7822DT

Date Started	: 11-5-15
Weather	: Cloudy 60s
Northing (US ft)	: 571,114.490
Easting (US ft)	: 1,459,217.582

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No:	DESCRIPTION	USCS	REMARKS
0						
	60	1.7	A4-014-SB-1	(0-5') Slag, brown to beige, sand to gravel sized up to 3", 3" lenses of Silty CLAY throughout, dry, loose	SW/GP	
		1.9				
		4.4				
5		3.9		(5-6.5') CLAY, olive green, trace silt and gravel slag, moist, soft, medium cohesion, high plasticity	CH	
		1.4	A4-014-SB-7	(6.5-7.5') CLAY, gray with black streaks, organics, strong petroleum odor, trace sand, very high cohesion, very high plasticity	CH	Strong petroleum odor at 7' bgs
	100	0.4				
		6.1		(7.5-10') CLAY, light gray with orange mottling, hard, trace sand, medium cohesion, medium plasticity	CH	
		1.4	A4-014-SB-10			
10				(10-15') CLAY, light gray to beige with orange mottling, firm, moist, high cohesion, high plasticity	CH	
	100	0.0				
		0.0				
		0.0				
15				(15-22.5') CLAY, light gray to beige with orange mottling, very soft, moist, very high cohesion, very high plasticity	CH	
	100	0.0				
		0.0				
		0.0				
20		0.0				
	100			(22.5-24') SAND, orange, soft, wet	SW	Wet at 22.5' bgs
				(24-25') CLAY, light brown, very moist, very soft, very high cohesion, very high plasticity	CH	Boring terminated at 25' bgs
25						

Total Borehole Depth: 25' bgs.

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ARM Group Inc.
Earth Resource Engineers and Consultants

Boring ID: A4-015-SB

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Client	: EnviroAnalytics Group
ARM Project No.	: 150298M-2-3
Project Description	: Sparrows Point - Parcel A4
Site Location	: Sparrows Point, MD
ARM Representative	: L. Perrin
Checked by	: P. Vogel, P.G.
Drilling Company	: Green Services, Inc
Driller	: Kevin Pumphrey
Drilling Equipment	: Geoprobe 7822DT

Date Started	: 11-4-15
Weather	: Sunny 70s
Northing (US ft)	: 571,628.380
Easting (US ft)	: 1,459,137.350

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No:	DESCRIPTION	USCS	REMARKS
0						
		6.1	A4-015-SB-1	(0-0.16') Topsoil, brown, loose, soft, dry	OL	
		1.9		(0.16-2.16') Slag, black to brown, wtih medium to coarse sand, loose, dry to moist	GP/SW	
	100	19.5		(2.16-2.5') Slag, black, gravel sized with coarse sand, wet	GP	Wet at 2' bgs (perched)
		5.4		(2.5-3.16') Clayey SAND, light brown, medium cohesion, medium plasticity	SW-SC	
		0.1	A4-015-SB-5 MS/MSD	(3.16-4') CLAY, brown, medium cohesion, medium plasticity	CH	
5		1.7		(4-5') Clayey SAND, beige, moist	SW-SC	
		1.5		(5-10') CLAY, light gray to beige with orange mottling, firm, high cohesion, high plasticity		
	100	1.5			CH	
		1.6				
		1.3	A4-015-SB-10			
10		-		(10-15') CLAY, brownish gray with orange mottling, soft, moist, very high cohesion, very high plasticity		
		0.0				
	100	0.0			CH	
		0.0				
		0.0				
15		-		(15-19.16') CLAY, brown to dark gray, trace sand, very moist, very soft, very high cohesion, very high plasticity		
		-			CL	
	90	0.0				
		0.0				
		-		(19.16-20') SAND, dark gray, wet, soft	SW	Wet at 19.2' bgs
20						Boring terminated at 20' bgs

Total Borehole Depth: 20' bgs.

ARM Group Inc.
Earth Resource Engineers and Consultants

Boring ID: A4-016-SB

(page 1 of 1)

Client	: EnviroAnalytics Group
ARM Project No.	: 150298M-2-3
Project Description	: Sparrows Point - Parcel A4
Site Location	: Sparrows Point, MD
ARM Representative	: L. Perrin
Checked by	: P. Vogel, P.G.
Drilling Company	: Green Services, Inc
Driller	: Don Marchese
Drilling Equipment	: Geoprobe 7822DT

Date Started	: 11-5-15
Weather	: Cloudy 60s
Northing (US ft)	: 570,993.990
Easting (US ft)	: 1,458,908.440

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No:	DESCRIPTION	USCS	REMARKS
0		0.2	A4-016-SB-1	(0-2') SAND with slag gravel, dark brown to beige, loose, dry, soft	SW	
		1.0				
	90	1.2		(2-2.5') Sandy SILT, beige, moist, soft, low cohesion, no plasticity	ML	
				(2.5-3.5') SAND with slag gravel, dark brown to beige, loose, dry, soft	SW	
		11.4		(3.5-4') Sandy SILT, beige, moist, soft, low cohesion, no plasticity	ML	
		11.7	A4-016-SB-5	(4-5') SAND with slag gravel, dark brown to beige, loose, dry, soft	SW	
5		-		(5-8') Slag, gray, gravel sized, hard, loose	GP	
		-				
	60	1.5				
		2.0		(8-10') Sandy CLAY, greenish brown, soft, moist, low cohesion, low plasticity	CL/SC	
		2.1	A4-016-SB-10			
10		-		(10-20') CLAY, light beige to gray, trace sand, moist	CH	
		-				
	93	-				
		-				
		-				
15		-				
		-				
	100	-				
		-				
		-				Boring terminated at 20' bgs
20						

Total Borehole Depth: 20' bgs.

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ARM Group Inc.
Earth Resource Engineers and Consultants

Boring ID: A4-017-SB

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Client	: EnviroAnalytics Group
ARM Project No.	: 150298M-2-3
Project Description	: Sparrows Point - Parcel A4
Site Location	: Sparrows Point, MD
ARM Representative	: L. Perrin
Checked by	: P. Vogel, P.G.
Drilling Company	: Green Services, Inc
Driller	: Don Marchese
Drilling Equipment	: Geoprobe 7822DT

Date Started	: 11-4-15
Weather	: Sunny 60s
Northing (US ft)	: 572,320.219
Easting (US ft)	: 1,458,706.080

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No:	DESCRIPTION	USCS	REMARKS
0		0.8	A4-017-SB-1	(0-2.5') Slag, brown, alternating with brown silt and medium to coarse grained sand, sand is loose, silt is dry, medium cohesion and no plasticity	GM/GW	
		2.0				
	100	14.0		(2.5-3.5') Slag, gravel sized with coarse sand, loose, wet	GP/SW	Wet at 2.5' bgs - perched
		1.5		(3.5-5') Clayey SAND, brown with orange mottling, moist, medium cohesion, low plasticity	SW-SC	
		1.4	A4-017-SB-5			
5		0.6		(5-6') Sandy CLAY, light gray with orange mottling, firm, high cohesion, medium plasticity	CH/SC	
		0.3		(6-10') CLAY, light gray with orange mottling, firm, coarse orange sand in parts, high cohesion, high plasticity	CH	
	100	0.2				
		0.1				
		0.1	A4-017-SB-10			
10		-		(10-13.5') CLAY, gray with beige streaking, coarse orange sand in parts, moist, very soft, high cohesion, high plasticity	CH	
		-				
	100	-				
		-		(13.5-19.33') CLAY, dark gray, very soft, moist, very high cohesion, very high plasticity	CH	
		-				
15		-				
		-				
	100	-				
		-				
		-		(19.33-20') SAND, dark gray, soft, wet	SW	Wet at 19.4' bgs Boring terminated at 20' bgs
20						

Total Borehole Depth: 20' bgs.

ARM Group Inc.
Earth Resource Engineers and Consultants

Boring ID: A4-018-SB

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Client	: EnviroAnalytics Group
ARM Project No.	: 150298M-2-3
Project Description	: Sparrows Point - Parcel A4
Site Location	: Sparrows Point, MD
ARM Representative	: L. Perrin
Checked by	: P. Vogel, P.G.
Drilling Company	: Green Services, Inc
Driller	: Kevin Pumphrey
Drilling Equipment	: Geoprobe 7822DT

Date Started	: 11-3-15
Weather	: Sunny 70s
Northing (US ft)	: 572,447.824
Easting (US ft)	: 1,459,102.998

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No:	DESCRIPTION	USCS	REMARKS
0		5.7	A4-018-SB-1	(0-0.66') Topsoil, brown, soft	OL	
		4.9		(0.66-2.83') Slag, gray, gravel sized with coarse gray sand, wet, loose	GP/SW	
	90	19.8				
		0.3		(2.83-3.5') Sandy CLAY, beige and orange, moist, firm, high cohesion, high plasticity	CH	
		0.0	A4-018-SB-5	(3.5-5') CLAY, light gray with orange mottling, firm, moist, high cohesion, high plasticity	CH	
5		0.0		(5-10') CLAY, light gray with orange streaks, very moist to wet near bottom, soft, very high cohesion, very high plasticity		
		0.0				
	100	0.0			CH	
		0.0				
		0.0				
10		-		(10-15') CLAY, gray to dark gray, very soft, very moist, very high cohesion, very high plasticity		
		-				
	70	0.0			CH	
		0.0				
		0.0				
15		-		(15-19') CLAY, dark gray, very soft, very moist, very high cohesion, very high plasticity		
		-			CH	
	80	0.0				
		0.0				
		-		(19-20') SAND, dark gray, medium grained, soft, wet	SW	Wet at 19' bgs Boring terminated at 20' bgs
20						

Total Borehole Depth: 20' bgs.

ARM Group Inc.
Earth Resource Engineers and Consultants

Boring ID: A4-019-SB

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Client	: EnviroAnalytics Group
ARM Project No.	: 150298M-2-3
Project Description	: Sparrows Point - Parcel A4
Site Location	: Sparrows Point, MD
ARM Representative	: L. Perrin
Checked by	: P. Vogel, P.G.
Drilling Company	: Green Services, Inc
Driller	: Kevin Pumphrey
Drilling Equipment	: Geoprobe 7822DT

Date Started	: 11-4-15
Weather	: Sunny 70s
Northing (US ft)	: 571,969.200
Easting (US ft)	: 1,458,880.080

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No:	DESCRIPTION	USCS	REMARKS
0						
		0.8	A4-019-SB-1	(0-2.66') Slag, brown to black, with fine to coarse grained sand, soft, dry, loose	GP/SW	
		11.6				
	100	11.5				
		10.1		(2.66-4') Slag, gray, gravel sized with little sand, wet, loose	GW	Wet at 3' bgs (perched)
		16.2	A4-019-SB-5	(4-5') CLAY, light brown, with trace sand, high cohesion, high plasticity	CH	
5		-		(5-10') CLAY, light gray, moist, firm, high cohesion, high plasticity, weathered coarse rock fragments at 7-8' bgs		
		0.0				
	80	0.0			CH	
		0.0				
		0.0				
10		0.0		(10-15') CLAY, light gray to beige with orange mottling, soft to very soft, moist, very high cohesion, very high plasticity		
		0.0				
	100	0.0			CH	
		0.0				
		0.0				
15		-		(15--19.84') CLAY, dark gray, very soft, very moist, very high cohesion, very high plasticity		
		-				
	100	0.0			CH	
		0.0				
		-				Wet at 19.8' bgs
20				(19.84-20') Dark gray sand, wet, soft at 19.96' bgs	SP	Boring terminated at 20' bgs

Total Borehole Depth: 20' bgs.

ARM Group Inc.
Earth Resource Engineers and Consultants

Boring ID: A4-020-SB

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Client	: EnviroAnalytics Group
ARM Project No.	: 150298M-2-3
Project Description	: Sparrows Point - Parcel A4
Site Location	: Sparrows Point, MD
ARM Representative	: L. Perrin
Checked by	: P. Vogel, P.G.
Drilling Company	: Green Services, Inc
Driller	: Kevin Pumphrey
Drilling Equipment	: Geoprobe 7822DT

Date Started	: 11-3-15
Weather	: Sunny 60s
Northing (US ft)	: 572,134.260
Easting (US ft)	: 1,457,992.040

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No:	DESCRIPTION	USCS	REMARKS
0		1.7	A4-020-SB-1	(0-1.16') SAND, with quartz gravel, brown, medium to coarse grained, loose, dry	SW	
		2.0		(1.16-3.5') Sandy SILT, dark beige, firm, dry, low cohesion, no plasticity	ML	
	100	1.9				
		1.7		(3.5-5') Sandy CLAY, dark beige with orange streaks, very soft, moist, high cohesion, high plasticity	CH	
		0.2	A4-020-SB-5			
5				(5-5.25') SAND, dark beige, moist, soft	SW	
		0.2		(5.25-6.5') Sandy CLAY, grayish beige, very soft, moist, high cohesion, high plasticity	CH	
		0.8		(6.5-10') CLAY, beige, hard, moist, high cohesion, high plasticity	CH	
	100	0.8				
		0.8				
		0.7	A4-020-SB-10			
10		-		(10-15') CLAY, beige, soft, moist, high cohesion, high plasticity	CL	
		-				
	60	0.0				
		0.0				
		0.0				
15		-		(15-20') CLAY, beige grading to gray, soft, trace sand, moist, high cohesion, high plasticity	CH	
		-				
	60	0.0				
		0.0				
		0.0				
20						Boring terminated at 20' bgs

Total Borehole Depth: 20' bgs.

ARM Group Inc.
Earth Resource Engineers and Consultants

Boring ID: A4-021-SB

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Client	: EnviroAnalytics Group
ARM Project No.	: 150298M-2-3
Project Description	: Sparrows Point - Parcel A4
Site Location	: Sparrows Point, MD
ARM Representative	: L. Perrin
Checked by	: P. Vogel, P.G.
Drilling Company	: Green Services, Inc
Driller	: Kevin Pumphrey
Drilling Equipment	: Geoprobe 7822DT

Date Started	: 11-4-15
Weather	: Sunny 70s
Northing (US ft)	: 571,351.11
Easting (US ft)	: 1,458,858.60

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No:	DESCRIPTION	USCS	REMARKS
0		1.7	A4-021-SB-1	(0-2') SILT, brown, with some slag gravel, dry, low cohesion, no plasticity	ML	
		1.5				
	100	3.0		(2-3') Sandy SILT, dark brown, with slag gravels, dry	ML/SM	
		3.4		(3-5') SILT, brown, with some slag gravels, hard, dry, low cohesion, no plasticity	ML	
		1.6	A4-021-SB-5			
5		0.1		(5-6.5') Sandy SILT, brown, with some slag gravels, hard, dry, low cohesion, no plasticity	ML/SM	
		0.1		(6.5-10') Silty CLAY, gray to light gray with orange mottling, very firm, dry, medium cohesion, medium plasticity	CL	
	100	0.1				
		0.1				
		0.4	A4-021-SB-10			
10		0.0		(10-15') CLAY, light gray with orange mottling, slightly firm, moist, high cohesion, high plasticity, orange weathered coarse sand sized fragments throughout	CH	
		0.0				
	100	0.0				
		0.0				
		0.0				
15		0.0		(15-20') CLAY, light gray to dark gray, very soft, very moist, trace sand, very high cohesion, very high plasticity	CH	
		0.0				
	100	0.0				
		0.0				
		0.0				
20						Boring terminated at 20' bgs

Total Borehole Depth: 20' bgs.

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ARM Group Inc.
Earth Resource Engineers and Consultants

Boring ID: A4-022-SB

(page 1 of 1)

Client	: EnviroAnalytics Group
ARM Project No.	: 150298M-2-3
Project Description	: Sparrows Point - Parcel A4
Site Location	: Sparrows Point, MD
ARM Representative	: L. Perrin
Checked by	: P. Vogel, P.G.
Drilling Company	: Green Services, Inc
Driller	: Don Marchese
Drilling Equipment	: Geoprobe 7822DT

Date Started	: 11-5-15
Weather	: Cloudy/ 60s
Northing (US ft)	: 570,958.752
Easting (US ft)	: 1,458,511.373

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No:	DESCRIPTION	USCS	REMARKS
0						
		1.0	A4-022-SB-1	(0-5') SAND, brown, medium grained, with gravel slag, dry, black and moist with depth, loose, soft		
		3.6				
	90	8.5			GP/SW	
		6.4				
		1.3				
5				(5-10') SAND and slag, dark brown to black, moist to dry, soft, loose		
		-				
		3.9				
	80	14.9	A4-022-SB-8		GP/SW	
		8.4				
						Wet at 9' bgs
		5.4	A4-022-SB-10			Boring terminated at 10' bgs
10						

Total Borehole Depth: 10' bgs.

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ARM Group Inc.
Earth Resource Engineers and Consultants

Boring ID: A4-023-SB

(page 1 of 1)

Client	: EnviroAnalytics Group
ARM Project No.	: 150298M-2-3
Project Description	: Sparrows Point - Parcel A4
Site Location	: Sparrows Point, MD
ARM Representative	: L. Perrin
Checked by	: P. Vogel, P.G.
Drilling Company	: Green Services, Inc
Driller	: Don Marchese
Drilling Equipment	: Geoprobe 7822DT

Date Started	: 11-5-15
Weather	: Cloudy/ 60s
Northing (US ft)	: 571,626.176
Easting (US ft)	: 1,458,373.664

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No:	DESCRIPTION	USCS	REMARKS
0						
		-	A4-023-SB-1 MS/MSD	(0-5') SAND, brown to gray, medium to coarse grained, with gravel slag, black at depth, moist, quartz gravel at 4' bgs, loose, soft		
		2.7				
	83	31.1			SW/GP	
		2.5				
		36.5	A4-023-SB-5			
5				(5-6') SILT, black, moist, petroleum odor, low cohesion, no plasticity	ML	Petroleum odor
		-				
				(6-10') Slag, black, sand to gravel sized, dry, loose, patch of beige-yellow sand at 7' bgs		
		-				
	90	3.3			SW/GP	
		13.9				Wet at 9' bgs
		24.6	A4-023-SB-10			Boring terminated at 10' bgs
10						

Total Borehole Depth: 10' bgs.

ARM Group Inc.
Earth Resource Engineers and Consultants

Boring ID: A4-024-SB

(page 1 of 1)

Client	: EnviroAnalytics Group
ARM Project No.	: 150298M-2-3
Project Description	: Sparrows Point - Parcel A4
Site Location	: Sparrows Point, MD
ARM Representative	: L. Perrin
Checked by	: P. Vogel, P.G.
Drilling Company	: Green Services, Inc
Driller	: Kevin Pumphrey
Drilling Equipment	: Geoprobe 7822DT

Date Started	: 11-2-15
Weather	: Cloudy/ 60s
Northing (US ft)	: 571,462.224
Easting (US ft)	: 1,458,087.762

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No:	DESCRIPTION	USCS	REMARKS
0						
		1.4	A4-024-SB-1	(0-3') SAND and gravel, brown, dry, fine to coarse grained		
		3.3			SW	
	90	21.7				
		9.3		(3-3.75') Sandy CLAY, brown with orange streaks, firm, moist, medium cohesion, low plasticity	CL	
				(3.75-3.92') Asphalt, gravel sized, moist	-	
				(3.92-4.25') SAND, medium to coarse grained with gravel slag, brown to dark brown	SW	
		13.9	A4-024-SB-5		CH	
				(4.25-4.42') CLAY, gray, moist, high cohesion, high plasticity	SW	
5				(4.42-4.75') SAND and gravel, dark brown, dry	SW	
		-		(4.75-5') SAND, orange, medium to coarse grained, moist, loose		
				(5-8') SAND, dark brown to black, fine to medium grained with slag gravel, loose, dry, moist at 7.66' bgs		
		13.3			SW/GP	
	60	15.6				
				(8-9') SAND, black, fine to coarse grained, wet, soft		Wet at 8' bgs
		18.6			SW	
				(9-10') Slag, black, with coarse sand, wet, loose, with railroad tie debris		
		177.8			GP	
10						Boring terminated at 10' bgs

Total Borehole Depth: 10' bgs.

ARM Group Inc.
Earth Resource Engineers and Consultants

Boring ID: A4-025-SB

(page 1 of 1)

Client	: EnviroAnalytics Group
ARM Project No.	: 150298M-2-3
Project Description	: Sparrows Point - Parcel A4
Site Location	: Sparrows Point, MD
ARM Representative	: L. Perrin
Checked by	: P. Vogel, P.G.
Drilling Company	: Green Services, Inc
Driller	: Kevin Pumphrey
Drilling Equipment	: Geoprobe 7822DT

Date Started	: 11-3-15
Weather	: Cloudy/ 60s
Northing (US ft)	: 572,455.267
Easting (US ft)	: 1,458,435.373

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No:	DESCRIPTION	USCS	REMARKS
0						
		1.7	A4-025-SB-1	(0-0.25') Topsoil, dark brown, dry	OL	
		4.2		(0.25-2.92') SAND, light brown to dark brown, slightly moist, fine to coarse grained, 2" seam of white sand at 1.5' bgs	SW	
	100	4.4				
		5.8		(2.92-3.42') GRAVEL, quartz, with sand	GP	
		9.0		(3.42-4.33') Slag, coarse grained to gravel sized, gray, loose, soft, wet	GP	Wet at 4' bgs (perched)
5		-		(4.33-5') Cinder ballast, black, dry, loose, with gravel slag, no cohesion, no plasticity	SW	
		14.9	A4-025-SB-7	(5-7.5') Cinder ballast, black, dry, loose, with brown medium to coarse grained sand and gravel slag, no cohesion, no plasticity	SW	
	70	10.4		(7.5-8') Sandy CLAY, black, very soft, moist, blue-green streaks throughout, slight odor, high cohesion, high plasticity	CH	
		4.1				
		0.0	A4-027-SB-10	(8-10') CLAY, brown, moist, soft, high cohesion, high plasticity	CH	
10		-		(10-15') CLAY, light brown with black streaks, very soft, moist, very high cohesion, very high plasticity	CH	
		-				
	50	0.0				
		0.0				
		-				
15		-		(15-19.58') CLAY, dark gray, very moist, very soft, very high cohesion, very high plasticity	CH	
		-				
	87	0.0				
		0.0				
		-				Wet at 19.5' bgs
20				(19.58-20') SAND, dark gray, soft, wet	SW	Boring terminated at 20' bgs

Total Borehole Depth: 20' bgs.

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ARM Group Inc.
Earth Resource Engineers and Consultants

Boring ID: A4-026-SB

(page 1 of 1)

Client	: EnviroAnalytics Group
ARM Project No.	: 150298M-2-3
Project Description	: Sparrows Point - Parcel A4
Site Location	: Sparrows Point, MD
ARM Representative	: L. Perrin
Checked by	: P. Vogel, P.G.
Drilling Company	: Green Services, Inc
Driller	: Kevin Pumphrey
Drilling Equipment	: Geoprobe 7822DT

Date Started	: 11-4-15
Weather	: Sunny 70s
Northing (US ft)	: 571,587.914
Easting (US ft)	: 1,458,828.682

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No:	DESCRIPTION	USCS	REMARKS
0		0.5	A4-026-SB-1	(0-4') Slag, brown, coarse grained sand to gravel sized, clay lenses present, loose, dry	SW/GP	
		6.1				
	100	67.8				
		10.9				
		6.0	A4-026-SB-5	(4-5') SILT, greenish gray, dry, firm, medium cohesion, no plasticity	ML	
5		0.5		(5-6.5') Silty CLAY, greenish gray, moist, soft, medium cohesion, medium plasticity	CL	
		0.4		(6.5-8') Sandy CLAY, light beige with orange mottling, firm, dry, medium cohesion, low plasticity	CL	
	90	0.3				
		0.0		(8-10') CLAY, light beige, moist, firm, high cohesion, high plasticity	CH	
		0.0	A4-026-SB-10			
10				(10-13') CLAY, light gray with orange mottling, coarse sand sized orange rock fragments throughout, firm to soft	CH	
		0.0				
	100	0.0				
		0.0		(13-15') CLAY, light gray, very soft, moist, very high cohesion, very high plasticity	CH	
		0.0				
15				(15-20') CLAY, gray, very soft, very moist to wet, very high cohesion, very high plasticity	CH	
		0.0				
	100	0.0				
		0.0				
		0.0				Boring terminated at 20' bgs
20						

Total Borehole Depth: 20' bgs.

ARM Group Inc.
Earth Resource Engineers and Consultants

Boring ID: A4-027-SB

(page 1 of 1)

Client	: EnviroAnalytics Group
ARM Project No.	: 150298M-2-3
Project Description	: Sparrows Point - Parcel A4
Site Location	: Sparrows Point, MD
ARM Representative	: L. Perrin
Checked by	: P. Vogel, P.G.
Drilling Company	: Green Services, Inc
Driller	: Don Marchese
Drilling Equipment	: Geoprobe 7822DT

Date Started	: 11-5-15
Weather	: Cloudy/ 60s
Northing (US ft)	: 571,259.804
Easting (US ft)	: 1,458,372.205

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No:	DESCRIPTION	USCS	REMARKS
0				0-0.25' No Recovery		
		0.7	A4-027-SB-1	(0-1') SAND, dark brown, fine to medium grained, soft, moist, loose	SW	
		2.8		(1-2.5') SAND, dark brown, fine to medium grained, soft, dry, loose	SW	
	95	12.9		(2.5-2.83') SAND, and quartz gravels, tan	SW	
		15.7		(2.83-5') SAND, dark brown, fine to medium grained, soft, dry, loose	SW	
		41.3	A4-027-SB-5			
5						No water encountered at 5' bgs
			A4-027-SB-10			Sample at 9.5' bgs collected as part of resample event.
10						Boring terminated at 10' bgs due to barrel stuck in ground

Total Borehole Depth: 5' bgs.

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ARM Group Inc.
Earth Resource Engineers and Consultants

Boring ID: A4-028-SB

(page 1 of 1)

Client	: EnviroAnalytics Group
ARM Project No.	: 150298M-2-3
Project Description	: Sparrows Point - Parcel A4
Site Location	: Sparrows Point, MD
ARM Representative	: L. Perrin
Checked by	: P. Vogel, P.G.
Drilling Company	: Green Services, Inc
Driller	: Kevin Pumphrey
Drilling Equipment	: Geoprobe 7822DT

Date Started	: 11-4-15
Weather	: Sunny 60s
Northing (US ft)	: 572,142.544
Easting (US ft)	: 1,458,607.467

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No:	DESCRIPTION	USCS	REMARKS
0		0.6	A4-028-SB-1	(0-0.66') Slag, light beige, medium grained sand to gravel sized, moist, loose	GP/SW	
		9.1		(0.66-1.33') Slag, medium grained to gravel sized, dark brown, loose	GP/SW	
	100	8.4		(1.33-1.83') Slag, medium grained to gravel sized, light gray, loose	GP/SW	Wet at 1.9' bgs (perched)
		10.7		(1.83-2.83') Slag, medium grained to gravel sized, black, loose, wet	ML	
		16.8	A4-028-SB-5	(2.83-4.75') SILT, light brown with orange mottling, hard, very dry, low cohesion, no plasticity	CL	
5		0.7		(4.75-5') Silty CLAY, light brown, very firm, medium cohesion, medium plasticity	CH	
		0.9		(5-6') CLAY, light brown, firm, dry, medium cohesion, medium to high plasticity	CL	
	100	0.8		(6-7') Sandy CLAY, light gray with orange mottling, firm, medium cohesion, medium plasticity		
		0.6		(7-10') CLAY, light gray with orange mottling, trace sand, high cohesion, high plasticity	CH	
		0.3				
10				(10-15') CLAY, light brown, very soft, moist, high cohesion, high plasticity		
		0.0				
	100	0.0			CH	
		0.0				
		0.0				
15		-		(15-19.66') CLAY, dark gray, very moist, very soft, very high cohesion, very high plasticity		
		-				
	90	0.0			CH	
		0.0				
		-				Wet at 19.7' bgs
20				(19.66-20') SAND, dark gray, wet, soft	SW	Boring terminated at 20' bgs

Total Borehole Depth: 20' bgs.

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APPENDIX D

December 4, 2015

Mr. James Calenda
EnviroAnalytis Group, LLC
1650 Des Peres Road, Suite 303
St. Louis, MO 63131

Re: Sparrows Point Piezometer Survey
Sparrows Point, MD
Triad Engineering Job No. 03-15-0343

Mr. Calenda:
Below are the specified surveyed piezometers, date of last field work completed on November 24, 2015. The coordinate values shown were derived from G.P.S. observations based on National Geodetic Surveys stations “GIS 1”, PID AC7684 and “GIS 2”, PID AC7685 which purport to be on NAD83(2011) Maryland Grid coordinate system and NAVD88 elevations.

DESCRIPTION	NORTHING	EASTING	TOP CASING ELEVATION	GROUND AT PIEZOMETER ELEVATION
A2-013-PZ	574018.74	1463788.08	16.17	12.38
A2-022-PZ	572911.38	1463476.53	12.58	9.68
A2-025-PZ	573614.75	1464570.56	11.23	8.51
A2-031-PZ	574485.04	1464939.09	22.88	20.78
A4-001-PZ	571114.57	1458067.91	14.71	12.71
A4-005-PZ	571746.11	1458066.66	15.95	12.94
A4-005a-PZ	571748.15	1458062.51	15.55	12.99
A4-007-PZ	572370.58	1457965.85	15.41	12.88
A4-010-PZ	572631.43	1458703.03	14.67	12.79
A4-012-PZ	570367.73	1458232.61	15.90	12.24
A4-013-PZ	570657.51	1458543.60	12.00	9.76
A4-014-PZ	571109.86	1459218.50	15.39	11.49
A4-019-PZ	571962.55	1458881.91	16.34	12.65
A8-002-PZ	573593.69	1461765.45	16.14	13.21
A8-004-PZ	573652.14	1462090.63	16.73	12.85
A8-007-PZ	573458.80	1462039.43	15.86	12.60
A8-009-PZ	573912.57	1461846.67	16.73	12.81
A8-013-PZ	574444.07	1462162.14	20.01	16.10
A8-015-PZ	574293.04	1461458.35	16.18	11.91
A8-017-PZ	572956.53	1461959.46	16.59	13.26
A8-017a-PZ	572957.82	1461960.12	15.44	13.26

APPENDIX E

PID CALIBRATION LOG

PROJECT NAME: Area A, Parcel A4 Phase II	SAMPLER NAME: L. Perrin	
PROJECT NUMBER: 150298M-2-4	DATE: November 2, 2015	PAGE 1 of 1

DATE/TIME	SAMPLER INITIALS	PID SERIAL #	STANDARD	STANDARD CONCENTRATION	METER READING	COMMENTS
11/2/2015 8:29	LLP	592-913262	Isobutylene	100 ppm	100.0 ppm	-
11/3/2015 8:00	LLP	592-913262	Isobutylene	100 ppm	100.0 ppm	-
11/4/2015 7:45	LLP	592-913262	Isobutylene	100 ppm	100.0 ppm	-
11/5/2015 8:15	LLP	592-913262	Isobutylene	100 ppm	100.0 ppm	-
			Isobutylene	100 ppm		
			Isobutylene	100 ppm		
			Isobutylene	100 ppm		
			Isobutylene	100 ppm		
			Isobutylene	100 ppm		
			Isobutylene	100 ppm		
			Isobutylene	100 ppm		
			Isobutylene	100 ppm		
			Isobutylene	100 ppm		
			Isobutylene	100 ppm		
			Isobutylene	100 ppm		
			Isobutylene	100 ppm		
			Isobutylene	100 ppm		
			Isobutylene	100 ppm		
			Isobutylene	100 ppm		
			Isobutylene	100 ppm		
			Isobutylene	100 ppm		
			Isobutylene	100 ppm		
			Isobutylene	100 ppm		

APPENDIX F

ARM Group Inc.
Earth Resource Engineers and Consultants

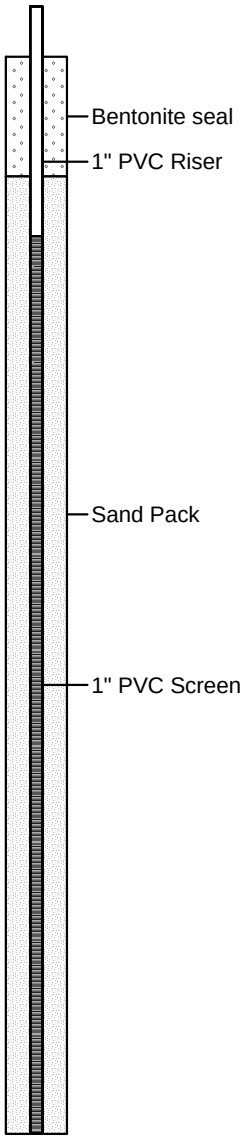
LOG OF TEMPORARY GROUNDWATER SAMPLE COLLECTION POINT: A4-001-PZ

Client: EnviroAnalytics Group
Site: Sparrows Point - Area A Parcel A4
Sparrows Point, MD
ARM Project No.: 150298M-2-3

Date Installed	: 11-3-15	Drilling Company	: Green Services, Inc
Casing/Riser Type	: PVC	TOC Elevation	: 14.71
Borehole Diameter	: 2.25"	0-Hr DTW	: 8.15' bgs
Drilling Method	: 7822DT Geoprobe	24-Hr DTW	: 10.65' TOC
Driller	: Kevin Pumphrey	ARM Representative	: L. Perrin

Depth in Feet	Surf. Elev. 12.71	DESCRIPTION
0	12	Riser Type: PVC Riser Diameter: 1 inch Riser Stickup: 24.5"
5	7	Screen Type: PVC Screen Diameter: 1 inch Screen Amount: 15 feet Slot Size: 0.010"
10	2	Filter Pack: Top: 2' bgs Bottom: 18' bgs Grain Size: WG #1
15	-3	Bentonite Seal: Top: 0 (surface) Bottom: 2' bgs Grain Size: 3/8" chips/ granular 30-50 mesh
18	-6	End of Boring
20	-7	

PZM Name: A4-001-PZ



REMARKS

Northing (US ft): 571,105.00
Easting (US ft): 1,458,076.32

Total Depth: 18'

ARM Group Inc.
Earth Resource Engineers and Consultants

LOG OF TEMPORARY GROUNDWATER SAMPLE COLLECTION POINT: A4-005-PZ

Client: EnviroAnalytics Group
Site: Sparrows Point - Area A Parcel A4
Sparrows Point, MD
ARM Project No.: 150298M-2-3
Page 1 of 1

Date Installed	: 11-4-15	Drilling Company	: Green Services, Inc
Casing/Riser Type	: PVC	TOC Elevation	: 15.95
Borehole Diameter	: 2.25"	0-Hr DTW	: 9.00' bgs
Drilling Method	: 7822DT Geoprobe	24-Hr DTW	: 10.01' TOC
Driller	: Kevin Pumphrey	ARM Representative	: L. Perrin

Depth in Feet	Surf. Elev. 12.94	DESCRIPTION	PZM Name: A4-005-PZ	REMARKS
0		Riser Type: PVC Riser Diameter: 1 inch Riser Stickup: 34"		
1	12			
2	11			
3	10			
4	9			
5	8	Screen Type: PVC Screen Diameter: 1 inch Screen Amount: 5 feet Slot Size: 0.010"		
6	7			
7	6			
8	5			
9	4			
10	3	Filter Pack: Top: 19' bgs Bottom: 25' bgs Grain Size: WG #1	Bentonite seal 1" PVC Riser	
11	2			
12	1			
13	0			
14	-1			
15	-2	Bentonite Seal: Top: 0 (surface) Bottom: 19' bgs Grain Size: 3/8" chips/ granular 30-50 mesh		
16	-3			
17	-4			
18	-5			
19	-6		Sand Pack	
20	-7			
21	-8			
22	-9			
23	-10		1" PVC Screen	
24	-11			
25	-12	End of Boring		

Total Depth: 25'

ARM Group Inc.
Earth Resource Engineers and Consultants

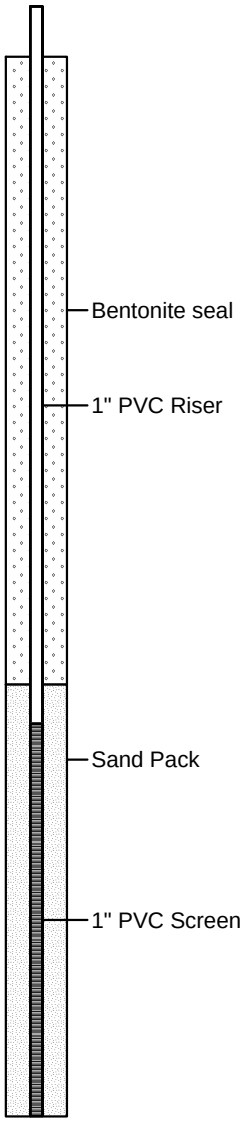
LOG OF TEMPORARY GROUNDWATER SAMPLE COLLECTION POINT: A4-007-PZ

Client: EnviroAnalytics Group
Site: Sparrows Point - Area A Parcel A4
Sparrows Point, MD
ARM Project No.: 150298M-2-3
Page 1 of 1

Date Installed	: 11-3-15	Drilling Company	: Green Services, Inc
Casing/Riser Type	: PVC	TOC Elevation	: 15.41
Borehole Diameter	: 2.25"	0-Hr DTW	: 7.45' TOC
Drilling Method	: 7822DT Geoprobe	24-Hr DTW	: 7.22' TOC
Driller	: Kevin Pumphrey	ARM Representative	: L. Perrin

Depth in Feet	Surf. Elev. 12.88	DESCRIPTION
0		
1	12	Riser Type: PVC Riser Diameter: 1 inch Riser Stickup: 30"
2	11	
3	10	
4	9	
5	8	Screen Type: PVC Screen Diameter: 1 inch Screen Amount: 10 feet Slot Size: 0.010"
6	7	
7	6	
8	5	
9	4	
10	3	Filter Pack: Top: 16' bgs Bottom: 27' bgs Grain Size: WG #1
11	2	
12	1	
13	0	
14	-1	
15	-2	Bentonite Seal: Top: 0 (surface) Bottom: 16' bgs Grain Size: 3/8" chips/ granular 30-50 mesh
16	-3	
17	-4	
18	-5	
19	-6	
20	-7	
21	-8	
22	-9	
23	-10	
24	-11	
25	-12	
26	-13	
27	-14	
28	-15	End of Boring
29	-16	
30	-17	

PZM Name: A4-007-PZ



REMARKS

Northing (US ft): 572,372.75
Easting (US ft): 1,457,964.55

Total Depth: 27'

ARM Group Inc.
Earth Resource Engineers and Consultants

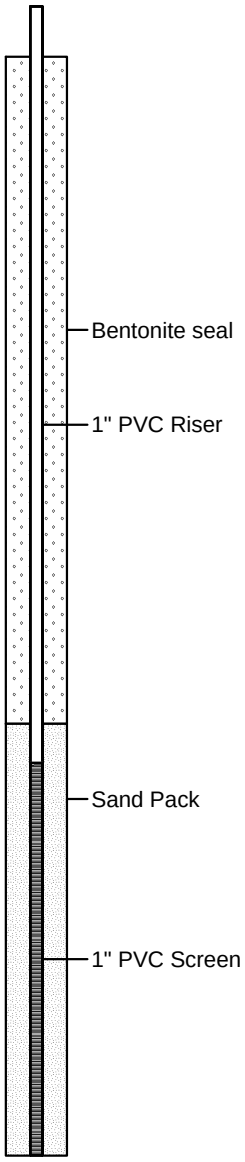
LOG OF TEMPORARY GROUNDWATER SAMPLE COLLECTION POINT: A4-010-PZ

Client: EnviroAnalytics Group
Site: Sparrows Point - Area A Parcel A4
Sparrows Point, MD
ARM Project No.: 150298M-2-3

Date Installed	: 11-3-15	Drilling Company	: Green Services, Inc
Casing/Riser Type	: PVC	TOC Elevation	: 14.67
Borehole Diameter	: 2.25"	0-Hr DTW	: 5.71' TOC
Drilling Method	: 7822DT Geoprobe	24-Hr DTW	: 5.10' TOC
Driller	: Kevin Pumphrey	ARM Representative	: L. Perrin

Depth in Feet	Surf. Elev. 12.79	DESCRIPTION
0	12	Riser Type: PVC Riser Diameter: 1 inch Riser Stickup: 19"
5	8	Screen Type: PVC Screen Diameter: 1 inch Screen Amount: 10 feet Slot Size: 0.010"
10	3	Filter Pack: Top: 17' bgs Bottom: 28' bgs Grain Size: WG #1
15	-2	Bentonite Seal: Top: 0 (surface) Bottom: 17' bgs Grain Size: 3/8" chips/ granular 30-50 mesh
30	-17	End of Boring

PZM Name: A4-010-PZ



REMARKS

Northing (US ft): 572,638.80
Easting (US ft): 1,458,700.22

Total Depth: 28'

ARM Group Inc.
Earth Resource Engineers and Consultants

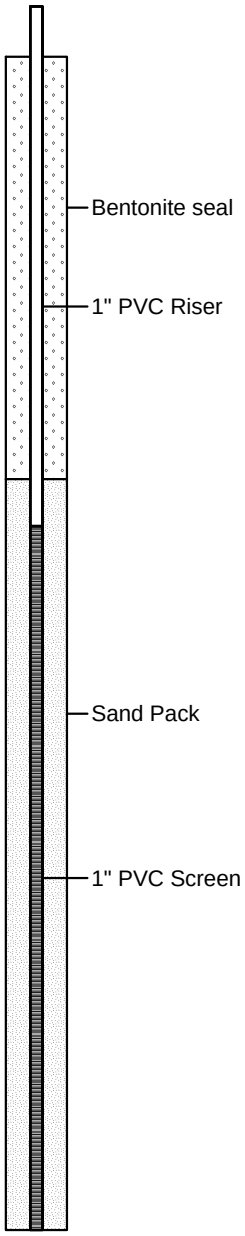
LOG OF TEMPORARY GROUNDWATER SAMPLE COLLECTION POINT: A4-012-PZ

Client: EnviroAnalytics Group
Site: Sparrows Point - Area A Parcel A4
Sparrows Point, MD
ARM Project No.: 150298M-2-3
Page 1 of 1

Date Installed	: 11-5-15	Drilling Company	: Green Services, Inc
Casing/Riser Type	: PVC	TOC Elevation	: 15.90
Borehole Diameter	: 2.25"	0-Hr DTW	: 7.81' TOC
Drilling Method	: 7822DT Geoprobe	24-Hr DTW	: 11.81' TOC
Driller	: Don Marchese	ARM Representative	: L. Perrin

Depth in Feet	Surf. Elev. 12.24	DESCRIPTION
0	12	Riser Type: PVC Riser Diameter: 1 inch Riser Stickup: 41.25"
5	7	Screen Type: PVC Screen Diameter: 1 inch Screen Amount: 15 feet Slot Size: 0.010"
10	2	Filter Pack: Top: 9 bgs Bottom: 25' bgs Grain Size: WG #1
15	-3	Bentonite Seal: Top: 0 (surface) Bottom: 9' bgs Grain Size: 3/8" chips/ granular 30-50 mesh
25		End of Boring

PZM Name: A4-012-PZ



REMARKS

Northing (US ft): 570,367.94
Easting (US ft): 1,458,231.26

Total Depth: 25'

ARM Group Inc.
Earth Resource Engineers and Consultants

LOG OF TEMPORARY GROUNDWATER SAMPLE COLLECTION POINT: A4-013-PZ

Client: EnviroAnalytics Group
Site: Sparrows Point - Area A Parcel A4
Sparrows Point, MD
ARM Project No.: 150298M-2-3
Page 1 of 1

Date Installed	: 11-5-15	Drilling Company	: Green Services, Inc
Casing/Riser Type	: PVC	TOC Elevation	: 12.00
Borehole Diameter	: 2.25"	0-Hr DTW	: 7.82' TOC
Drilling Method	: 7822DT Geoprobe	24-Hr DTW	: 7.83' TOC
Driller	: Don Marchese	ARM Representative	: L. Perrin

Depth in Feet	Surf. Elev. 9.76	DESCRIPTION	PZM Name: A4-013-PZ	REMARKS
0	9	Riser Type: PVC Riser Diameter: 1 inch Riser Stickup: 23.75"	Bentonite seal 1" PVC Riser	Northing (US ft): 570,659.63 Easting (US ft): 1,458,543.97
3	6	Screen Type: PVC Screen Diameter: 1 inch Screen Amount: 10 feet Slot Size: 0.010"	Sand Pack 1" PVC Screen	
6	3	Filter Pack: Top: 2 bgs Bottom: 13' bgs Grain Size: WG #1		
9	0	Bentonite Seal: Top: 0 (surface) Bottom: 2' bgs Grain Size: 3/8" chips/ granular 30-50 mesh		
13	-3	End of Boring		
15	-5			

Total Depth: 13'

ARM Group Inc.
Earth Resource Engineers and Consultants

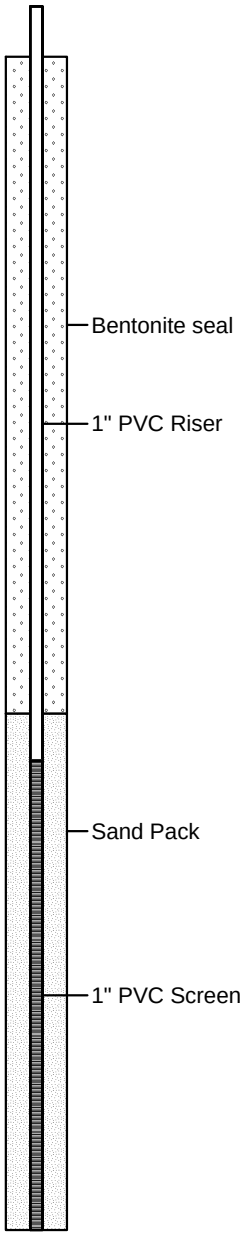
LOG OF TEMPORARY GROUNDWATER SAMPLE COLLECTION POINT: A4-014-PZ

Client: EnviroAnalytics Group
Site: Sparrows Point - Area A Parcel A4
Sparrows Point, MD
ARM Project No.: 150298M-2-3
Page 1 of 1

Date Installed	: 11-5-15	Drilling Company	: Green Services, Inc
Casing/Riser Type	: PVC	TOC Elevation	: 15.39
Borehole Diameter	: 2.25"	0-Hr DTW	: 10.31 TOC
Drilling Method	: 7822DT Geoprobe	24-Hr DTW	: 10.03' TOC
Driller	: Don Marchese	ARM Representative	: L. Perrin

Depth in Feet	Surf. Elev. 11.49	DESCRIPTION
0	11	Riser Type: PVC Riser Diameter: 1 inch Riser Stickup: 43.5"
4	7	Screen Type: PVC Screen Diameter: 1 inch Screen Amount: 10 feet Slot Size: 0.010"
8	3	Filter Pack: Top: 14 bgs Bottom: 25' bgs Grain Size: WG #1
12	-1	Bentonite Seal: Top: 0 (surface) Bottom: 14' bgs Grain Size: 3/8" chips/ granular 30-50 mesh
25	-13	End of Boring

PZM Name: A4-014-PZ



REMARKS

Northing (US ft): 571,114.49
Easting (US ft): 1,459,217.58

Total Depth: 25'

ARM Group Inc.
Earth Resource Engineers and Consultants

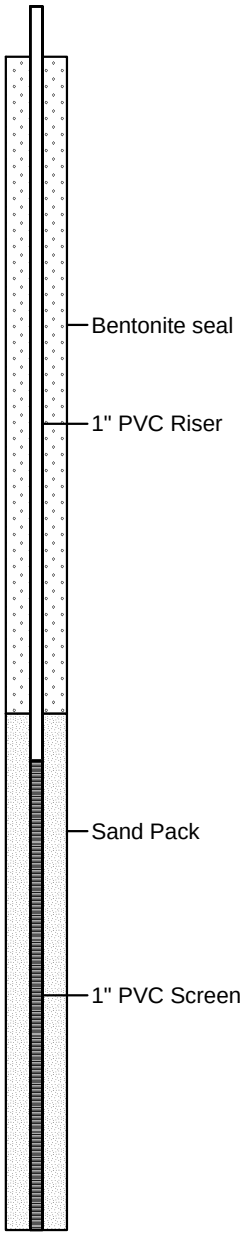
LOG OF TEMPORARY GROUNDWATER SAMPLE COLLECTION POINT: A4-019-PZ

Client: EnviroAnalytics Group
Site: Sparrows Point - Area A Parcel A4
Sparrows Point, MD
ARM Project No.: 150298M-2-3
Page 1 of 1

Date Installed	: 11-5-15	Drilling Company	: Green Services, Inc
Casing/Riser Type	: PVC	TOC Elevation	: 16.34
Borehole Diameter	: 2.25"	0-Hr DTW	: 8.02' TOC
Drilling Method	: 7822DT Geoprobe	24-Hr DTW	: 7.96' TOC
Driller	: Don Marchese	ARM Representative	: L. Perrin

Depth in Feet	Surf. Elev. 12.65	DESCRIPTION
0	12	Riser Type: PVC Riser Diameter: 1 inch Riser Stickup: ??
5	7	Screen Type: PVC Screen Diameter: 1 inch Screen Amount: 10 feet Slot Size: 0.010"
8	4	Filter Pack: Top: 14 bgs Bottom: 25' bgs Grain Size: WG #1
12	0	Bentonite Seal: Top: 0 (surface) Bottom: 14' bgs Grain Size: 3/8" chips/ granular 30-50 mesh
25	-12	End of Boring

PZM Name: A4-019-PZ



REMARKS

Northing (US ft): 571,969.20
Easting (US ft): 1,458,880.08

Total Depth: 25'

APPENDIX G

GROUNDWATER SAMPLING RECORD SHEET

Sheet Number 1 of 1

Job Name: Area A, Parcel A4 Job Location: SPT

Job Number: 150298M Phase: II Task: GW sampling

Sample Location: A4-002-PZ Name(s) of Sampler(s): Lisa Perrin, Nick Kurtz

Description of Sample: Water X Soil _____ Other _____

PURGING

Time/Date Started: 1529 / 11-9-15

Air Temperature: 55 (°F/°C)

Weather Conditions: Sunny _____ Rain _____ Overcast X Other _____

Depth to Water: 10.75 ft

Total Well Depth: 20.03 ft

Height of Water Column: 9.28 ft

Well Diameter: 1-inch X 4-inch _____ 2-inch _____ 6-inch _____

Well Volume Calculation:

9.28 ft x 0.041 gal/ft = 0.380 gal

Purge Volume = 3 x 0.380 = 1.14 gal

Purging Method: Pump X Bailed ___ Other ___

Gallons Removed: 2.5 gal

Length of Time Purged 25 min

Yield at End of Purging: 0.10 gpm

How was yield measured? Graduated Bucket

Color Clear; slightly cloudy Odor None

Turbidity _____

Was well cavitated? Yes____ No _____

SAMPLING

Time/Date Started: 1609 / 11-9-15

Air Temperature: 55 (°F/°C)

Weather Conditions: Sunny _____ Rain _____ Overcast X Other _____

Depth to Water: _____ ft

Sampling Method: Bailer _____ Submersible Pump _____ Peristaltic Pump X Other _____

Number of Bottles Filled: 6

Date Sent To Lab: 11-9-15

Laboratory Name: PACE

Parameters to Analyze: See COC

Chain of Custody Number: _____

Other: _____

FIELD DATA

Time	1554	1559	1604	1609				Remarks:
Volume of water purged	~~1:35 1554~~	1.75	1.95	2.25			gal	
pH	5.80	6.15	6.29	6.34			s.u.	
Conductance	0.675	0.525	0480	0457			ms/cm	
Temperature	16.80	17.04	17.13	17.13			°C	
DO	3.56	3.74	3.98	4.14			mg/l	
Redox	-68.7	-79.0	-83.4	-85.8			mV	
Turbidity	63.6	13.6	8.37	5.04			NTU	
SpC	824	622	565	538			us/cm	

Pipe Volume: 1" I.D. = 0.041 gal/ft; 2" I.D. = 0.163 gal/ft; 4" I.D. = 0.653 gal/ft; 6" I.D. = 1.47 gal/ft

GROUNDWATER SAMPLING RECORD SHEET

Sheet Number 1 of 1

Job Name: Area A Parcel A4 Phase II Job Location: SPT

Job Number: 150298m Phase: II Task: GW sampling

Sample Location: A4-005-PZ Name(s) of Sampler(s): Lisa Perrin

Description of Sample: Water X Soil ____ Other ____

PURGING

Time/Date Started: 0849 / 11-10-15

Air Temperature: 57 (°F/°C)

Weather Conditions: Sunny ____ Rain X Overcast X Other ____

Depth to Water: 10.11 ft

Total Well Depth: 27.41 ft

Height of Water Column: 17.30 ft

Well Diameter: 1-inch X 4-inch ____ 2-inch ____ 6-inch ____

Well Volume Calculation:

17.30 ft x 0.041 gal/ft = 0.709 gal

Purge Volume = 3 x 0.709 = 2.13 gal

Purging Method: Pump X Bailed ___ Other ___

Gallons Removed: 5.75 gal

Length of Time Purged 51 min

Yield at End of Purging: 0.113 gpm

How was yield measured? Graduated Bucket

Color slightly cloudy Odor none

Turbidity Fair

Was well cavitated? Yes ____ No ____

SAMPLING

Time/Date Started: 1027 / 11-10-15

Air Temperature: 57 (°F/°C)

Weather Conditions: Sunny ____ Rain X Overcast X Other ____

Depth to Water: ____ ft

Sampling Method: Bailer ____ Submersible Pump ____ Peristaltic Pump X Other ____

Number of Bottles Filled: ____

Date Sent To Lab: 11-10-15

Laboratory Name: PACE

Parameters to Analyze: See COC

Chain of Custody Number: ____

Other: ____

FIELD DATA

Time	0901	0906	0911	0917	0932	0940	
Volume of water purged	2.3	2.75	3.13	3.50	5.10	5.75	gal
pH	6.80	6.34	6.22	6.14	6.09	6.07	s.u.
Conductance	0.814	0.793	0.790	0.788	0.784	0.782	ms/cm
Temperature	16.49	16.76	16.80	16.83	16.81	16.81	°C
DO	0.48	0.25	0.25	0.16	0.15	0.14	mg/l
Redox	48.3	-7.5	-28.8	-42.2	-52.9	-55.7	mV
Turbidity	15.14	15.2	12.60	10.25	9.61	5.18	NTU
SpC	974	941	937	933	929	927	us/cm

Remarks: ____

Pipe Volume:

1" I.D. = 0.041 gal/ft
2" I.D. = 0.163 gal/ft
4" I.D. = 0.653 gal/ft
6" I.D. = 1.47 gal/ft

GROUNDWATER SAMPLING RECORD SHEET

Sheet Number 1 of 1

Job Name: Area A, Parcel A4, Job Location: SPT

Job Number: 150298 m Phase: II Task: GW sampling

Sample Location: A4-007-SZ Name(s) of Sampler(s): Lisa Perrin

Description of Sample: Water X Soil _____ Other _____

PURGING

Time/Date Started: 1112 / 11-10-15

Air Temperature: 61 (°F/°C)

Weather Conditions: Sunny _____ Rain X Overcast X Other _____

Depth to Water: 7.28 ft

Total Well Depth: 29.99 ft

Height of Water Column: 22.71 ft

Well Diameter: 1-inch X 4-inch _____ 2-inch _____ 6-inch _____

Well Volume Calculation:

22.71 ft x 0.041 gal/ft = 0.931 gal

Purge Volume = 3 x 0.931 = 2.79 gal

Purging Method: Pump X Bailed ___ Other ___

Gallons Removed: 5.00 gal

Length of Time Purged 36 min

Yield at End of Purging: 0.138 gpm

How was yield measured? Graduated Bucket

Color beige Odor none

Turbidity mod

Was well cavitated? Yes____ No _____

SAMPLING

Time/Date Started: 1155 / 11-10-15

Air Temperature: 61 (°F/°C)

Weather Conditions: Sunny _____ Rain X Overcast X Other _____

Depth to Water: _____ ft

Sampling Method: Bailer _____ Submersible Pump _____ Peristaltic Pump X Other _____

Number of Bottles Filled: _____

Date Sent To Lab: 11-10-15

Laboratory Name: PACE

Parameters to Analyze: See COC

Chain of Custody Number: _____

Other: _____

FIELD DATA

Time	1126	1131	1137	1143	1148		
Volume of water purged	3.00	3.60	4.00	4.50	5.00		gal
pH	6.14	6.13	6.14	6.14	6.14		s.u.
Conductance	0.370	0.356	0.353	0.353	0.353		ms/cm
Temperature	16.60	16.80	16.55	16.58	16.70		°C
DO	0.38	0.18	0.20	0.20	0.18		mg/l
Redox	-34.2	-56.7	-65.0	-69.2	-72.6		mV
Turbidity	10.79	83.9	5.87	5.01	5.31		NTU
SpC	440	423	422	420	420		us/cm

Remarks: _____

Pipe Volume:

1" I.D. = 0.041 gal/ft
2" I.D. = 0.163 gal/ft
4" I.D. = 0.653 gal/ft
6" I.D. = 1.47 gal/ft

GROUNDWATER SAMPLING RECORD SHEET

Sheet Number 1 of 1

Job Name: Area A Parcel A4 Phase II Job Location: SPT

Job Number: 150298m Phase: II Task: GW Sampling

Sample Location: A4-010-PZ Name(s) of Sampler(s): Lisa Perrini

Description of Sample: Water X Soil ____ Other ____

PURGING

Time/Date Started: 1321 / 11-10-15

Air Temperature: 61 (°F/°C)

Weather Conditions: Sunny ____ Rain ____ Overcast X Other ____

Depth to Water: 5.15 ft

Total Well Depth: 29.84 ft

Height of Water Column: 24.69 ft

Well Diameter: 1-inch X 4-inch ____ 2-inch ____ 6-inch ____

Well Volume Calculation:

24.69 ft x 0.041 gal/ft = 1.012 gal

Purge Volume = 3 x 1.012 = 3.04 gal

Purging Method: Pump X Bailed ___ Other ___

Gallons Removed: 4.50 gal

Length of Time Purged 33 min

Yield at End of Purging: 0.138 ~~0.138~~ gpm

How was yield measured? Graduated Bucket

Color Dark gray Odor Strong

Turbidity High

Was well cavitated? Yes____ No ____

SAMPLING

Time/Date Started: 1350 / 11-10-15

Air Temperature: 61 (°F/°C)

Weather Conditions: Sunny ____ Rain ____ Overcast X Other ____

Depth to Water: ____ ft

Sampling Method: Bailer ____ Submersible Pump ____ Peristaltic Pump X Other ____

Number of Bottles Filled: 9

Date Sent To Lab: 11-10-15

Laboratory Name: PACE

Parameters to Analyze: See COC

Chain of Custody Number: ____

Other: ____

FIELD DATA

Time	1329	1334	1339	1344	1349	1354	
Volume of water purged	3.1	3.50	3.75	4.00	4.20	4.50	gal
pH	5.85	5.81	5.85	5.86	5.87	5.89	s.u.
Conductance	1.173	1.199	1.189	1.188	1.141	1.130	ms/cm
Temperature	15.32	15.41	15.54	15.45	15.38	15.50	°C
DO	~~0.21~~ ~~0.12~~	~~0.17~~ ~~0.16~~	0.20	0.22	0.23	0.19	mg/l
Redox	-24.1	-39.4	-57.8	-58.9	-56.6	-59.0	mV
Turbidity	721 AM	78.2	45.4	31.8	21.5	17.2	NTU
SpC	1438	1470	1454	1452	1398	1381	us/cm

Remarks: ____

Pipe Volume:

1" I.D. = 0.041 gal/ft
2" I.D. = 0.163 gal/ft
4" I.D. = 0.653 gal/ft
6" I.D. = 1.47 gal/ft

GROUNDWATER SAMPLING RECORD SHEET

Sheet Number 1 of 1

Job Name: Area A Parcel A4 Job Location: SPT

Job Number: 150298M Phase: II Task: GW Sampling

Sample Location: A4-012-PZ Name(s) of Sampler(s): Lisa Perrin

Description of Sample: Water X Soil _____ Other _____

PURGING

Time/Date Started: 1440 / 11-10-15

Air Temperature: 63 (°F/°C)

Weather Conditions: Sunny _____ Rain X Overcast X Other _____

Depth to Water: 11.73 ft

Total Well Depth: 27.64 ft

Height of Water Column: 16.11 ft

Well Diameter: 1-inch X 4-inch _____ 2-inch _____ 6-inch _____

Well Volume Calculation:

16.11 ft x 0.041 gal/ft = 0.661 gal

Purge Volume = 3 x 0.661 = 1.98 gal

Purging Method: Pump X Bailed ___ Other ___

Gallons Removed: 4.00 gal

Length of Time Purged 35 min

Yield at End of Purging: 0.114 gpm

How was yield measured? Graduated Bucket

Color cloudy gray Odor None

Turbidity low

Was well cavitated? Yes ____ No ____

SAMPLING

Time/Date Started: 1520 / 11-10-15

Air Temperature: 63 (°F/°C)

Weather Conditions: Sunny _____ Rain X Overcast X Other _____

Depth to Water: _____ ft

Sampling Method: Bailer _____ Submersible Pump _____ Peristaltic Pump X Other _____

Number of Bottles Filled: 9

Date Sent To Lab: 11-10-15

Laboratory Name: PACE

Parameters to Analyze: See COC

Chain of Custody Number: _____

Other: _____

FIELD DATA

Time	1450	1455	1500	1505	1510	1515	
Volume of water purged	2.12	2.6	3.0	3.35	3.70	4.00	gal
pH	10.33	11.66	12.01	12.13	12.20	12.24	s.u.
Conductance	0.734	0.805	0.820	0826	0.828	0.828	ms/cm
Temperature	18.87	19.03	19.03	19.01	19.05	14.03	°C
DO	0.68	0.17	0.24	0.39	0.20	0.32	mg/l
Redox	-76.8	-112.0	-149.0	-164.8	-180.7	-190.7	mV
Turbidity	7.80	4.43	3.70	2.82	3.70	3.26	NTU
SpC	837	909	925	933	934	935	us/cm

Remarks: smoke and strong burnt smell from HCl bottles when water added. Also strong burnt smell.

Pipe Volume:

1" I.D. = 0.041 gal/ft
2" I.D. = 0.163 gal/ft
4" I.D. = 0.653 gal/ft
6" I.D. = 1.47 gal/ft

GROUNDWATER SAMPLING RECORD SHEET

Sheet Number 1 of 1

Job Name: Area A, Parcel A4 Job Location: SPT

Job Number: 150298m Phase: II Task: GW Sampling

Sample Location: A4-013-PZ Name(s) of Sampler(s): Lisa Perrin, Nick Kurtz

Description of Sample: Water X Soil _____ Other _____

PURGING

Time/Date Started: 1237 / 11-11-15

Air Temperature: 58 (°F/°C)

Weather Conditions: Sunny _____ Rain _____ Overcast X Other _____

Depth to Water: 7.72 ft

Total Well Depth: 15.01 ft

Height of Water Column: 7.29 ft

Well Diameter: 1-inch X 4-inch _____ 2-inch _____ 6-inch _____

Well Volume Calculation:

7.29 ft x 0.041 gal/ft = 0.299 gal

Purge Volume = 3 x 0.299 = 0.879 gal

Purging Method: Pump X Bailed ___ Other ___

Gallons Removed: 2.90 gal

Length of Time Purged 33 min

Yield at End of Purging: 0.0879 gpm

How was yield measured? Graduated Bucket

Color Dark gray Odor None

Turbidity ~~Sheen in water~~ high at first

Was well cavitated? Yes____ No _____

SAMPLING

Time/Date Started: 1315 / 11-11-15

Air Temperature: 58 (°F/°C)

Weather Conditions: Sunny _____ Rain _____ Overcast X Other _____

Depth to Water: _____ ft

Sampling Method: Bailer _____ Submersible Pump _____ Peristaltic Pump X Other _____

Number of Bottles Filled: 9

Date Sent To Lab: 11-11-15

Laboratory Name: PACE

Parameters to Analyze: See COC

Chain of Custody Number: _____

Other: _____

FIELD DATA

Time	1240	1245	1250	1255	1300	1305		1310	Remarks:
Volume of water purged	~~1.00~~	1.40	1.65	2.00	2.30	2.65	gal	2.90	
pH ± 0.1	8.11	9.66	9.92	10.08	10.20	10.27	s.u.	10.33	
Conductance	0.850	0.821	0.818	0.807	0.788	0.780	ms/cm	0.766	
Temperature ~~3%~~	18.76	18.78	18.68	18.64	18.65	18.56	°C	18.56	
DO ~~10%~~ ~~10%~~ (0.3)	0.90	0.29	0.26	0.24	0.27	0.24	mg/l	0.24	
Redox ± 10 mV	-32.3	-52.0	-77.0	-103.6	-135.8	-142.3	mV	-150.9	
Turbidity >5, 10%	OR *	2	33.7	15.8	12.3	11.62	NTU	9.39	
SpC 3%	963	932	931	918	897	889	us/cm	873	

* OR = overrange

Pipe Volume: 1" I.D. = 0.041 gal/ft; 2" I.D. = 0.163 gal/ft; 4" I.D. = 0.653 gal/ft; 6" I.D. = 1.47 gal/ft

GROUNDWATER SAMPLING RECORD SHEET

Sheet Number 1 of 1

Job Name: Area A, Parcel A4 Job Location: SPT

Job Number: 150298m Phase: II Task: GW sampling

Sample Location: A4-014-PZ Name(s) of Sampler(s): Lisa Perrin, Nick Kurtz

Description of Sample: Water X Soil _____ Other _____

PURGING

Time/Date Started: 1130 / 11-11-15

Air Temperature: 59 (°F/°C)

Weather Conditions: Sunny _____ Rain _____ Overcast X Other _____

Depth to Water: 10.03 ft

Total Well Depth: 28.16 ft

Height of Water Column: 18.13 ft

Well Diameter: 1-inch X 4-inch _____ 2-inch _____ 6-inch _____

Well Volume Calculation:

18.13 ft x 0.041 gal/ft = 0.743 gal

Purge Volume = 3 x 0.743 = 2.23 gal

Purging Method: Pump X Bailed ___ Other ___

Gallons Removed: 3.55 gal

Length of Time Purged 27 min

Yield at End of Purging: 0.131 gpm

How was yield measured? Graduated Bucket

Color light beige Odor none

Turbidity mod

Was well cavitated? Yes____ No _____

SAMPLING

Time/Date Started: 1202 / 11-11-15

Air Temperature: 59 (°F/°C)

Weather Conditions: Sunny _____ Rain _____ Overcast X Other _____

Depth to Water: _____ ft

Sampling Method: Bailer _____ Submersible Pump _____ Peristaltic Pump X Other _____

Number of Bottles Filled: 9

Date Sent To Lab: 11-11-15

Laboratory Name: PACE

Parameters to Analyze: See COC

Chain of Custody Number: _____

Other: _____

FIELD DATA

Time	1142	1147	1152	1157				Remarks:
Volume of water purged	2.35	2.85	3.15	3.55			gal	
pH ± 0.1	5.11	4.73	4.73	4.72			s.u.	
Conductance	1.100	1.112	1.113	1.115			ms/cm	
Temperature	15.52	15.66	15.68	15.72			°C	
DO (0.3)	1.41	0.37	0.35	0.26			mg/l	
Redox ±10mV	-23.9	-20.4	-21.1	-25.6			mV	
Turbidity >5 10%	110	84	69	60			NTU	
SpC 3%	1346	1354	1354	1356			us/cm	

Pipe Volume: 1" I.D. = 0.041 gal/ft; 2" I.D. = 0.163 gal/ft; 4" I.D. = 0.653 gal/ft; 6" I.D. = 1.47 gal/ft

GROUNDWATER SAMPLING RECORD SHEET

Sheet Number 1 of 1

Job Name: Area A Parcel A4 Job Location: SPT

Job Number: 150298M Phase: II Task: GW sampling

Sample Location: A4-019-PZ Name(s) of Sampler(s): Lisa Perini, Nick Kurtz

Description of Sample: Water X Soil _____ Other _____

PURGING

Time/Date Started: 0855 / 11-11-15

Air Temperature: 54 (°F/°C)

Weather Conditions: Sunny X Rain _____ Overcast _____ Other _____

Depth to Water: 7.76 ft

Total Well Depth: 27.41 ft

Height of Water Column: 19.65 ft

Well Diameter: 1-inch X 4-inch _____ 2-inch _____ 6-inch _____

Well Volume Calculation:

19.65 ft x 0.041 gal/ft = 0.806 gal

Purge Volume = 3 x 0.806 = 2.42 gal

Purging Method: Pump X Bailed ___ Other ___

Gallons Removed: 3.75 gal

Length of Time Purged 30 min

Yield at End of Purging: 0.125 gpm

How was yield measured? Graduated Bucket

Color light cloudy gray Odor None

Turbidity low

Was well cavitated? Yes ____ No ____

SAMPLING

Time/Date Started: 0930 / 11-11-15

Air Temperature: 54 (°F/°C)

Weather Conditions: Sunny X Rain _____ Overcast _____ Other _____

Depth to Water: _____ ft

Sampling Method: Bailer _____ Submersible Pump _____ Peristaltic Pump X Other _____

Number of Bottles Filled: 9

Date Sent To Lab: 11-11-15

Laboratory Name: PACE

Parameters to Analyze: See COC

Chain of Custody Number: _____

Other: _____

FIELD DATA

Time	0900	0905	0910	0915	0920	0925	
Volume of water purged	2.52	2.85	3.13	3.45	3.68	3.75	gal
pH ±0.1	11.19	8.26	7.08	6.43	6.17	6.07	s.u.
Conductance	0.584	0.566	0.564	0.563	0.563	0.566	ms/cm
Temperature 3%	17.10	17.42	17.51	17.75	17.93	18.12	°C
DO >0.5 10%	0.64	0.26	0.31	0.28	0.27	0.35	mg/l
Redox ±10 mV	-50.0	-46.7	-50.6	-54.1	-56.1	-56.3	mV
Turbidity >5 10%	7.86	14.4	15.3	11.3	14.7	8.91	NTU
SpC 3%	691	662	658	654	651	657	us/cm

Remarks: _____

Pipe Volume:

1" I.D. = 0.041 gal/ft
2" I.D. = 0.163 gal/ft
4" I.D. = 0.653 gal/ft
6" I.D. = 1.47 gal/ft

TABLE 1
MULTIPARAMETER CALIBRATION LOG

Project Name Parcel A4 Date 11/9/15
Weather Partly Cloudy 50s-60s
Calibrated by N. Kurtz & L. Perrin Instrument YSI Meter
Serial Number NA

Parameters	Morning Calibration	Morning Temperature	End of Day Calibration Check	End of Day Temperature
Specific Conductance Standard #1	1.412	40 ℉ (est.)	NA¥	NA
Specific Conductance Standard #2	NA	NA	NA	NA
pH (7)	6.98	40 ℉ (est.)	NA¥	NA
pH (4)	3.97	40 ℉ (est.)	NA¥	NA
pH(10)	9.96	40 ℉ (est.)	NA¥	NA
ORP Zobel Solution	240.1	40 ℉ (est.)	NA¥	NA
Dissolved Oxygen 100% water saturated air mg/L	13.30¥	40 ℉ (est.)	NA¥	NA
Dissolved Oxygen Zero Dissolved Oxygen Solution mg/L	NA	40 ℉ (est.)	NA	NA
Barometric Pressure mm Hg	775.2	NA	NA¥	NA
Turbidity #1 (10 NTU)	9.24	NA	NA¥	NA
Turbidity #2 (0.0 NTU)	0.04	NA	NA¥	NA
Turbidity Standard #3	NA	NA	NA	NA

¥The post-calibration check was not performed on this date. DO is outside of the calibration acceptance criteria. Values displayed on field purge logs may be inaccurate.

TABLE 1
MULTIPARAMETER CALIBRATION LOG

Project Name Parcel A4 Date 11/10/15
Weather Rain 50s
Calibrated by L. Perrin Instrument YSI Meter
Serial Number NA

Parameters	Morning Calibration	Morning Temperature	End of Day Calibration Check	End of Day Temperature
Specific Conductance Standard #1	NA¥	56 ℉ (est.)	NA¥	60 ℉ (est.)
Specific Conductance Standard #2	NA	NA	NA	NA
pH (7)	7.00	56 ℉ (est.)	7.22	60 ℉ (est.)
pH (4)	4.00	56 ℉ (est.)	3.92	60 ℉ (est.)
pH(10)	10.40	56 ℉ (est.)	10.22	60 ℉ (est.)
ORP Zobel Solution	234.4	56 ℉ (est.)	236.2	60 ℉ (est.)
Dissolved Oxygen 100% water saturated air mg/L	NA¥	56 ℉ (est.)	NA¥	60 ℉ (est.)
Dissolved Oxygen Zero Dissolved Oxygen Solution mg/L	NA	NA	NA	NA
Barometric Pressure mm Hg	762.51	NA	760.10	NA
Turbidity #1 (10 NTU)	calibrated before each sample	NA	NA	NA
Turbidity #2 (0.0 NTU)	calibrated before each sample	NA	NA	NA
Turbidity Standard #3	NA	NA	NA	NA

¥No calibration and check values were recorded for Specific Conductance and DO. Values displayed on field purge logs may be inaccurate.

TABLE 1
MULTIPARAMETER CALIBRATION LOG

Project Name Parcel A4 Date 11/11/15
Weather Sunny 50s & 60s
Calibrated by L. Perrin & N. Kurtz Instrument YSI Meter
Serial Number NA

Parameters	Morning Calibration	Morning Temperature	End of Day Calibration Check	End of Day Temperature
Specific Conductance Standard #1	1.412	53 ℉ (est.)	1.446	62 ℉ (est.)
Specific Conductance Standard #2	NA	NA	NA	NA
pH (7)	7.04	53 ℉ (est.)	7.00	62 ℉ (est.)
pH (4)	4.00	53 ℉ (est.)	3.80	62 ℉ (est.)
pH(10)	10.06	53 ℉ (est.)	10.00	62 ℉ (est.)
ORP Zobel Solution	240.0	53 ℉ (est.)	240.0	62 ℉ (est.)
Dissolved Oxygen 100% water saturated air mg/L	10.41	53 ℉ (est.)	10.21	62 ℉ (est.)
Dissolved Oxygen Zero Dissolved Oxygen Solution mg/L	NA	53 ℉ (est.)	NA	62 ℉ (est.)
Barometric Pressure mm Hg	NA¥	NA	NA¥	NA
Turbidity #1 (10 NTU)	calibrated before each sample	NA	NA	NA
Turbidity #2 (0.0 NTU)	calibrated before each sample	NA	NA	NA
Turbidity Standard #3	NA	NA	NA	NA

¥Barometric pressure values were not recorded. Values displayed on field purge logs may be inaccurate.

APPENDIX H

Parcel A4 - IDW Drum Log

Drum ID	Designation	Activity/Phase	Contents	Open Date
352-Soil-3/16/16-A4	Non-haz.	Parcel A4	Soil	3/16/2016
55-Soil-11/2/15-A4	Non-haz.	Parcel A4	Soil	11/2/2015
56-Liners-11/2/15-A4	Non-haz.	Parcel A4	Liners	11/2/2015
57-Decon Water-11/2/15-A4	Non-haz.	Parcel A4	Decon water	11/2/2015
58-PPE-11/2/15-A4	Non-haz.	Parcel A4	PPE	11/2/2015
59-Soil-11/4/15-A4	Non-haz.	Parcel A4	Soil	11/4/2015
60-PPE-11/4/15-A4	Non-haz.	Parcel A4	PPE	11/4/2015
61-Purge Water-11/4/15-A3	Hazardous	Parcel A3	Purge water	11/4/2015

APPENDIX I

QA/QC Tracking Log

Date:		Sample IDs	
11/2/2015	1)	A4-011-SB-1	
	2)	A4-011-SB-5	
	3)	A4-011-SB-10	
	4)	A4-003-SB-1	
	5)	A4-003-SB-7.5	
	6)	A4-004-SB-1	
	7)	A4-004-SB-5	Duplicate: A4-004-SB-5
	8)	A4-024-SB-1	Date: 11/2/2015
	9)	A4-024-SB-5	MS/MSD: A4-011-SB-1
	10)	A4-001-SB-1	Date: 11/2/2015
	11)	A4-001-SB-5	Field Blank:
	12)	A4-002-SB-1	Date: 11/2/2015
	13)	A4-002-SB-5	Eq. Blank:
11/3/2015	14)	A4-020-SB-1	Date: 11/2/2015
	15)	A4-020-SB-5	
	16)	A4-020-SB-10	
	17)	A4-007-SB-1	
	18)	A4-007-SB-5	
	19)	A4-007-SB-10	
	20)	A4-008-SB-1	

Date:		Sample IDs	
11/4/2015	1)	A4-019-SB-1	
	2)	A4-019-SB-5	
	3)	A4-019-SB-10	
	4)	A4-026-SB-1	
	5)	A4-026-SB-5	
	6)	A4-026-SB-10	
	7)	A4-015-SB-1	Duplicate: A4-019-SB-1
	8)	A4-015-SB-5	Date: 11/4/2015
	9)	A4-015-SB-10	MS/MSD: A4-015-SB-5
	10)	A4-021-SB-1	Date: 11/4/2015
	11)	A4-021-SB-5	Field Blank:
	12)	A4-021-SB-10	Date: 11/4/2015
	13)	A4-006-SB-1	Eq. Blank:
	14)	A4-006-SB-6	Date: 11/4/2015
	15)	A4-006-SB-10	
	16)	A4-005-SB-1	
	17)	A4-005-SB-5	
	18)	A4-005-SB-10	
11/5/2015	19)	A4-012-SB-1	
	20)	A4-012-SB-5	

11/3/2015	1)	A4-008-SB-5	
	2)	A4-008-SB-10	
	3)	A4-009-SB-1	
	4)	A4-009-SB-5	
	5)	A4-009-SB-10	
	6)	A4-025-SB-1	
	7)	A4-025-SB-7	Duplicate: A4-010-SB-5
	8)	A4-025-SB-10	Date: 11/3/2015
	9)	A4-010-SB-1	MS/MSD: A4-009-SB-5
	10)	A4-010-SB-5	Date: 11/3/2015
	11)	A4-010-SB-10	Field Blank:
	12)	A4-018-SB-1	Date: 11/3/2015
	13)	A4-018-SB-5	Eq. Blank:
	14)	A4-018-SB-10	Date: 11/3/2015
11/4/2015	15)	A4-017-SB-1	
	16)	A4-017-SB-5	
	17)	A4-017-SB-10	
	18)	A4-028-SB-1	
	19)	A4-028-SB-5	
	20)	A4-028-SB-10	

11/5/2015	1)	A4-013-SB-1	
	2)	A4-013-SB-4	
	3)	A4-023-SB-1	
	4)	A4-023-SB-5	
	5)	A4-022-SB-1	
	6)	A4-022-SB-8	
	7)	A4-027-SB-1	Duplicate: A4-027-SB-1
	8)	A4-027-SB-5	Date: 11/5/2015
	9)	A4-016-SB-1	MS/MSD: A4-023-SB-1
	10)	A4-016-SB-5	Date: 11/5/2015
	11)	A4-016-SB-10	Field Blank:
	12)	A4-014-SB-1	Date: 11/5/2015
	13)	A4-014-SB-7	Eq. Blank:
	14)	A4-014-SB-10	Date: 11/5/2015
*3/16/2016	15)	A4-016-SB-1	Notes: *SVOC only
	16)	A4-016-SB-5	and no trip blank
	17)	A4-014-SB-1	
	18)	A4-014-SB-7	
	19)	A4-021-SB-1	
	20)	A4-021-SB-5	

Trip Blanks: 11/2/2015, 11/3/2015, 11/4/2015, 11/5/2015

QA/QC Tracking Log

Date:		Sample IDs	
*3/16/2016	1)	A4-026-SB-1	
	2)	A4-026-SB-5	
	3)	A4-019-SB-1	
	4)	A4-019-SB-5	
	5)	A4-015-SB-1	
	6)	A4-015-SB-5	
	7)	A4-028-SB-1	Duplicate: A4-019-SB-1
	8)	A4-028-SB-5	Date: 3/16/2016
	9)	A4-017-SB-1	MS/MSD: A4-015-SB-5
	10)	A4-017-SB-5	Date: 3/16/2016
	11)	A4-018-SB-1	Field Blank:
	12)	A4-018-SB-5	Date: 3/16/2016
	13)	A4-010-SB-1	Eq. Blank:
	14)	A4-010-SB-5	Date: 3/16/2016
	15)	A4-009-SB-1	Notes: *SVOC only
	16)	A4-009-SB-5	and no trip blank
	17)	A4-025-SB-1	
	18)	A4-025-SB-7	
	19)	A4-008-SB-1	
	20)	A4-008-SB-5	

Date:		Sample IDs	
*3/17/2016	1)	A4-001-SB-1	
	2)	A4-001-SB-5	
	3)	A4-013-SB-1	
	4)	A4-013-SB-4	
	5)	A4-027-SB-1	
	6)	A4-027-SB-5	
	7)	A4-023-SB-1	Duplicate: A4-027-SB-1
	8)	A4-023-SB-5	Date: 3/17/2016
	9)		MS/MSD: A4-023-SB-1
	10)		Date: 3/17/2016
	11)		Field Blank:
	12)		Date: 3/17/2016
	13)		Eq. Blank:
	14)		Date: 3/17/2016
	15)		
	16)		
	17)		
	18)		
	19)		
	20)		

*3/16/2016	1)	A4-007-SB-1	
	2)	A4-007-SB-5	
	3)	A4-020-SB-1	
	4)	A4-020-SB-5	
*3/17/2016	5)	A4-006-SB-1	
	6)	A4-006-SB-6	
	7)	A4-005-SB-1	Duplicate: A4-004-SB-5
	8)	A4-005-SB-5	Date: 3/17/2016
	9)	A4-024-SB-1	MS/MSD: A4-011-SB-1
	10)	A4-024-SB-5	Date: 3/17/2016
	11)	A4-004-SB-1	Field Blank:
	12)	A4-004-SB-5	Date: 3/17/2016
	13)	A4-003-SB-1	Eq. Blank:
	14)	A4-003-SB-7.5	Date: 3/17/2016
	15)	A4-011-SB-1	Notes: *SVOC only
	16)	A4-011-SB-5	and no trip blank
	17)	A4-012-SB-1	
	18)	A4-012-SB-5	
	19)	A4-002-SB-1	
	20)	A4-002-SB-5	

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

Trip Blanks:

APPENDIX J

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

Parameter	Parameter Group	Matrix	Unit	Number of Results	Detections	Number of Rejected Results	Number of Non-rejected Results	Completeness
1,1,1-Trichloroethane	VOC	Soil	mg/kg	56	0	0	56	100.00%
1,1,2,2-Tetrachloroethane	VOC	Soil	mg/kg	56	0	0	56	100.00%
1,1,2-Trichloro-1,2,2-Trifluoroethane	VOC	Soil	mg/kg	56	0	0	56	100.00%
1,1,2-Trichloroethane	VOC	Soil	mg/kg	56	0	0	56	100.00%
1,1-Biphenyl	SVOC	Soil	mg/kg	66	17	0	66	100.00%
1,1-Dichloroethane	VOC	Soil	mg/kg	56	0	0	56	100.00%
1,1-Dichloroethene	VOC	Soil	mg/kg	56	0	0	56	100.00%
1,2,3-Trichlorobenzene	VOC	Soil	mg/kg	56	0	0	56	100.00%
1,2,4,5-Tetrachlorobenzene	SVOC	Soil	mg/kg	66	0	0	66	100.00%
1,2,4-Trichlorobenzene	VOC	Soil	mg/kg	56	0	0	56	100.00%
1,2-Dibromo-3-chloropropane	VOC	Soil	mg/kg	56	0	0	56	100.00%
1,2-Dibromoethane	VOC	Soil	mg/kg	56	0	0	56	100.00%
1,2-Dichlorobenzene	VOC	Soil	mg/kg	56	1	0	56	100.00%
1,2-Dichloroethane	VOC	Soil	mg/kg	56	0	0	56	100.00%
1,2-Dichloroethene (Total)	VOC	Soil	mg/kg	56	0	0	56	100.00%
1,2-Dichloropropane	VOC	Soil	mg/kg	56	0	0	56	100.00%
1,3-Dichlorobenzene	VOC	Soil	mg/kg	56	0	0	56	100.00%
1,4-Dichlorobenzene	VOC	Soil	mg/kg	56	0	0	56	100.00%
1,4-Dioxane	VOC/SVOC	Soil	mg/kg	56	0	42	14	25.00%
2,3,4,6-Tetrachlorophenol	SVOC	Soil	mg/kg	66	0	7	59	89.39%
2,4,5-Trichlorophenol	SVOC	Soil	mg/kg	66	0	7	59	89.39%
2,4,6-Trichlorophenol	SVOC	Soil	mg/kg	66	0	7	59	89.39%
2,4-Dichlorophenol	SVOC	Soil	mg/kg	66	0	7	59	89.39%
2,4-Dimethylphenol	SVOC	Soil	mg/kg	66	6	7	59	89.39%
2,4-Dinitrophenol	SVOC	Soil	mg/kg	66	0	7	59	89.39%
2,4-Dinitrotoluene	SVOC	Soil	mg/kg	66	0	0	66	100.00%
2,6-Dinitrotoluene	SVOC	Soil	mg/kg	66	1	0	66	100.00%
2-Butanone (MEK)	VOC	Soil	mg/kg	56	32	0	56	100.00%
2-Chloronaphthalene	SVOC	Soil	mg/kg	66	1	0	66	100.00%
2-Chlorophenol	SVOC	Soil	mg/kg	66	0	7	59	89.39%
2-Hexanone	VOC	Soil	mg/kg	56	1	0	56	100.00%
2-Methylnaphthalene	SVOC	Soil	mg/kg	59	41	0	59	100.00%
2-Methylphenol	SVOC	Soil	mg/kg	66	5	7	59	89.39%
2-Nitroaniline	SVOC	Soil	mg/kg	66	0	0	66	100.00%
3&4-Methylphenol(m&p Cresol)	SVOC	Soil	mg/kg	66	10	7	59	89.39%
3,3'-Dichlorobenzidine	SVOC	Soil	mg/kg	66	0	0	66	100.00%
4-Chloroaniline	SVOC	Soil	mg/kg	66	0	0	66	100.00%
4-Methyl-2-pentanone (MIBK)	VOC	Soil	mg/kg	56	0	0	56	100.00%
4-Nitroaniline	SVOC	Soil	mg/kg	66	0	0	66	100.00%
Acenaphthene	SVOC	Soil	mg/kg	59	29	0	59	100.00%
Acenaphthylene	SVOC	Soil	mg/kg	59	31	0	59	100.00%
Acetone	VOC	Soil	mg/kg	56	48	7	49	87.50%
Acetophenone	SVOC	Soil	mg/kg	66	12	0	66	100.00%
Aluminum	Metal	Soil	mg/kg	56	56	0	56	100.00%
Anthracene	SVOC	Soil	mg/kg	59	42	0	59	100.00%
Antimony	Metal	Soil	mg/kg	56	3	0	56	100.00%
Aroclor 1016	PCB	Soil	mg/kg	28	0	0	28	100.00%
Aroclor 1221	PCB	Soil	mg/kg	28	0	0	28	100.00%
Aroclor 1232	PCB	Soil	mg/kg	28	0	0	28	100.00%
Aroclor 1242	PCB	Soil	mg/kg	28	0	0	28	100.00%
Aroclor 1248	PCB	Soil	mg/kg	28	0	0	28	100.00%
Aroclor 1254	PCB	Soil	mg/kg	28	1	0	28	100.00%
Aroclor 1260	PCB	Soil	mg/kg	28	8	0	28	100.00%
Arsenic	Metal	Soil	mg/kg	68	58	0	68	100.00%
Barium	Metal	Soil	mg/kg	56	56	0	56	100.00%
Benz[a]anthracene	SVOC	Soil	mg/kg	59	51	0	59	100.00%
Benzaldehyde	SVOC	Soil	mg/kg	66	12	49	17	25.76%
Benzene	VOC	Soil	mg/kg	56	10	0	56	100.00%
Benzo[a]pyrene	SVOC	Soil	mg/kg	60	48	0	60	100.00%
Benzo[b]fluoranthene	SVOC	Soil	mg/kg	59	54	0	59	100.00%
Benzo[g,h,i]perylene	SVOC	Soil	mg/kg	59	49	0	59	100.00%
Benzo[k]fluoranthene	SVOC	Soil	mg/kg	59	52	0	59	100.00%

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

Parameter	Parameter Group	Matrix	Unit	Number of Results	Detections	Number of Rejected Results	Number of Non-rejected Results	Completeness
Beryllium	Metal	Soil	mg/kg	56	36	0	56	100.00%
bis(2-chloroethoxy)methane	SVOC	Soil	mg/kg	66	0	0	66	100.00%
bis(2-Chloroethyl)ether	SVOC	Soil	mg/kg	66	0	0	66	100.00%
bis(2-Chloroisopropyl)ether	SVOC	Soil	mg/kg	66	0	0	66	100.00%
bis(2-Ethylhexyl)phthalate	SVOC	Soil	mg/kg	66	3	0	66	100.00%
Bromodichloromethane	VOC	Soil	mg/kg	56	0	0	56	100.00%
Bromoform	VOC	Soil	mg/kg	56	0	0	56	100.00%
Bromomethane	VOC	Soil	mg/kg	56	0	42	14	25.00%
Cadmium	Metal	Soil	mg/kg	56	25	0	56	100.00%
Caprolactam	SVOC	Soil	mg/kg	66	0	0	66	100.00%
Carbazole	SVOC	Soil	mg/kg	66	32	0	66	100.00%
Carbon disulfide	VOC	Soil	mg/kg	56	0	0	56	100.00%
Carbon tetrachloride	VOC	Soil	mg/kg	56	0	0	56	100.00%
Chlorobenzene	VOC	Soil	mg/kg	56	0	0	56	100.00%
Chloroethane	VOC	Soil	mg/kg	56	0	12	44	78.57%
Chloroform	VOC	Soil	mg/kg	56	0	0	56	100.00%
Chloromethane	VOC	Soil	mg/kg	56	0	0	56	100.00%
Chromium	Metal	Soil	mg/kg	56	56	0	56	100.00%
Chromium VI	Metal	Soil	mg/kg	56	6	0	56	100.00%
Chrysene	SVOC	Soil	mg/kg	59	54	0	59	100.00%
cis-1,2-Dichloroethene	VOC	Soil	mg/kg	56	0	0	56	100.00%
cis-1,3-Dichloropropene	VOC	Soil	mg/kg	56	0	0	56	100.00%
Cobalt	Metal	Soil	mg/kg	56	33	0	56	100.00%
Copper	Metal	Soil	mg/kg	56	55	0	56	100.00%
Cyanide	CN	Soil	mg/kg	56	35	0	56	100.00%
Cyclohexane	VOC	Soil	mg/kg	56	8	0	56	100.00%
Dibenz[a,h]anthracene	SVOC	Soil	mg/kg	59	38	0	59	100.00%
Dibromochloromethane	VOC	Soil	mg/kg	56	0	0	56	100.00%
Dichlorodifluoromethane	VOC	Soil	mg/kg	56	0	0	56	100.00%
Diesel Range Organics	TPH	Soil	mg/kg	8	6	0	8	100.00%
Diethylphthalate	SVOC	Soil	mg/kg	66	1	0	66	100.00%
Di-n-butylphthalate	SVOC	Soil	mg/kg	66	1	0	66	100.00%
Di-n-ocytlphthalate	SVOC	Soil	mg/kg	66	2	0	66	100.00%
Ethylbenzene	VOC	Soil	mg/kg	56	4	0	56	100.00%
Fluoranthene	SVOC	Soil	mg/kg	59	53	0	59	100.00%
Fluorene	SVOC	Soil	mg/kg	59	42	0	59	100.00%
Gasoline Range Organics	TPH	Soil	mg/kg	16	4	0	16	100.00%
Hexachlorobenzene	SVOC	Soil	mg/kg	66	0	0	66	100.00%
Hexachlorobutadiene	SVOC	Soil	mg/kg	66	0	0	66	100.00%
Hexachlorocyclopentadiene	SVOC	Soil	mg/kg	66	0	0	66	100.00%
Hexachloroethane	SVOC	Soil	mg/kg	66	0	0	66	100.00%
Indeno[1,2,3-c,d]pyrene	SVOC	Soil	mg/kg	59	42	0	59	100.00%
Iron	Metal	Soil	mg/kg	56	56	0	56	100.00%
Isophorone	SVOC	Soil	mg/kg	66	0	0	66	100.00%
Isopropylbenzene	VOC	Soil	mg/kg	56	2	0	56	100.00%
Lead	Metal	Soil	mg/kg	56	54	0	56	100.00%
Manganese	Metal	Soil	mg/kg	57	57	0	57	100.00%
Mercury	Metal	Soil	mg/kg	56	39	0	56	100.00%
Methyl Acetate	VOC	Soil	mg/kg	56	1	14	42	75.00%
Methyl tert-butyl ether (MTBE)	VOC	Soil	mg/kg	56	0	0	56	100.00%
Methylene Chloride	VOC	Soil	mg/kg	56	21	0	56	100.00%
Naphthalene	SVOC	Soil	mg/kg	59	43	0	59	100.00%
Nickel	Metal	Soil	mg/kg	56	49	0	56	100.00%
Nitrobenzene	SVOC	Soil	mg/kg	66	0	0	66	100.00%
N-Nitroso-di-n-propylamine	SVOC	Soil	mg/kg	66	0	0	66	100.00%
N-Nitrosodiphenylamine	SVOC	Soil	mg/kg	66	1	0	66	100.00%
Oil and Grease	TPH	Soil	mg/kg	56	56	0	56	100.00%
PCBs (total)	PCB	Soil	mg/kg	28	5	0	28	100.00%
Pentachlorophenol	SVOC	Soil	mg/kg	66	0	7	59	89.39%
Phenanthrene	SVOC	Soil	mg/kg	59	47	0	59	100.00%
Phenol	SVOC	Soil	mg/kg	66	7	7	59	89.39%
Pyrene	SVOC	Soil	mg/kg	59	54	0	59	100.00%

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

Parameter	Parameter Group	Matrix	Unit	Number of Results	Detections	Number of Rejected Results	Number of Non-rejected Results	Completeness
Selenium	Metal	Soil	mg/kg	56	6	0	56	100.00%
Silver	Metal	Soil	mg/kg	56	8	0	56	100.00%
Styrene	VOC	Soil	mg/kg	56	0	0	56	100.00%
Tetrachloroethene	VOC	Soil	mg/kg	56	0	0	56	100.00%
Thallium	Metal	Soil	mg/kg	57	1	0	57	100.00%
Toluene	VOC	Soil	mg/kg	56	19	0	56	100.00%
trans-1,2-Dichloroethene	VOC	Soil	mg/kg	56	0	0	56	100.00%
trans-1,3-Dichloropropene	VOC	Soil	mg/kg	56	0	0	56	100.00%
Trichloroethene	VOC	Soil	mg/kg	56	1	0	56	100.00%
Trichlorofluoromethane	VOC	Soil	mg/kg	56	0	0	56	100.00%
Vanadium	Metal	Soil	mg/kg	56	56	0	56	100.00%
Vinyl chloride	VOC	Soil	mg/kg	56	0	0	56	100.00%
Xylenes	VOC	Soil	mg/kg	56	5	0	56	100.00%
Zinc	Metal	Soil	mg/kg	56	56	0	56	100.00%
1,1,1-Trichloroethane	VOC	Water	ug/L	8	0	0	8	100.00%
1,1,2,2-Tetrachloroethane	VOC	Water	ug/L	8	0	0	8	100.00%
1,1,2-Trichloro-1,2,2-Trifluoroethane	VOC	Water	ug/L	8	0	0	8	100.00%
1,1,2-Trichloroethane	VOC	Water	ug/L	8	0	0	8	100.00%
1,1-Biphenyl	SVOC	Water	ug/L	8	1	0	8	100.00%
1,1-Dichloroethane	VOC	Water	ug/L	8	0	0	8	100.00%
1,1-Dichloroethene	VOC	Water	ug/L	8	0	0	8	100.00%
1,2,3-Trichlorobenzene	VOC	Water	ug/L	8	0	0	8	100.00%
1,2,4,5-Tetrachlorobenzene	SVOC	Water	ug/L	8	0	0	8	100.00%
1,2,4-Trichlorobenzene	VOC	Water	ug/L	8	0	0	8	100.00%
1,2-Dibromo-3-chloropropane	VOC	Water	ug/L	8	0	0	8	100.00%
1,2-Dibromoethane	VOC	Water	ug/L	8	0	0	8	100.00%
1,2-Dichlorobenzene	VOC	Water	ug/L	8	0	0	8	100.00%
1,2-Dichloroethane	VOC	Water	ug/L	8	0	0	8	100.00%
1,2-Dichloroethene (Total)	VOC	Water	ug/L	8	0	0	8	100.00%
1,2-Dichloropropane	VOC	Water	ug/L	8	0	0	8	100.00%
1,3-Dichlorobenzene	VOC	Water	ug/L	8	0	0	8	100.00%
1,4-Dichlorobenzene	VOC	Water	ug/L	8	0	0	8	100.00%
1,4-Dioxane	VOC/SVOC	Water	ug/L	8	2	0	8	100.00%
2,3,4,6-Tetrachlorophenol	SVOC	Water	ug/L	8	1	0	8	100.00%
2,4,5-Trichlorophenol	SVOC	Water	ug/L	8	0	0	8	100.00%
2,4,6-Trichlorophenol	SVOC	Water	ug/L	8	0	0	8	100.00%
2,4-Dichlorophenol	SVOC	Water	ug/L	8	0	0	8	100.00%
2,4-Dimethylphenol	SVOC	Water	ug/L	8	1	0	8	100.00%
2,4-Dinitrophenol	SVOC	Water	ug/L	8	0	0	8	100.00%
2,4-Dinitrotoluene	SVOC	Water	ug/L	8	0	0	8	100.00%
2,6-Dinitrotoluene	SVOC	Water	ug/L	8	0	0	8	100.00%
2-Butanone (MEK)	VOC	Water	ug/L	8	0	0	8	100.00%
2-Chloronaphthalene	SVOC	Water	ug/L	8	0	0	8	100.00%
2-Chlorophenol	SVOC	Water	ug/L	8	0	0	8	100.00%
2-Hexanone	VOC	Water	ug/L	8	0	0	8	100.00%
2-Methylnaphthalene	SVOC	Water	ug/L	8	2	0	8	100.00%
2-Methylphenol	SVOC	Water	ug/L	8	1	0	8	100.00%
2-Nitroaniline	SVOC	Water	ug/L	8	0	0	8	100.00%
3&4-Methylphenol(m&p Cresol)	SVOC	Water	ug/L	8	1	0	8	100.00%
3,3'-Dichlorobenzidine	SVOC	Water	ug/L	8	0	1	7	87.50%
4-Chloroaniline	SVOC	Water	ug/L	8	0	0	8	100.00%
4-Methyl-2-pentanone (MIBK)	VOC	Water	ug/L	8	0	0	8	100.00%
4-Nitroaniline	SVOC	Water	ug/L	8	0	0	8	100.00%
Acenaphthene	SVOC	Water	ug/L	8	2	0	8	100.00%
Acenaphthylene	SVOC	Water	ug/L	8	2	0	8	100.00%
Acetone	VOC	Water	ug/L	8	0	7	1	12.50%
Acetophenone	SVOC	Water	ug/L	8	0	0	8	100.00%
Aluminum	Metal	Water	ug/L	8	3	0	8	100.00%
Anthracene	SVOC	Water	ug/L	8	3	0	8	100.00%
Antimony	Metal	Water	ug/L	8	0	0	8	100.00%
Arsenic	Metal	Water	ug/L	8	1	0	8	100.00%
Barium	Metal	Water	ug/L	8	8	0	8	100.00%

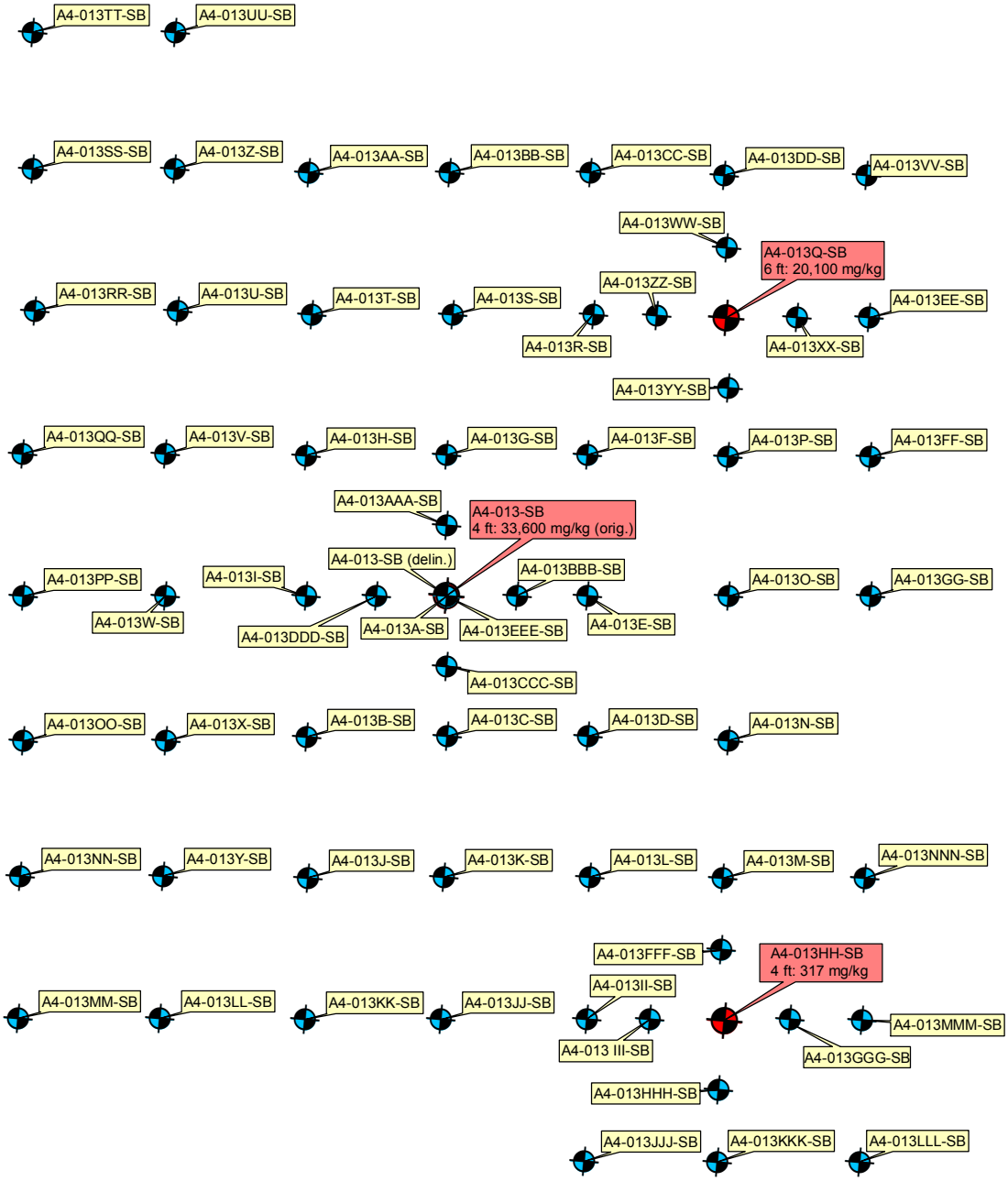
EVALUATION OF DATA COMPLETENESS
Percentage of Non-rejected Results vs. Total Results

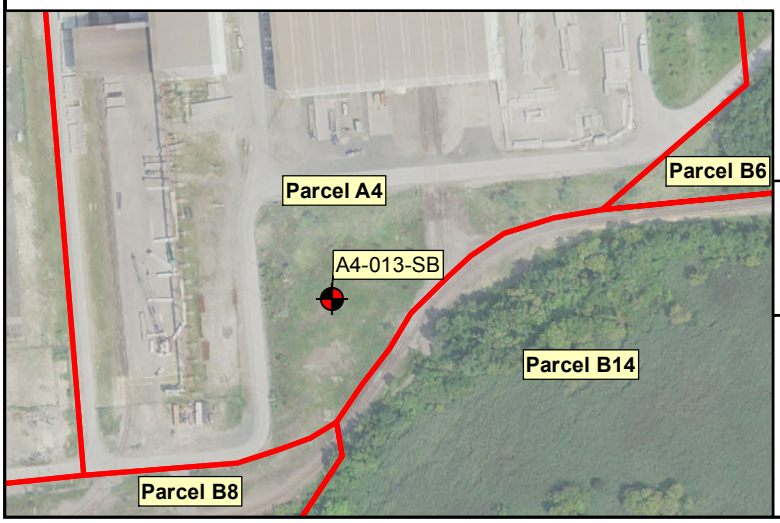
Parameter	Parameter Group	Matrix	Unit	Number of Results	Detections	Number of Rejected Results	Number of Non-rejected Results	Completeness
Benz[a]anthracene	SVOC	Water	ug/L	8	4	0	8	100.00%
Benzaldehyde	SVOC	Water	ug/L	8	0	0	8	100.00%
Benzene	VOC	Water	ug/L	8	1	0	8	100.00%
Benzo[a]pyrene	SVOC	Water	ug/L	8	3	0	8	100.00%
Benzo[b]fluoranthene	SVOC	Water	ug/L	8	2	0	8	100.00%
Benzo[g,h,i]perylene	SVOC	Water	ug/L	8	0	0	8	100.00%
Benzo[k]fluoranthene	SVOC	Water	ug/L	8	1	0	8	100.00%
Beryllium	Metal	Water	ug/L	8	1	0	8	100.00%
bis(2-chloroethoxy)methane	SVOC	Water	ug/L	8	0	0	8	100.00%
bis(2-Chloroethyl)ether	SVOC	Water	ug/L	8	0	0	8	100.00%
bis(2-Chloroisopropyl)ether	SVOC	Water	ug/L	8	0	0	8	100.00%
bis(2-Ethylhexyl)phthalate	SVOC	Water	ug/L	8	2	0	8	100.00%
Bromodichloromethane	VOC	Water	ug/L	8	0	0	8	100.00%
Bromoform	VOC	Water	ug/L	8	0	0	8	100.00%
Bromomethane	VOC	Water	ug/L	8	0	0	8	100.00%
Cadmium	Metal	Water	ug/L	8	1	0	8	100.00%
Caprolactam	SVOC	Water	ug/L	8	0	0	8	100.00%
Carbazole	SVOC	Water	ug/L	8	1	0	8	100.00%
Carbon disulfide	VOC	Water	ug/L	8	0	0	8	100.00%
Carbon tetrachloride	VOC	Water	ug/L	8	0	0	8	100.00%
Chlorobenzene	VOC	Water	ug/L	8	0	0	8	100.00%
Chloroethane	VOC	Water	ug/L	8	0	0	8	100.00%
Chloroform	VOC	Water	ug/L	8	0	0	8	100.00%
Chloromethane	VOC	Water	ug/L	8	0	0	8	100.00%
Chromium	Metal	Water	ug/L	8	0	0	8	100.00%
Chromium VI	Metal	Water	ug/L	8	0	0	8	100.00%
Chrysene	SVOC	Water	ug/L	8	4	0	8	100.00%
cis-1,2-Dichloroethene	VOC	Water	ug/L	8	0	0	8	100.00%
cis-1,3-Dichloropropene	VOC	Water	ug/L	8	0	0	8	100.00%
Cobalt	Metal	Water	ug/L	8	2	0	8	100.00%
Copper	Metal	Water	ug/L	8	0	0	8	100.00%
Cyanide	CN	Water	ug/L	8	2	0	8	100.00%
Cyclohexane	VOC	Water	ug/L	8	0	0	8	100.00%
Dibenz[a,h]anthracene	SVOC	Water	ug/L	8	0	0	8	100.00%
Dibromochloromethane	VOC	Water	ug/L	8	0	0	8	100.00%
Dichlorodifluoromethane	VOC	Water	ug/L	8	0	0	8	100.00%
Diesel Range Organics	TPH	Water	ug/L	1	0	0	1	100.00%
Diethylphthalate	SVOC	Water	ug/L	8	0	0	8	100.00%
Di-n-butylphthalate	SVOC	Water	ug/L	8	0	0	8	100.00%
Di-n-ocytlphthalate	SVOC	Water	ug/L	8	0	0	8	100.00%
Ethylbenzene	VOC	Water	ug/L	8	1	0	8	100.00%
Fluoranthene	SVOC	Water	ug/L	8	4	0	8	100.00%
Fluorene	SVOC	Water	ug/L	8	3	0	8	100.00%
Gasoline Range Organics	TPH	Water	ug/L	1	1	0	1	100.00%
Hexachlorobenzene	SVOC	Water	ug/L	8	0	0	8	100.00%
Hexachlorobutadiene	SVOC	Water	ug/L	8	0	0	8	100.00%
Hexachlorocyclopentadiene	SVOC	Water	ug/L	8	0	0	8	100.00%
Hexachloroethane	SVOC	Water	ug/L	8	0	0	8	100.00%
Indeno[1,2,3-c,d]pyrene	SVOC	Water	ug/L	8	0	0	8	100.00%
Iron	Metal	Water	ug/L	8	7	0	8	100.00%
Isophorone	SVOC	Water	ug/L	8	0	0	8	100.00%
Isopropylbenzene	VOC	Water	ug/L	8	0	0	8	100.00%
Lead	Metal	Water	ug/L	8	0	0	8	100.00%
Manganese	Metal	Water	ug/L	8	7	0	8	100.00%
Mercury	Metal	Water	ug/L	8	0	0	8	100.00%
Methyl Acetate	VOC	Water	ug/L	8	0	7	1	12.50%
Methyl tert-butyl ether (MTBE)	VOC	Water	ug/L	8	0	0	8	100.00%
Methylene Chloride	VOC	Water	ug/L	8	0	0	8	100.00%
Naphthalene	SVOC	Water	ug/L	8	3	0	8	100.00%
Nickel	Metal	Water	ug/L	8	4	0	8	100.00%
Nitrobenzene	SVOC	Water	ug/L	8	0	0	8	100.00%
N-Nitroso-di-n-propylamine	SVOC	Water	ug/L	8	0	0	8	100.00%

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

Parameter	Parameter Group	Matrix	Unit	Number of Results	Detections	Number of Rejected Results	Number of Non-rejected Results	Completeness
N-Nitrosodiphenylamine	SVOC	Water	ug/L	8	0	0	8	100.00%
Oil and Grease	TPH	Water	ug/L	8	2	0	8	100.00%
Pentachlorophenol	SVOC	Water	ug/L	8	1	0	8	100.00%
Phenanthrene	SVOC	Water	ug/L	8	4	0	8	100.00%
Phenol	SVOC	Water	ug/L	8	0	0	8	100.00%
Pyrene	SVOC	Water	ug/L	8	4	0	8	100.00%
Selenium	Metal	Water	ug/L	8	0	0	8	100.00%
Silver	Metal	Water	ug/L	8	3	0	8	100.00%
Styrene	VOC	Water	ug/L	8	0	0	8	100.00%
Tetrachloroethene	VOC	Water	ug/L	8	0	0	8	100.00%
Thallium	Metal	Water	ug/L	8	0	0	8	100.00%
Toluene	VOC	Water	ug/L	8	2	0	8	100.00%
trans-1,2-Dichloroethene	VOC	Water	ug/L	8	0	0	8	100.00%
trans-1,3-Dichloropropene	VOC	Water	ug/L	8	0	0	8	100.00%
Trichloroethene	VOC	Water	ug/L	8	0	0	8	100.00%
Trichlorofluoromethane	VOC	Water	ug/L	8	0	0	8	100.00%
Vanadium	Metal	Water	ug/L	8	3	0	8	100.00%
Vinyl chloride	VOC	Water	ug/L	8	0	0	8	100.00%
Xylenes	VOC	Water	ug/L	8	1	0	8	100.00%
Zinc	Metal	Water	ug/L	8	4	0	8	100.00%

APPENDIX K





Above Delineation Criteria
Below Delineation Criteria
Parcel Boundary
Original Cadmium Delin. Criterion
Results > 154 mg/kg

Parcel A4 Cadmium Delineation Analytical Results

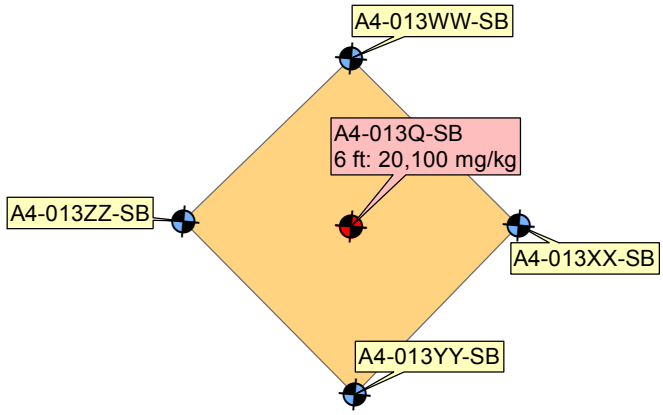
December 11, 2019

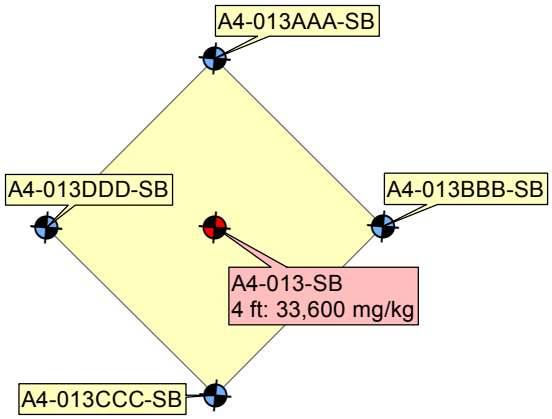
Figure
K-1

ARM Group Inc.
Engineers and Scientists

0 3.75 7.5 15 Feet

Tradepoint Atlantic
Baltimore County, MD
EnviroAnalytics Group
ARM Project 150298M-2

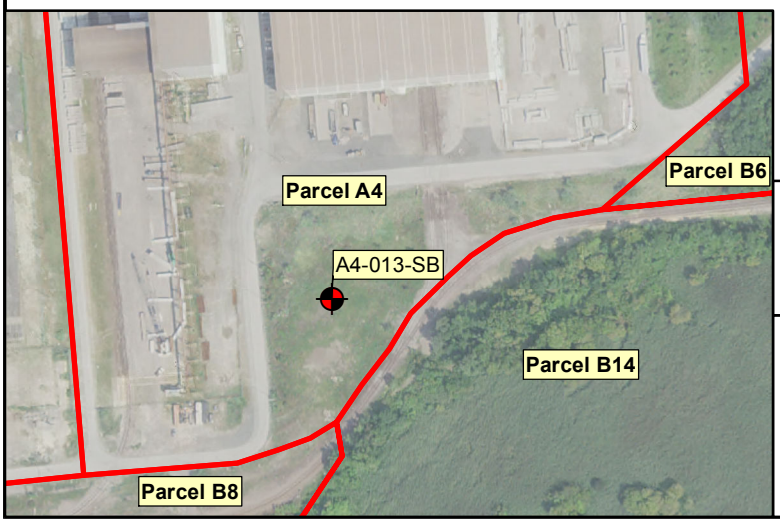




Excavated sample data not included in SLRA.

- Above Excavation Criteria
- Below Excavation Criteria
- Excavation Depth: 6 ft. (Approx. 11 cubic yards)
- Excavation Depth: 8 ft. (Approx. 15 cubic yards)
- Parcel Boundary

Cadmium Excavation Criterion Results > 550 mg/kg



Parcel A4 Cadmium Excavation Final Boundaries

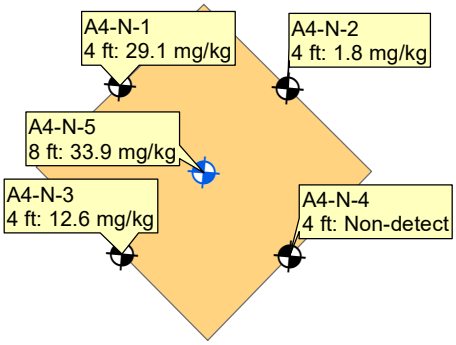
December 11, 2019

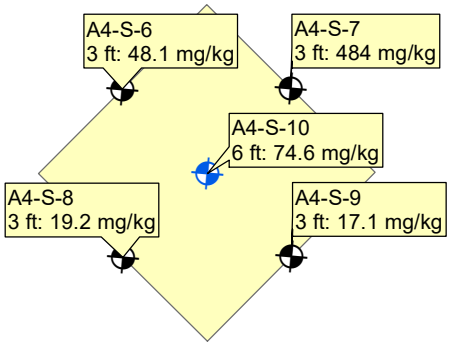
Figure K-2

ARM Group Inc.
Engineers and Scientists

0 1.25 2.5 5 Feet

Tradepoint Atlantic
Baltimore County, MD
EnviroAnalytics Group
ARM Project 150298M-2

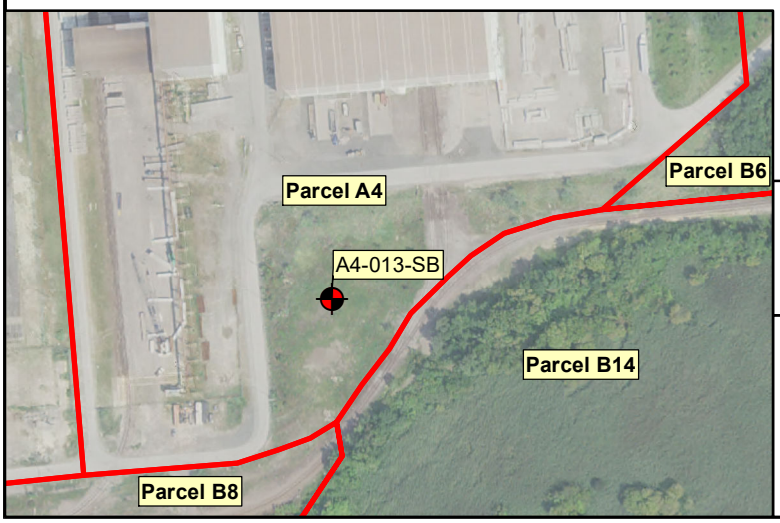




Confirmation sample data included in SLRA.

- Bottom Confirmation Sample Location
- Sidewall Confirmation Sample Location
- Excavation Depth: 6 ft. (Approx. 11 cubic yards)
- Excavation Depth: 8 ft. (Approx. 15 cubic yards)
- Parcel Boundary

Cadmium Excavation Criterion Results > 550 mg/kg



Parcel A4 Cadmium Excavation Confirmation Samples

December 11, 2019

Figure K-3

ARM Group Inc.
Engineers and Scientists

0 1.25 2.5 5 Feet

Tradepoint Atlantic

Baltimore County, MD

EnviroAnalytics Group

ARM Project 150298M-2

Table K-1
Delineation and Confirmation Soil Sample Cadmium Results
Parcel A4
Tradepoint Atlantic
Sparrows Point, Maryland

Boring ID	A4-013-SB (original)		A4-013-SB		A4-013A-SB		A4-013B-SB		A4-013C-SB		A4-013D-SB	
Sample Date	11/5/2016		12/8/2016		12/8/2016		12/8/2016		12/8/2016		12/8/2016	
Included In SLRA?	No		No		Yes		Yes		Yes		Yes	
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
1	1.4	B					1.2	J				
2									1.3		22	
3					72.3				7.5			
4	33,600		0.51	J			0.72	J			4	
5			101						11.9			
6					13.7						11.8	
7					0.77	J						
8												
9												
10												

Grey cells indicate that analytical data is not available (collected/analyzed) at this depth
U: This analyte was not detected in the sample. The numeric value represents the sample quantitation/detection limit
J: The positive result reported for this analyte is a quantitative estimate
B: This analyte was not detected substantially above the level of the associated method blank/preparation or field blank

Table K-1
Delineation and Confirmation Soil Sample Cadmium Results
Parcel A4
Tradepoint Atlantic
Sparrows Point, Maryland

Boring ID	A4-013E-SB		A4-013F-SB		A4-013G-SB		A4-013H-SB		A4-013I-SB		A4-013J-SB	
Sample Date	12/8/2016		12/8/2016		12/8/2016		12/8/2016		12/8/2016		12/8/2016	
Included In SLRA?	Yes		Yes		Yes		Yes		Yes		Yes	
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
1			1.2	J			1.3	B				
2					4						4.3	
3	6.3								13.2			
4					4.5		3.3		0.59	B	10.1	
5			46.9						0.98	J		
6	6.8				2.3		3.9					
7	8.3											
8			61									
9												
10												

Grey cells indicate that analytical data is not available (collected/analyzed) at this depth
U: This analyte was not detected in the sample. The numeric value represents the sample quantitation/detection limit
J: The positive result reported for this analyte is a quantitative estimate
B: This analyte was not detected substantially above the level of the associated method blank/preparation or field blank

Table K-1
Delineation and Confirmation Soil Sample Cadmium Results
Parcel A4
Tradepoint Atlantic
Sparrows Point, Maryland

Boring ID	A4-013K-SB		A4-013L-SB		A4-013M-SB		A4-013N-SB		A4-013O-SB		A4-013P-SB	
Sample Date	12/8/2016		12/9/2016		12/9/2016		12/9/2016		12/9/2016		12/9/2016	
Included In SLRA?	Yes		Yes		Yes		Yes		Yes		Yes	
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
1			1.1	J					0.41	J		
2					1.1	J	0.64	J				
3	0.83	J	4.3				0.92	J	0.83	J		
4											8.1	
5	6.2				49.5		4.9				6.1	
6			7.1						8.9			
7					5.8						1.7	
8												
9												
10												

Grey cells indicate that analytical data is not available (collected/analyzed) at this depth
U: This analyte was not detected in the sample. The numeric value represents the sample quantitation/detection limit
J: The positive result reported for this analyte is a quantitative estimate
B: This analyte was not detected substantially above the level of the associated method blank/preparation or field blank

Table K-1
Delineation and Confirmation Soil Sample Cadmium Results
Parcel A4
Tradepoint Atlantic
Sparrows Point, Maryland

Boring ID	A4-013Q-SB		A4-013R-SB		A4-013S-SB		A4-013T-SB		A4-013U-SB		A4-013V-SB	
Sample Date	12/9/2016		12/9/2016		12/9/2016		12/9/2016		12/9/2016		12/9/2016	
Included In SLRA?	No		Yes		Yes		Yes		Yes		Yes	
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
1	1	J					0.74	B			5	
2			2.6				5		12.4			
3					54.5				14.9		8	
4	15.5											
5			1.8		0.86	B					0.85	J
6	20,100		1	J	16				36.2			
7							39.3					
8												
9												
10												

Grey cells indicate that analytical data is not available (collected/analyzed) at this depth
U: This analyte was not detected in the sample. The numeric value represents the sample quantitation/detection limit
J: The positive result reported for this analyte is a quantitative estimate
B: This analyte was not detected substantially above the level of the associated method blank/preparation or field blank

Table K-1
Delineation and Confirmation Soil Sample Cadmium Results
Parcel A4
Tradepoint Atlantic
Sparrows Point, Maryland

Boring ID	A4-013W-SB		A4-013X-SB		A4-013Y-SB		A4-013Z-SB		A4-013AA-SB		A4-013BB-SB	
Sample Date	12/9/2016		12/9/2016		12/9/2016		12/9/2016		12/9/2016		12/9/2016	
Included In SLRA?	Yes		Yes		Yes		Yes		Yes		Yes	
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
1							6.1		2.9			
2			2.7									
3	3										4.7	
4					51		35.7					
5									37.9			
6	13.8		5.7		1.3							
7					4.1						2.8	
8									9.8		1.6	
9												
10												

Grey cells indicate that analytical data is not available (collected/analyzed) at this depth
U: This analyte was not detected in the sample. The numeric value represents the sample quantitation/detection limit
J: The positive result reported for this analyte is a quantitative estimate
B: This analyte was not detected substantially above the level of the associated method blank/preparation or field blank

Table K-1
Delineation and Confirmation Soil Sample Cadmium Results
Parcel A4
Tradepoint Atlantic
Sparrows Point, Maryland

Boring ID	A4-013CC-SB		A4-013DD-SB		A4-013EE-SB		A4-013FF-SB		A4-013GG-SB		A4-013HH-SB	
Sample Date	12/9/2016		12/12/2016		12/12/2016		12/12/2016		12/12/2016		12/12/2016	
Included In SLRA?	Yes		Yes		Yes		Yes		Yes		Yes	
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
1	1.2	J	1.5	B			1.4	B				
2					2.9				0.53			
3			1.4	B							0.84	B
4	3.9				1.8		9.1				317	
5									3.9			
6	1.2	B	81.7						6.2			
7					1.5	B					4.8	
8							12.7					
9												
10												

Grey cells indicate that analytical data is not available (collected/analyzed) at this depth
U: This analyte was not detected in the sample. The numeric value represents the sample quantitation/detection limit
J: The positive result reported for this analyte is a quantitative estimate
B: This analyte was not detected substantially above the level of the associated method blank/preparation or field blank

Table K-1
Delineation and Confirmation Soil Sample Cadmium Results
Parcel A4
Tradepoint Atlantic
Sparrows Point, Maryland

Boring ID	A4-013II-SB		A4-013JJ-SB		A4-013KK-SB		A4-013LL-SB		A4-013MM-SB		A4-013NN-SB	
Sample Date	12/12/2016		12/12/2016		12/12/2016		12/12/2016		12/12/2016		12/12/2016	
Included In SLRA?	Yes		Yes		Yes		Yes		Yes		Yes	
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
1			1.1	B	0.85	B			1.7	B		
2	1.4	B					8.7				0.94	B
3					8							
4	4		14.2						1.1	B		
5							27					
6											14.7	
7					5.9							
8												
9											6.2	
10												

Grey cells indicate that analytical data is not available (collected/analyzed) at this depth
U: This analyte was not detected in the sample. The numeric value represents the sample quantitation/detection limit
J: The positive result reported for this analyte is a quantitative estimate
B: This analyte was not detected substantially above the level of the associated method blank/preparation or field blank

Table K-1
Delineation and Confirmation Soil Sample Cadmium Results
Parcel A4
Tradepoint Atlantic
Sparrows Point, Maryland

Boring ID	A4-013OO-SB		A4-013PP-SB		A4-013QQ-SB		A4-013RR-SB		A4-013SS-SB		A4-013TT-SB	
Sample Date	12/12/2016		12/12/2016		12/12/2016		12/12/2016		12/12/2016		12/12/2016	
Included In SLRA?	Yes		Yes		Yes		Yes		Yes		Yes	
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
1							10.7					
2			50.5						10.4			
3	10.1		1.7	B							8.4	
4	9.8											
5					52.3		69.4		52.6			
6					25.8							
7	0.54	B			38.6						139	
8			7.9				28.9					
9									2.1		2	
10												

Grey cells indicate that analytical data is not available (collected/analyzed) at this depth
U: This analyte was not detected in the sample. The numeric value represents the sample quantitation/detection limit
J: The positive result reported for this analyte is a quantitative estimate
B: This analyte was not detected substantially above the level of the associated method blank/preparation or field blank

Table K-1
Delineation and Confirmation Soil Sample Cadmium Results
Parcel A4
Tradepoint Atlantic
Sparrows Point, Maryland

Boring ID	A4-013UU-SB		A4-013VV-SB		A4-013WW-SB		A4-013XX-SB		A4-013YY-SB	
Sample Date	12/12/2016		12/20/2016		12/20/2016		12/20/2016		12/20/2016	
Included In SLRA?	Yes		Yes		No		No		No	
Depth (ft)	Result (mg/kg)	Flag	Result (mg/kg)	Flag	Result (mg/kg)	Flag	Result (mg/kg)	Flag	Result (mg/kg)	Flag
1	4.6		0.2	B	3.9		0.69	B	1.4	B
2	5.5									
3	28.5		3.6						1.2	U
4										
5			6.4		1.8	U	2.3		21.6	
6										
7							1.4	U		
8					1.2	U				
9										
10										

Grey cells indicate that analytical data is not available (collected/analyzed) at this depth
U: This analyte was not detected in the sample. The numeric value represents the sample quantitation/detection limit
J: The positive result reported for this analyte is a quantitative estimate
B: This analyte was not detected substantially above the level of the associated method blank/preparation or field blank

Table K-1
Delineation and Confirmation Soil Sample Cadmium Results
Parcel A4
Tradepoint Atlantic
Sparrows Point, Maryland

Boring ID	A4-013ZZ-SB		A4-013AAA-SB-1		A4-013BBB-SB		A4-013CCC-SB		A4-013DDD-SB	
Sample Date	12/20/2016		12/20/2016		12/20/2016		12/20/2016		12/20/2016	
Included In SLRA?	No		No		No		No		No	
Depth (ft)	Result (mg/kg)	Flag	Results (mg/kg)	Flag	Results (mg/kg)	Flag	Result (mg/kg)	Flag	Results (mg/kg)	Flag
1	1.5	B	0.71	B	1	B	1.4		0.54	J
2										
3							11.1			
4										
5	3.2		1.2	U	48.5		1	J	0.26	J
6										
7					9				7	
8	0.73	B	2.2							
9										
10										

Grey cells indicate that analytical data is not available (collected/analyzed) at this depth
U: This analyte was not detected in the sample. The numeric value represents the sample quantitation/detection limit
J: The positive result reported for this analyte is a quantitative estimate
B: This analyte was not detected substantially above the level of the associated method blank/preparation or field blank

Table K-1
Delineation and Confirmation Soil Sample Cadmium Results
Parcel A4
Tradepoint Atlantic
Sparrows Point, Maryland

Boring ID	A4-013EEE-SB		A4-013FFF-SB		A4-013GGG-SB		A4-013HHH-SB		A4-013III-SB	
Sample Date	12/20/2016		12/20/2016		12/20/2016		12/20/2016		12/20/2016	
Included In SLRA?	Yes		Yes		Yes		Yes		Yes	
Depth (ft)	Results (mg/kg)	Flag	Results (mg/kg)	Flag	Results (mg/kg)	Flag	Results (mg/kg)	Flag	Results (mg/kg)	Flag
1	0.37	J	1.2	U	0.33	J	2.2		0.56	B
2										
3							1.2	U		
4										
5	0.44	J	2.8		1.3	U	1.4	U	3.7	
6										
7			9.1						2.9	
8	1	J			56.7					
9										
10										

Grey cells indicate that analytical data is not available (collected/analyzed) at this depth
U: This analyte was not detected in the sample. The numeric value represents the sample quantitation/detection limit
J: The positive result reported for this analyte is a quantitative estimate
B: This analyte was not detected substantially above the level of the associated method blank/preparation or field blank

Table K-1
Delineation and Confirmation Soil Sample Cadmium Results
Parcel A4
Tradepoint Atlantic
Sparrows Point, Maryland

Boring ID	A4-013JJJ-SB		A4-013KKK-SB		A4-013LLL-SB		A4-013MMM-SB		A4-013NNN-SB	
Sample Date	12/20/2016		12/20/2016		12/20/2016		12/20/2016		12/20/2016	
Included In SLRA?	Yes		Yes		Yes		Yes		Yes	
Depth (ft)	Results (mg/kg)	Flag	Results (mg/kg)	Flag	Results (mg/kg)	Flag	Results (mg/kg)	Flag	Results (mg/kg)	Flag
1	0.99	B	0.62	B	1.2	U	1.3	U	0.26	B
2										
3										
4										
5	0.85	B	0.38	B	0.54	J	1.3	U	0.35	B
6										
7	99.1				0.39	J	0.19	B		
8			0.21	B						
9									2.8	
10										

Grey cells indicate that analytical data is not available (collected/analyzed) at this depth
U: This analyte was not detected in the sample. The numeric value represents the sample quantitation/detection limit
J: The positive result reported for this analyte is a quantitative estimate
B: This analyte was not detected substantially above the level of the associated method blank/preparation or field blank

Table K-1
Delineation and Confirmation Soil Sample Cadmium Results
Parcel A4
Tradepoint Atlantic
Sparrows Point, Maryland

Boring ID	A4-N-1		A4-N-2		A4-N-3		A4-N-4		A4-N-5	
Sample Date	10/3/2019		10/3/2019		10/3/2019		10/3/2019		10/3/2019	
Included In SLRA?	Yes		Yes		Yes		Yes		Yes	
Depth (ft)	Results (mg/kg)	Flag	Results (mg/kg)	Flag	Results (mg/kg)	Flag	Results (mg/kg)	Flag	Results (mg/kg)	Flag
1										
2										
3										
4	29.1		1.8		12.6		1.2	U		
5										
6										
7										
8									33.9	
9										
10										

Grey cells indicate that analytical data is not available (collected/analyzed) at this depth
U: This analyte was not detected in the sample. The numeric value represents the sample quantitation/detection limit
J: The positive result reported for this analyte is a quantitative estimate
B: This analyte was not detected substantially above the level of the associated method blank/preparation or field blank

Table K-1
Delineation and Confirmation Soil Sample Cadmium Results
Parcel A4
Tradepoint Atlantic
Sparrows Point, Maryland

Boring ID	A4-S-6		A4-S-7		A4-S-8		A4-S-9		A4-S-10	
Sample Date	10/3/2019		10/3/2019		10/3/2019		10/3/2019		10/3/2019	
Included In SLRA?	Yes		Yes		Yes		Yes		Yes	
Depth (ft)	Results (mg/kg)	Flag	Results (mg/kg)	Flag	Results (mg/kg)	Flag	Results (mg/kg)	Flag	Results (mg/kg)	Flag
1										
2										
3	48.1		484		19.2		17.1			
4										
5										
6									74.6	
7										
8										
9										
10										

Grey cells indicate that analytical data is not available (collected/analyzed) at this depth
U: This analyte was not detected in the sample. The numeric value represents the sample quantitation/detection limit
J: The positive result reported for this analyte is a quantitative estimate
B: This analyte was not detected substantially above the level of the associated method blank/preparation or field blank

APPENDIX L

Construction Worker Soil Screening Levels
Maximum Allowable Work Day Exposure
Calculation Spreadsheet - Parcel A4

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

Construction Worker Soil Screening Levels
Maximum Allowable Work Day Exposure
Calculation Spreadsheet - Parcel A4

Area of site (ac)	Ac	43.3
Overall duration of construction (wk/yr)	EW	16
Exposure frequency (day/yr)	EF	**80**
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	**13.7**
Overall duration of traffic (s)	Tt	**2,304,000**
Surface area (m2)	AR	**175,229**
Length (m)	LR	**419**
Distance traveled (km)	ΣVKT	**335**
Particulate emission factor (m3/kg)	PEFsc	**147,816,350**
Derivation of dispersion factor - volatilization (g/m2-s per kg/m3)	Q/Csa	**6.72**
Total time of construction (s)	Tcv	**2,304,000**

Input
Calculation

Chemical	Toxicity Criteria Source	^Ingestion SF $(mg/kg\text{-}day)^{-1}$	^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 (unitless)	*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	I/C	1.50E+00	4.30E-03	3.00E-04	1.50E-05	1	3.00E-04	0.03	0.6			-	2.90E+01				47.4	32,936	47.3	304	30,349	301
Cadmium	A/I	-	1.80E-03	1.00E-03	1.00E-05	0.025	2.50E-05	0.001	1			-	7.50E+01					78,681	78,681	988	20,232	942
Chromium(VI)	A/C/I	5.00E-01	8.40E-02	5.00E-03	3.00E-04	0.025	1.25E-04	**0.01**	1			-	1.90E+01				70.4	1,686	67.6	2,514	606,971	2,503
Iron	P	-	-	7.00E-01	-	1	7.00E-01	**0.01**	1			-	2.50E+01							751,692		751,692
Manganese (Non-diet)	I	-	-	2.40E-02	5.00E-05	0.04	9.60E-04	**0.01**	1			-	6.50E+01							15,169	101,162	13,191
Vanadium and Compounds	A	-	-	1.00E-02	1.00E-04	0.026	2.60E-04	**0.01**	1			-	1.00E+03							5,135	202,324	5,008
Benz[a]anthracene	I	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	1.26E+5	557	2,005	436			
Benzo[a]pyrene	I	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	6.69E+5	55.7	1,064	52.9	239	18.2	16.9
Benzo[b]fluoranthene	I	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	6.03E+5	557	9,594	526			
Dibenz[a,h]anthracene	I	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	1.60E+6	55.7	236,044	55.7			
Naphthalene	C/I/A	-	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	1.29E+3		36.4	36.4	477,436	53.1	53.0

*chemical specific parameters found in Chemical Specific Parameters Spreadsheet at https://www.epa.gov/risk/regional-screening-levels-rsls
^chemical specific parameters found in Unpaved Road Traffic calculator at https://epa-prgs.ornl.gov/cgi-bin/chemicals/csl_search
I: chemical specific parameters found in the IRIS at https://www.epa.gov/iris
C: chemical specific parameters found in Cal EPA at https://www.dtsc.ca.gov/AssessingRisk
A: chemical specific parameters found in Agency for Toxic Substances and Disease Registry Minimal Risk Levels (MRLs) at https://www.atsdr.cdc.gov/mrls/pdfs/atsdr_mrls.pdf
P: chemical specific parameters found in the Database of EPA PPRTVs at https://hhpprtv.ornl.gov/quickview/pprtv.php