

PHASE II INVESTIGATION REPORT

AREA B: PARCEL B24
TRADEPOINT ATLANTIC
SPARROWS POINT, MARYLAND

Prepared For:



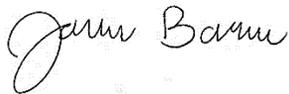
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Revision 0 – September 25, 2020

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1.0 INTRODUCTION

ARM Group LLC (ARM), on behalf of Tradepoint Atlantic, has completed a Phase II Investigation of a portion of the Tradepoint Atlantic property (formerly Sparrows Point Terminal, LLC) that has been designated as Area B: Parcel B24 (the Site). Parcel B24 is comprised of 25.7 acres of the approximately 3,100-acre former steel making facility (**Figure 1**). The Site is bounded to the north by Parcel B8 (containing the former Billet Building), to the northeast by the Humphrey Impoundment (Parcel B14), to the east by the Tin Mill Canal (TMC; Parcel B16) and the Atlantic Forest Products facility (Parcel B15), to the south by rail lines (within Parcel B23 and Parcel B1), and to the west by Bear Creek beyond Riverside Drive.

The Phase II Investigation was performed in accordance with procedures outlined in the approved Phase II Investigation Work Plan for Area B: Parcel B24. The Work Plan (Revision 1 dated December 27, 2019) was approved by the Maryland Department of the Environment (MDE) and the United States Environmental Protection Agency (USEPA) on February 4, 2020. Although not included in the original Work Plan, in response to a request from the Chesapeake Bay Foundation (CBF) and Blue Water Baltimore (BWB), existing monitoring wells TM02-PZM009 and TM03-PZM004 (which are not located on Parcel B24) were sampled as part of this Phase II Investigation and the results are presented herein.

The Work Plan was implemented in compliance with requirements pursuant to the following:

- Administrative Consent Order (ACO) between Tradepoint Atlantic (formerly Sparrows Point Terminal, LLC) and the MDE effective September 12, 2014; and
- Settlement Agreement and Covenant Not to Sue (SA) between Tradepoint Atlantic (formerly Sparrows Point Terminal, LLC) and the USEPA effective November 25, 2014.

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. Parcel B24 is also part of the acreage that remains subject to the requirements of the Multimedia Consent Decree between Bethlehem Steel Corporation, the USEPA, and the MDE (effective October 8, 1997) as documented in correspondence received from the USEPA on September 12, 2014.

1.1. SITE HISTORY

From the late 1800s until 2012, the production and manufacturing of steel was conducted at Sparrows Point. Iron and steel production operations and processes at Sparrows Point included raw material handling, coke production, sinter production, iron production, steel production, and semi-finished and finished product preparation. In 1970, Sparrows Point was the largest steel

facility in the United States, producing hot and cold rolled sheets, coated materials, pipes, plates, and rod and wire. The steel making operations at Sparrows Point ceased in fall 2012.

Parcel B24 contains the Humphrey Creek Wastewater Treatment Plant (HCWWTP). The HCWWTP handles influent from the TMC, which historically received stormwater and wastewater from various steel production activities on the Tradepoint Atlantic property. Since the cessation of steel operations, the HCWWTP continues to treat stormwater collected in the TMC. The HCWWTP discharges treated effluent into the adjacent water body of Bear Creek to the west. The HCWWTP uses various treatment processes to treat the TMC influent, including but not limited to settling basins, thickeners, aerators, and chemical addition (lime, caustic, flocculation, and acid washing). Two existing settling basins (one of which has been partially backfilled) and upstream aeration systems are currently utilized in the ongoing wastewater treatment operations. Two thickener tanks located to the south of the treatment plant building allow for sludge removal. The residual sludge is then handled through filter press devices. Dried sludge filter cake is taken to the on-site non-hazardous Greys Landfill in roll-off containers. An emergency detention basin is located to the north of the HCWWTP. The 2.5-acre emergency detention basin was constructed in 2002 as a bypass system to be used in the event of any treatment upsets.

Based on the historical use of the HCWWTP, it is possible that some operations performed at the HCWWTP may have impacted the surrounding soil and groundwater. A detailed discussion of the Recognized Environmental Conditions (RECs) and other features of potential concern associated with the HCWWTP, as defined by Weaver Boos Consultants, can be found in the Parcel B24 Work Plan. There is no evidence that significant iron and steel industrial processes were completed within the boundary of Parcel B24.

1.2. OBJECTIVES

The objective of this Phase II Investigation was to characterize the nature and extent of contamination at the Site. A summary table of the site investigation locations, including the boring identification numbers and the analyses performed, is provided as **Appendix A**. This report includes a summary of the work performed, including the environmental setting, site investigation methods, analytical results and data usability assessment, and findings and recommendations.

2.0 ENVIRONMENTAL SETTING

2.1. LAND USE AND SURFACE FEATURES

The Tradepoint Atlantic property consists 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.

The surface elevations across the majority of Parcel B24 range between approximately 8 and 12 feet above mean sea level (amsl). The elevations across the Site appear to be relatively uniform in most areas. An elevated berm surrounds the emergency detention basin to the north of the HCWWTP. According to Figure B-2 of the Stormwater Pollution Prevention Plan (SWPPP) Revision 8 dated April 30, 2020, surface water runoff from the Site flows through National Pollutant Discharge Elimination System (NPDES) permitted Outfall 014 beyond the HCWWTP, 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. Depth to bedrock is approximately 700 feet within the Site.

2.3. SITE GEOLOGY/HYDROGEOLOGY

Groundcover at the Site is comprised of approximately 5% natural soils and 95% non-native fill materials (i.e., slag) 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 interbedded non-native fill materials (sand, gravel, cobbles, slag, wood, and brick) and natural soils, which included fine-grained sediments (clays and silts) and coarse-grained sediments (sands and gravels). Non-native fill materials were encountered at depths of up to 20 feet below the ground surface (bgs). In addition, equipment refusals were encountered at several soil boring locations. The shallow groundwater table was observed in soil borings at depths ranging from 6.5 to 13.8 feet bgs across the Site; however, groundwater was not encountered at every boring location. Soil boring observation logs are provided in **Appendix B**. Please note that unless otherwise indicated, all Unified Soil Classification System (USCS) group symbols provided on the attached boring logs are from visual observations, and not from laboratory testing.

Groundwater was previously investigated in the vicinity of the Site (along the northern and eastern borders) during the separate Area B Groundwater Investigation, Parcel B8 Phase II Investigation, and Parcel B14 Phase II Investigation. Historical data were provided within the Parcel B24 Work Plan. To supplement the existing data six temporary groundwater sample collection points (commonly referred to as piezometers) were installed across the parcel to investigate shallow groundwater conditions. The Parcel B24 Work Plan had originally proposed only five piezometers; however, an additional sample location (B24-036-PZ) was added at the request of the MDE. The locations of the completed piezometers are indicated on **Figure 3**. The piezometers were surveyed by a Maryland-licensed surveyor, and the supporting documentation from the survey is included in **Appendix C**.

Static groundwater elevation measurements were obtained from each piezometer. Surveyed top of casing (TOC) and ground surface elevations for all piezometers can be found in **Table 1**, along with the static depth to water (DTW) measurements. The groundwater elevations calculated from the survey data and gauging measurements are shown on **Table 1** and **Figure 3**. Based on the gauging measurements and resulting groundwater contours, the water table appears to be relatively flat. Bear Creek is the presumed discharge location for regional groundwater.

Additionally, two existing shallow wells (TM02-PZM009 and TM03-PZM004) upgradient from the TMC were added to the sampling plan at the request of the CBF and BWB. These wells are also shown on **Figure 3**.

3.0 SITE INVESTIGATION

A total of 83 soil samples (from 37 boring locations) were collected for analysis between April 14, 2020 and April 21, 2020. Six groundwater samples were collected from shallow temporary piezometers between April 29, 2020 and May 1, 2020. Two supplemental groundwater samples were collected from shallow monitoring wells on September 17, 2020 (TM02-PZM009) and August 6, 2020 (TM03-PZM004). This Parcel B24 Phase II Investigation utilized methods and protocols that followed the procedures included in the Quality Assurance Project Plan (QAPP) dated 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 B24 Work Plan (Revision 1 dated December 27, 2019), and the QAPP.

All site characterization activities were conducted under the property-wide Health and Safety Plan (HASP) provided as Appendix E of the approved Work Plan.

3.1. SAMPLE TARGET IDENTIFICATION

Previous activities within and around the buildings and facilities located on the Tradepoint Atlantic property may have been historical sources of environmental contamination. If present, source areas were identified as targets for sampling through a careful review of historical documents. When a sampling target was identified, at least two borings were placed at or around its location using GIS software (ArcMap Version 10.6).

Sampling targets included, as applicable, 1) RECs shown on the REC Location Map provided in Weaver Boos' Phase I ESA, 2) additional findings (non-RECs) from the Phase I ESA which were identified as potential environmental concerns, and 3) Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs) identified from the DCC Report prepared by Rust Environment and Infrastructure. The following RECs were identified in the Parcel B24 Work Plan: HCWWTP Settling Basins (REC 7A, Finding 165, also listed as SWMU 10), HCWWTP Aerators (REC 7B, Finding 167, also listed as SWMU 12), and HCWWTP Emergency Detention Basin (REC 7C, Finding 173). There were no AOCs identified at the Site based on the DCC Report. Several SWMUs are cross-listed as RECs (listed above), but additional SWMUs at the Site were identified from the DCC Report as follows: HCWWTP Thickeners (SWMU 11), HCWWTP Wastewater Chemical Treatment Building (SWMU 13), HCWWTP Spent Pickle Liquor (SPL) Discharge Point (SWMU 14), HCWWTP Centrifuges (SWMU 15), HCWWTP Sludge Collection Box (SWMU 16), and HCWWTP Old Alum Tank (SWMU 17). The identified RECs and SWMUs are described in further detail within the Parcel B24 Work Plan.

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 onto the ground. 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 (as well as a pre-investigation site visit conducted by ARM on March 15, 2018), additional non-REC sampling targets were identified at the Site that included the following: Electrical Sub-Stations, Caustic Solution Tanks, Sodium Hydrosulfide Tank, Sulfuric Acid Tank, Former Oil Aboveground Storage Tank, Tank Control Building & Polymer Storage & White Chemical Powder, Thickener Tanks, Sea Container/Chemical Storage, Trailer/Equipment Storage, Sludge Filter Cake Area, and Drip Leg #20. Three sampling plan targets were directly requested by the MDE: Parcel B14 Non-Aqueous Phase Liquid (NAPL) Detection Area, Bear Creek Shoreline, and Settling Basin #3. A summary of the areas that were investigated, along with the applicable boring identification numbers and the analyses performed, has been provided as **Appendix A**. During the completion of fieldwork, it was necessary to shift some borings from the approved locations given in the Work Plan, primarily due to access restrictions and/or refusal. **Table 3** provides the identification numbers of the adjusted borings, the coordinates of the proposed and final locations, and the distance/direction of the field shifts.

The density of soil borings met the requirements set forth in QAPP Worksheet 17 – Sampling Design and Rationale. The total area of the Site (25.7 acres) was evaluated according to the sampling density requirements for areas without engineered barriers. A total of 18 soil borings were required to meet the density specification; soil samples were collected from 37 soil borings during this Phase II Investigation.

3.2. SOIL INVESTIGATION

Continuous core soil borings were advanced at 37 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**). Analytical soil samples were successfully collected from all of the proposed locations. The continuous core soil borings were advanced to a maximum depth of 20 feet bgs using the Geoprobe® MC-7 Macrocore soil sampler (surface to 10 feet bgs), and the Geoprobe® D-22 Dual-Tube Sampler (depths >10 feet bgs). At each of the completed boring locations, each soil core was visually inspected and screened with a hand-held photoionization detector (PID) prior to logging soil types. Soil boring logs have been included as **Appendix B**, and the PID calibration log has been included as **Appendix D**. Unless otherwise indicated, all USCS group symbols provided on the attached boring logs are from visual observations.

In each boring, one shallow sample was collected from the 0 to 1 foot depth interval. If a concrete slab or unsuitable surface cover materials (such as asphalt pavement) were present, the first 1 foot of soil beneath this layer was collected as the shallow sample. An underlying sample was collected from the 4 to 5 foot depth interval from each continuous core soil boring, but could be adjusted based on field observations. If the PID or other field observations indicated contamination to exist at a depth greater than 3 feet bgs but less than 9 feet bgs, and above the water table, the sample from the deeper 4 to 5 foot interval was shifted to the alternate depth interval. One additional set of samples was also collected from the 9 to 10 foot depth interval if groundwater had not been encountered. It should be noted that soil samples were not collected from a depth that was below the water table (unless otherwise noted). The 10-foot bgs samples were held by the laboratory prior to analysis in accordance with the requirements given in the Parcel B24 Work Plan. These project-specific requirements for the analysis of 10-foot bgs samples are further described below.

As noted in **Appendix A** and shown on the boring logs provided in **Appendix B**, soil samples investigating the Settling Basins (B24-025-SB, B24-026-SB, and B24-037-SB) were completed with an extra sample interval at a final depth between 12 and 16 feet bgs to fully investigate the vertical extent of the basins. Historic construction drawings indicated the basins were constructed to a depth of 17 feet bgs. These three borings were extended until refusal (between 12 and 16.5 feet bgs), and additional soil samples were collected as deep as possible. It is notable that concrete was observed at 16 feet bgs in B24-026-SB, indicating the bottom of the historical basin was reached. Samples were collected from below groundwater at these locations. Based on the nature of the borings targeting the basins, the deep samples were not held at the laboratory (per standard methods); rather, each sample was released to be analyzed for select analyses.

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

Each soil sample collected during this investigation was submitted to Pace Analytical Services, Inc. (PACE) for analysis. As stated above, the 10-foot bgs samples were held prior to analysis in accordance with the Parcel B24 Work Plan. Excluding these deep samples, the remaining soil samples were analyzed for Target Compound List (TCL) semi-volatile organic compounds (SVOCs) via USEPA Method 8270, Oil & Grease via USEPA Method 9071, total petroleum hydrocarbon (TPH) diesel range organics (DRO) and gasoline range organics (GRO) via USEPA Method 8015, Target Analyte List (TAL) Metals via USEPA Methods 6010 and 7471, hexavalent chromium via USEPA Method 7196, and cyanide via USEPA Method 9012.

Samples from any depth interval with a sustained PID reading of greater than 10 ppm were also analyzed for TCL volatile organic compounds (VOCs) via USEPA Method 8260. Additionally,

the shallow soil samples collected across the Site from the 0 to 1 foot bgs interval were analyzed for polychlorinated biphenyls (PCBs) via USEPA Method 8082. The soil samples were also submitted to Alpha Analytical, Inc. (Alpha) for analysis of polynuclear aromatic hydrocarbons (PAHs) via USEPA Method 8270 SIM. Sample containers, preservatives, and holding times for the sample analyses are listed in the QAPP Worksheet 19 & 30 – Sample Containers, Preservation, and Holding Times.

If the PID reading from the 9 to 10 foot bgs interval was less than 10 ppm, all parameters were held by the laboratory pending the analysis of the 0 to 1 and 4 to 5 foot bgs (or field adjusted interval) samples. If the 9 to 10 foot bgs interval exhibited a sustained PID reading of 10 ppm (not the case for any samples collected from Parcel B24), this sample would then be released to be analyzed for VOCs, SVOCs, TPH-DRO, TPH-GRO, and Oil & Grease. However, the samples for metals and cyanide would still be held by the laboratory pending the analysis of the 0 to 1 and 4 to 5 foot bgs interval samples. If the preliminary laboratory results from the intermediate (4 to 5 foot) interval indicated exceedances of the Project Action Limits (PALs) for any constituents, the held sample from the 9 to 10 foot bgs interval was then released to be analyzed for those constituents that exhibited PAL exceedances in the overlying sample.

3.3. GROUNDWATER INVESTIGATION

Six temporary groundwater sample collection points (piezometers) were installed in the shallow hydrogeologic zone to investigate groundwater below Parcel B24. The Parcel B24 Work Plan had originally proposed only five piezometers; however, an additional sample location (B24-036-PZ) was added at the request of the MDE. Additionally, two existing shallow groundwater monitoring wells (TM02-PZM009 and TM03-PZM004) upgradient from the TMC were added to the sampling plan at the request of the CBF and BWB. The eight groundwater sampling locations are displayed on **Figure 3**.

Piezometer installation activities were conducted in accordance with the procedures and methods referenced in **Field SOP Number 028**. The piezometers were installed at each location using the Geoprobe® DT22 Dual Tube sampling system. During the installation of each piezometer, soil types were logged and screened with a hand-held PID. The piezometer construction logs have been included as part of **Appendix B**. 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 NAPL using an oil-water interface probe in accordance with the methods referenced in **Field SOP Number 019** provided in Appendix A of the QAPP.

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

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

Groundwater samples were submitted to PACE to be analyzed for TCL-VOCs via USEPA Method 8260, TCL-SVOCs via USEPA Methods 8270 and 8270 SIM, TPH-DRO/GRO via USEPA Methods 5030/8015, Oil & Grease via USEPA Method 1664, TAL-Dissolved Metals via USEPA Methods 6010 and 7470, dissolved hexavalent chromium via USEPA Method 7196, and total cyanide via USEPA Method 9012. The two supplemental samples collected from the permanent wells were also submitted to PACE to be analyzed for total metals. Sample containers, preservatives, and holding times for the sample analyses are listed in the QAPP Worksheet 19 & 30 – Sample Containers, Preservation, and Holding Times.

Groundwater samples collected from the six temporary piezometers were submitted to Alpha to be analyzed for available cyanide via USEPA Method 9014. The two supplemental samples collected from the permanent wells were analyzed by Alpha for amenable cyanide via USEPA Method 4500 (the more suitable method) in lieu of available cyanide.

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 groundwater sample points;
- purged groundwater;
- decontamination fluids; and
- used personal protective equipment

Following the completion of field activities, a composite sample was gathered with aliquots from the Parcel B24 Phase II IDW soil drum for waste characterization. Following the analysis of the sample, the waste soil was characterized as non-hazardous. A list of all results from the soil waste characterization procedure can be found in **Table 4**. IDW drums containing aqueous materials

were characterized by preparing a composite sample from randomly selected drums. The composite sample included aliquots from several individual drums that were chosen as a subset of the aqueous drums being staged on the date of collection. Following the analysis of the sample, the aqueous waste was also characterized as non-hazardous. A list of all results from the aqueous waste characterization procedure can be found in **Table 5**. It should be noted that a small volume of additional aqueous IDW was generated during supplemental sample collection at TM02-PZM009 and TM03-PZM004 (in August and September 2020). The aqueous IDW from these two permanent wells is being managed in bulk with other property-wide aqueous IDW as appropriate.

The parcel-specific IDW drum log from the Phase II investigation is included as **Appendix F**. All IDW procedures were carried out in accordance with methods referenced in the QAPP Worksheet 21 – Field SOPs and Appendix A of the QAPP.

4.0 ANALYTICAL RESULTS

4.1. SOIL CONDITIONS

Soil analytical results were screened against PALs established in the property-wide QAPP (or other direct guidance from the agencies; 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 workday who is a full-time employee that spends most of the workday conducting maintenance activities (which typically involve on-site exposures to surface soils) outdoors.

The analytical results for the detected parameters are summarized and compared to the PALs in **Table 6** (Organics) and **Table 7** (Inorganics). The laboratory Certificates of Analysis (including Chains of Custody) and Data Validation Reports (DVRs) have been included as electronic attachments. The DVRs contain a glossary of qualifiers for the final flags assigned to individual results in the attached summary tables.

4.1.1. Soil Conditions: Organic Compounds

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

Table 6 provides a summary of SVOCs detected above the laboratory’s MDLs in the soil samples collected from across the Site. The PALs for relevant PAHs have been adjusted upward based on revised toxicity data published in the USEPA RSL Composite Worker Soil Table. Therefore, exceedances for PAHs are based on the adjusted PALs rather than those presented in the QAPP. One SVOC (benzo[a]pyrene) was detected above its PAL. Benzo[a]pyrene was detected above the PAL in seven soil samples, with a maximum detection of 3.7 mg/kg in sample B24-007-SB-5. The SVOC PAL exceedance locations and results are provided on **Figure S1**.

Shallow soil samples collected across the Site from the 0 to 1 foot bgs (or adjusted) interval were analyzed for PCBs. **Table 6** provides a summary of PCBs detected above the laboratory’s MDLs. There were no detections of any PCB mixtures (i.e., individual aroclors or total PCBs) above the applicable PALs.

Table 6 provides a summary of the TPH/Oil & Grease detections above the laboratory’s MDLs in the soil samples collected in the parcel. Exceedances of the Oil & Grease PAL (6,200 mg/kg) were noted in three samples: B24-032-SB-5 with a detection of 32,200 mg/kg, B24-037-SB-8 with a detection of 14,900 mg/kg, and B24-037-SB-10 with a detection of 19,200 mg/kg. These locations had underlying soil samples which had significantly lower detections of Oil & Grease that did not exceed the PAL. The 10-foot sample at B24-032-SB had an Oil & Grease detection

of 68.9 mg/kg (flagged with the “J” qualifier), and the 12-foot sample at B24-037-SB had an Oil & Grease detection of 2,860 mg/kg, both of which are significantly below the PAL. There were no PAL exceedances of TPH-DRO or TPH-GRO in any of the soil samples collected at the Site. No physical evidence of NAPL was noted in the soil cores collected from B24-032-SB or B24-037-SB. The Oil & Grease PAL exceedance locations and results are provided on **Figure S2**. In addition, there were two boring locations where physical evidence of NAPL was identified in the soil cores (B24-003-SB and B24-034-SB). These boring locations with evidence of NAPL are also highlighted on the exceedance figure. The observations of NAPL, and subsequent delineation, are discussed in greater detail in Section 4.3.

4.1.2. Soil Conditions: Inorganic Constituents

Table 7 provides a summary of inorganic constituents detected above the laboratory’s MDLs in the soil samples collected from across the Site. Five inorganics (arsenic, hexavalent chromium, lead, manganese, and thallium) were detected above their respective PALs. Arsenic was by far the most common inorganic exceedance. It was detected above its PAL (3 mg/kg) in 46 soil samples collected from the Site, with a maximum detection of 123 mg/kg at B24-032-SB-1. The remaining inorganic exceedances in soil were less common by comparison. Hexavalent chromium was detected in one sample above its PAL at 6.4 mg/kg (flagged with the “J-” qualifier) in B24-005-SB-4. Lead was detected above its PAL in three samples with a maximum detection of 1,300 mg/kg in B24-031-SB-1.5. Manganese was detected above its PAL in 16 samples with a maximum detection of 51,900 mg/kg in B24-024-SB-5. Thallium was detected above its PAL in four samples with a maximum detection of 17.1 mg/kg in B24-028-SB-5. The inorganic PAL exceedance locations and results are provided on **Figure S3**.

4.1.3. Soil Conditions: Results Summary

Table 6 and **Table 7** provide summaries of the detected organic compounds and inorganics in the soil samples submitted for laboratory analysis, and **Figure S1** through **Figure S3** present the soil boring locations and sample results that exceeded the PALs. **Table 8** provides a summary of results for all PAL exceedances in soil, including maximum values and detection frequencies. **Table 9** indicates which soil impacts (PAL exceedances) are associated with the specific targets listed in the Parcel B24 Work Plan. Exceedances of the PALs among the Parcel B24 soil samples consisted of one SVOC (benzo[a]pyrene), Oil & Grease, and five inorganics (arsenic, hexavalent chromium, lead, manganese, and thallium). Physical evidence of NAPL was also observed in the soil cores at two locations (B24-003-SB and B24-034-SB) which are discussed in Section 4.3. There were no detections of VOCs, PCBs, or TPH-DRO/GRO above the PALs.

Lead, PCBs, and TPH/Oil & Grease are subject to special requirements as designated by the agencies: lead results above 10,000 mg/kg are subject to additional delineation (and possible excavation), PCB results above 50 mg/kg are subject to delineation and excavation, and TPH/Oil

& Grease results above 6,200 mg/kg should be evaluated for the potential presence and mobility of NAPL in any future development planning:

- 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 locations where detections of PCBs exceeded 50 mg/kg, the designated threshold at which delineation and excavation would be required.
- There were no PAL exceedances of TPH-DRO/GRO in any of the soil samples collected at the Site. Three soil samples (at two boring locations) had detected concentrations of Oil & Grease above the PAL of 6,200 mg/kg: B24-032-SB-5, B24-037-SB-8, and B24-037-SB-10. These locations had underlying soil samples which had significantly lower detections of Oil & Grease that did not exceed the PAL. However, both identified boring locations should be considered for proximity to proposed utilities in any future development plans. Physical evidence of NAPL was observed at soil borings B24-003-SB and B24-034-SB (see Section 4.3). These locations should also be considered for proximity to any future proposed utilities.

4.2. GROUNDWATER CONDITIONS

The analytical results for the detected parameters in groundwater are summarized and compared to the PALs in **Table 10** (Organics) and **Table 11** (Inorganics). These tables include the two supplemental groundwater samples collected from TM02-PZM009 and TM03-PZM004. The laboratory Certificates of Analysis (including Chains of Custody) and the 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

Table 10 provides a summary of VOCs identified in groundwater samples above the laboratory's MDLs. One VOC (benzene) was detected slightly above its PAL at location TM02-PZM009 with a detection of 5.7 µg/L. No other VOCs were detected above their respective PALs. The benzene exceedance is shown on **Figure GW1**.

Table 10 provides a summary of SVOCs identified in groundwater samples above the laboratory's MDLs. Similar to the evaluation of the soil data, the PALs for relevant PAHs have been adjusted upward based on revised toxicity data published in the USEPA RSL Resident Tapwater Table. A total of five SVOCs (1,1-biphenyl, 3&4-methylphenol, benz[a]anthracene, naphthalene, and nitrobenzene) were detected above their respective aqueous PALs. Naphthalene was the only SVOC with multiple PAL exceedances (four total locations), with a maximum detected

concentration of 56.8 µg/L in TM02-PZM009. The SVOC PAL exceedance locations and results are provided on **Figure GW2**.

Table 10 provides a summary of the TPH/Oil & Grease detections in groundwater at the Site. TPH-GRO was not detected in any of the groundwater samples. TPH-DRO was detected above its PAL at all of the completed sample locations with the exception of B24-035-PZ. The maximum detection of TPH-DRO was 8,200 µg/L (flagged with the “J” qualifier) at B24-034-PZ. Oil & Grease was detected above the PAL at B24-034-PZ and TM03-PZM004, with a maximum detection of 3,800 µg/L (flagged with the “J” qualifier) also at B24-034-PZ. The TPH/Oil & Grease PAL exceedance locations and results are provided on **Figure GW3**. Each location was checked for the potential presence of NAPL using an oil-water interface probe prior to sampling. During these checks, NAPL was not detected in any of the groundwater sample collection locations; however, trace NAPL had previously been observed at B24-003-PZ (during the 0-hour gauging event only) and is discussed in Section 4.3.

4.2.2. Groundwater Conditions: Inorganic Constituents

Table 11 provides a summary of inorganic constituents detected above the MDLs in the groundwater samples collected from across the Site. Two metals (hexavalent chromium and vanadium) were detected in groundwater above their PALs at multiple sample locations. The maximum detection of hexavalent chromium in groundwater was 23.6 µg/L at B24-027-PZ. The maximum detection of vanadium in groundwater was 312 µg/L at B24-034-PZ. The inorganic PAL exceedance locations and results are provided on **Figure GW4**.

4.2.3. Groundwater Conditions: Results Summary

Table 10 and **Table 11** provide summaries of the detected organic compounds and inorganics in the groundwater samples submitted for laboratory analysis, and **Figure GW1** through **Figure GW4** present the locations and aqueous results that exceeded the PALs. Aqueous PAL exceedances among the groundwater samples collected from the six piezometers and two existing monitoring wells consisted of one VOC (benzene), five SVOCs (1,1-biphenyl, 3&4-methylphenol, benz[a]anthracene, naphthalene, and nitrobenzene), TPH-DRO, Oil & Grease, and two metals (hexavalent chromium and vanadium).

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 (<https://www.epa.gov/vaporintrusion/vapor-intrusion-screening-levels-visl>). The PALs specified in the QAPP are based upon drinking water use, which is not a potential exposure pathway for groundwater at the Site.

None of the aqueous results exceeded the individual VI TCR or THQ criteria as specified by the VISL Calculator. Following the initial screening, a cumulative VI risk assessment was also performed for each individual sample location, with the results separated by cancer risk versus non-cancer hazard. 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 $1E-5$, and there were no compounds above the 10% THQ level. The cumulative VI comparisons are provided in **Table 12**.

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). There were no concerns related to potential VI risks/hazards at the Site. Based on the relatively low-level analytical results identified during this investigation, there do not appear to be significant ongoing sources of groundwater contamination present.

4.3. SUMMARY OF NAPL OBSERVATIONS

Soil cores were screened for evidence of possible NAPL contamination during the completion of the Phase II Investigation. During the field screening, two locations (B24-003-SB and B24-034-SB) had observations of physical evidence of NAPL in the soil cores. These two locations are highlighted on **Figure S2**. As noted on the boring logs (**Appendix B**), a light amount of product sheen was observed in the soil core of B24-003-SB from 13.7 to 14.3 feet bgs and a trace product sheen, accompanied by an odor, was observed in the soil core of B24-034-SB from 12 to 14 feet bgs. The Parcel B24 Work Plan had designated that temporary groundwater sample collection points were to be installed at both B24-003-SB and B24-034-SB. Therefore, the groundwater sample collection points also functioned as NAPL screening piezometers. The piezometers were checked for the presence of NAPL using an oil-water interface probe immediately after installation, approximately 48 hours after installation, and again after at least 30 days in accordance with standard procedures.

A trace amount of NAPL was observed during the 0-hour gauging event at piezometer B24-003-PZ, but this was the only observation at any location. Four additional piezometers were installed surrounding B24-003-PZ to delineate the extent of NAPL contamination. The NAPL delineation activities (including construction logs for the additional delineation piezometers) are detailed in the Parcel B24 NAPL Completion Report dated September 16, 2020, which is included as an electronic attachment to this Phase II Investigation Report. No additional action is planned in the vicinity of B24-003-SB or B24-034-SB.

In addition to the boring locations with physical evidence of NAPL, the soil analytical results exceeded the Oil & Grease PAL (6,200 mg/kg) in three samples (B24-032-SB-5, B24-037-SB-8, and B24-037-SB-10). The elevated analytical detections did not correspond to the locations with physical evidence of NAPL discussed above. An underlying soil sample was collected at both

B24-032-SB and B24-037-SB and analyzed for Oil & Grease. The 10-foot sample at B24-032-SB had an Oil & Grease detection of 68.9 mg/kg (flagged with the “J” qualifier), and the 12-foot sample at B24-037-SB had an Oil & Grease detection of 2,860 mg/kg, both of which are significantly below the PAL. The potentially impacted borings (i.e., those with physical evidence of NAPL or elevated detections of Oil & Grease) should be evaluated for proximity to proposed utilities in any future development planning for Parcel B24.

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, 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 PALs established in the QAPP (i.e., the most current USEPA RSLs) or based on other direct guidance from the agencies, to identify the presence of exceedances in each environmental medium.

Quality 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 G**. The following QA/QC samples were required by the QAPP to support the data validation:

- Trip Blank – at a rate of one per cooler with VOC samples per day
 - Soil – VOCs only
 - Water – VOCs only
- Blind Field Duplicate – at a rate of one per twenty samples
 - Soil – VOCs, SVOCs, Metals, TPH-DRO, TPH-GRO, 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 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 D** (PID calibration log) and **Appendix E** (multiparameter meter calibration logs).

The laboratory deliverables were reviewed to ensure that all records specified in the QAPP as well as necessary signatures and dates are present. Sample receipt records were reviewed to ensure that the sample condition upon receipt was noted, and any missing/broken sample containers (if any) were noted and reported according to plan. The data packages were compared to the Chains of Custody to verify that results were provided for all collected samples. The data package case narratives were reviewed to ensure that all exceptions (if any) are described.

5.2. DATA VALIDATION

USEPA Stage 2B data validation was completed for a representative 30% of the environmental sample analyses performed by PACE and Alpha and supporting Level IV Data Package information by Environmental Data Quality Inc. (EDQI). The DVRs provided by EDQI have been included as electronic attachments.

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

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

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

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

RL = Reporting Limit

As directed by EDQI, ARM has reviewed all non-validated laboratory reports (those which were not designated to be reviewed by EDQI), and applied the same validation corrections to any relevant “B” or “JB” qualified results. This review of the non-validated data ensures that any elevated detections of parameters, including those which may exceed the PALs, are not mistakenly reported as non-detect values simply because they did not undergo the formal validation procedure by EDQI. ARM has also revised the non-validated results to eliminate any laboratory-specific, non-standardized qualifiers (L2, 6c, ip, 4c, etc.), which are customarily removed by EDQI during the validation procedure.

5.3. DATA USABILITY

The data were evaluated with respect to the quality control elements of precision, bias, representativeness, comparability, completeness, and sensitivity relative to data quality indicators and performance measurement criteria outlined in QAPP Worksheet 12 – Measurement Performance Criteria. The following discussion details deviation from the performance measurement criteria, and the impact on data quality and usability.

The measurement performance criteria of precision and bias were evaluated in the data validation process as described in the DVRs provided as electronic attachments. Where appropriate, potential limitations in the results have been indicated through final data flags. These flags indicate whether particular data points were quantitative estimates, biased high/low, associated with blank contamination, etc. Individual data flags are provided with the results in the detection summary tables. A qualifier code glossary is included with each DVR provided by EDQI. Particular results may have been marked with the “R” flag if the result was deemed to be unreliable and was not included in any further evaluation. **Table 13** provides a list of the analytical soil results that were

rejected during data validation. No analytical groundwater results were rejected during data validation. Data completeness (the proportion of valid data) is discussed below.

Representativeness is a measure of how accurately and precisely the data describe the Site conditions. Representativeness of the samples submitted for analysis was ensured by adherence to standard sampling techniques and protocols, as well as appropriate sample preservation prior to analysis. Sampling was conducted in accordance with the QAPP Worksheet 21 – Field SOPs and Appendix A of the QAPP. Specific Field SOPs applicable to the assessment of representativeness include **Field SOP Numbers 006, 008, 009, 010, 011, 017, and 024**. Review of the field notes and laboratory sample receipt records indicated that collection of soil and groundwater at the Site was representative, with no significant deviations from the SOPs.

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

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

Completeness is expressed as a ratio of the number of valid data points to the total number of analytical data results. Non-usable (“R” flagged) data results were determined through the data validation process. The approved QAPP specifies that the completeness of data is assessed by professional judgement but should be greater than or equal to 90%. Data completeness for each compound is provided in **Appendix H**. This evaluation of completeness includes only the representative 30% of sample results which were randomly selected for validation.

A total of 14 analytes did not meet the completeness goal of 90% for soils in Parcel B24. A total of 11 acid-extractable SVOCs (2,3,4,6-tetrachlorophenol, 2,4,5-trichlorophenol, 2,4,6-trichlorophenol, 2,4-dichlorophenol, 2,4-dimethylphenol, 2,4-dinitrophenol, 2-chlorophenol, 2-methylphenol, 3&4-methylphenol, pentachlorophenol, and phenol) had completeness values of 87%, which is close to the stated goal. 1,1,2,2-tetrachloroethane was the only VOC with a soil completeness ratio below 90%, however the completeness ratio of 83% is close to the stated goal. Likewise, hexavalent chromium was the only metal with a soil completeness ratio below 90%, but the completeness ratio of 73% is close to the stated goal.

The full dataset of 1,4-dioxane soil results which underwent the validation process was rejected. The rejection of the soil results for 1,4-dioxane has not been uncommon for data obtained from the Tradepoint Atlantic property. Sufficient information is available in the groundwater dataset to evaluate the presence and significance of 1,4-dioxane (as well as the other analytes listed above) at the Site.

While a limited set of analytes did not meet the completeness goal of 90%, significant data gaps have not been identified.

6.0 FINDINGS AND RECOMMENDATIONS

The objective of this Parcel B24 Phase II Investigation was to characterize the nature and extent of contamination at the Site. During the Phase II Investigation, a total of 83 soil samples (all locations/depths) were collected from soil borings, six groundwater samples were collected from shallow temporary piezometers, and two supplemental groundwater samples were collected from existing shallow monitoring wells (TM02-PZM009 and TM03-PZM004). The sampling and analysis plan for the parcel was developed to target specific features that represented a potential release of hazardous substances and/or petroleum products to the environment.

Soil samples were analyzed for TCL-VOCs, TCL-SVOCs, TPH-DRO/GRO, Oil & Grease, TAL-Metals, hexavalent chromium, and cyanide. Shallow soil samples (0 to 1 foot bgs) were additionally analyzed for PCBs. Groundwater samples were analyzed for TCL-VOCs, TCL-SVOCs, TPH-DRO/GRO, Oil & Grease, TAL-Dissolved Metals, dissolved hexavalent chromium, and total cyanide. The supplemental groundwater samples collected from the two permanent wells were also analyzed for total metals. The piezometer samples were additionally analyzed for available cyanide, whereas the permanent well samples were analyzed for amenable cyanide (the more suitable method).

6.1. SOIL

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

PCB concentrations are below levels that would warrant delineation and evaluation of a removal remedy (50 mg/kg). Additionally, lead concentrations were below the mandatory delineation threshold (10,000 mg/kg). No further action is required with respect to PCBs or lead at the Site. There were no soil PAL exceedances of VOCs, PCBs, or TPH-DRO/GRO, indicating that these compounds are not significant contaminants in soil at the Site. Exceedances of the soil PALs within Parcel B24 were limited to five inorganics (arsenic, hexavalent chromium, lead, manganese, and thallium), one SVOC (benzo[a]pyrene), and Oil & Grease.

Arsenic was the most common PAL exceedance, and was detected above its PAL in 46 total samples a maximum detection of 123 mg/kg in B24-032-SB-1. Hexavalent chromium was detected above its PAL in one sample (B24-005-SB-4) with a detection of 6.4 mg/kg (flagged with the “J-” qualifier). Lead was detected above its PAL in three samples with a maximum detection (1,300 mg/kg) in B24-031-SB-1.5. Manganese was detected above its PAL in 16 samples with a maximum detection (51,900 mg/kg) in B24-024-SB-5. Thallium was detected above its PAL in four samples with a maximum detection (17.1 mg/kg) in B24-028-SB-5. Benzo[a]pyrene was the only SVOC detected in soil above its PAL, with a total of seven exceedances and a maximum detection of 3.7 mg/kg in B24-007-SB-5.

Elevated concentrations of Oil & Grease were identified above the PAL (6,200 mg/kg) in three samples: B24-032-SB-5 at 32,200 mg/kg, B24-037-SB-8 at 14,900 mg/kg, and B24-037-SB-10 at 19,200 mg/kg. However, no physical evidence of NAPL was noted in the soil cores at these two locations, and Oil & Grease detections in the underlying soil samples were significantly below the PAL in both cases. Two other boring locations had physical evidence of NAPL identified in the soil cores (B24-003-SB and B24-034-SB). These boring locations with observed NAPL are discussed in Section 6.3.

6.2. GROUNDWATER

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

Exceedances of the aqueous PALs in groundwater below Parcel B24 consisted of two metals (hexavalent chromium and vanadium), one VOC (benzene), five SVOCs (1,1-biphenyl, 3&4-methylphenol, benz[a]anthracene, naphthalene, and nitrobenzene), TPH-DRO, and Oil & Grease. The maximum detection of hexavalent chromium was 23.6 µg/L (at B24-027-PZ) and the maximum detection of vanadium was 312 µg/L (at B24-034-PZ). Benzene was detected above its PAL at only one location (TM02-PZM009) with a detection of 5.7 µg/L. Naphthalene was the only SVOC with multiple PAL exceedances (four total locations), with a maximum detection of 56.8 µg/L (at TM02-PZM009).

TPH-DRO exceeded its PAL in every groundwater sample except B24-035-PZ, with a maximum detection of 8,200 µg/L (flagged with the “J” qualifier) at B24-034-PZ. Oil & Grease exceeded the PAL at two locations, with a maximum detection of 3,800 µg/L (flagged with the “J” qualifier) also at B24-034-PZ. Each groundwater sample location was checked for the potential presence of NAPL using an oil-water interface probe prior to sampling. During these checks, NAPL was not detected in any of the groundwater sample collection locations; however, trace NAPL had previously been observed at B24-003-PZ (during the 0-hour gauging event only).

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 or THQ criteria. When the aqueous results were summed by sample location, none of the cumulative VI cancer risks exceeded 1E-5, and none of the cumulative VI non-cancer HI values exceeded 1. There are no concerns related to potential VI risks at the Site.

All temporary groundwater sample collection points were properly abandoned on July 1, 2020 by a Maryland-licensed driller and in accordance with Maryland abandonment standards as stated in COMAR 26.04.04.34 through 36. Each piezometer was gauged a final time with the oil-water interface probe on the abandonment date to confirm that NAPL had not accumulated in the casing. The piezometer abandonment forms are included as **Appendix I**.

6.3. NAPL

There were three soil samples with elevated detections of Oil & Grease reported above the PAL (6,200 mg/kg) at the Site: B24-032-SB-5, B24-037-SB-8, and B24-037-SB-10. These PAL exceedances could be indicative of potential NAPL impacts, although no physical evidence of NAPL was observed in the associated soil cores. An underlying soil sample was collected at both B24-032-SB and B24-037-SB and analyzed for Oil & Grease. The 10-foot sample at B24-032-SB had an Oil & Grease detection of 68.9 mg/kg (flagged with the “J” qualifier), and the 12-foot sample at B24-037-SB had an Oil & Grease detection of 2,860 mg/kg, both of which are significantly below the PAL.

During field screening of the soil cores installed during this investigation, borings B24-003-SB and B24-034-SB had minor observations of NAPL in the soil cores. The specific observations of NAPL are provided on the soil boring logs (**Appendix B**) and identified in Section 4.3. The potential mobility of NAPL to groundwater was evaluated via the installation and gauging of temporary piezometers at both locations. Trace NAPL was observed during the 0-hour gauging event at B24-003-PZ, and a small delineation investigation was subsequently performed in this area. The NAPL delineation activities are detailed in the Parcel B24 NAPL Completion Report dated September 16, 2020, which is included as an electronic attachment. No additional action is planned in the vicinity of B24-003-SB or B24-034-SB.

The borings identified with evidence of NAPL or elevated Oil & Grease detections should be evaluated for proximity to proposed utilities in any future development planning for Parcel B24.

6.4. RECOMMENDATIONS

Sufficient remedial investigation data has been collected to evaluate the nature and extent of possible constituents of concern in Parcel B24. The presence and absence of soil and groundwater impacts within Parcel B24 have been adequately described and further investigation is not warranted to characterize overall conditions. Recommendations for the Site are as follows:

- Soil borings with physical evidence of NAPL or elevated Oil & Grease concentrations (B24-003-SB, B24-032-SB, B24-034-SB, and B24-037-SB) should be considered for proximity to proposed utilities in any future development plans. If future utilities are proposed in the vicinity of these borings, appropriate protocols for the mitigation of

potential product (NAPL) mobility should be specified in a project-specific Response and Development Work Plan.

- The groundwater results from the temporary piezometers installed along Bear Creek within Parcel B24 are sufficiently clean for sentinel monitoring purposes. The placement of permanent sentinel monitoring wells will be evaluated as part of the larger property-wide groundwater monitoring program.

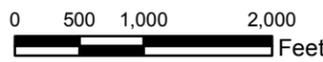
7.0 REFERENCES

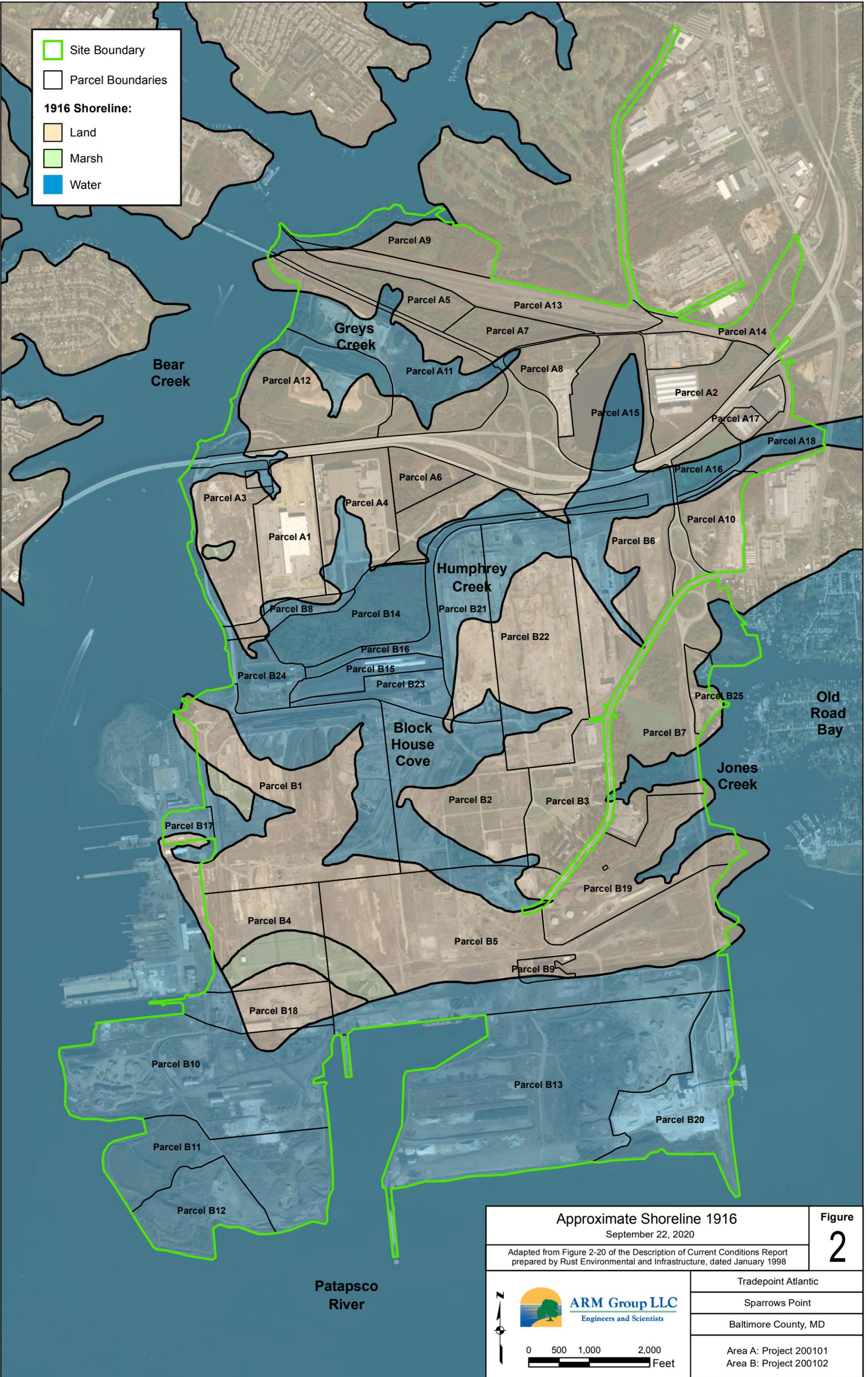
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FIGURES



	Site Boundary
	Parcel Boundaries
	Private Property

Tradepoint Atlantic Area A and Area B Parcels September 22, 2020		Figure 1
  ARM Group LLC Engineers and Scientists	Tradepoint Atlantic Sparrows Point Baltimore County, MD	
		
	Area A: Project 200101 Area B: Project 200102	



Site Boundary
 Parcel Boundaries
1916 Shoreline:
 Land
 Marsh
 Water

Approximate Shoreline 1916 September 22, 2020		Figure 2
Adapted from Figure 2-20 of the Description of Current Conditions Report prepared by Rust Environmental and Infrastructure, dated January 1998		
	Tradepoint Atlantic	
	Sparrows Point	
	Baltimore County, MD	
Area A: Project 200101 Area B: Project 200102		

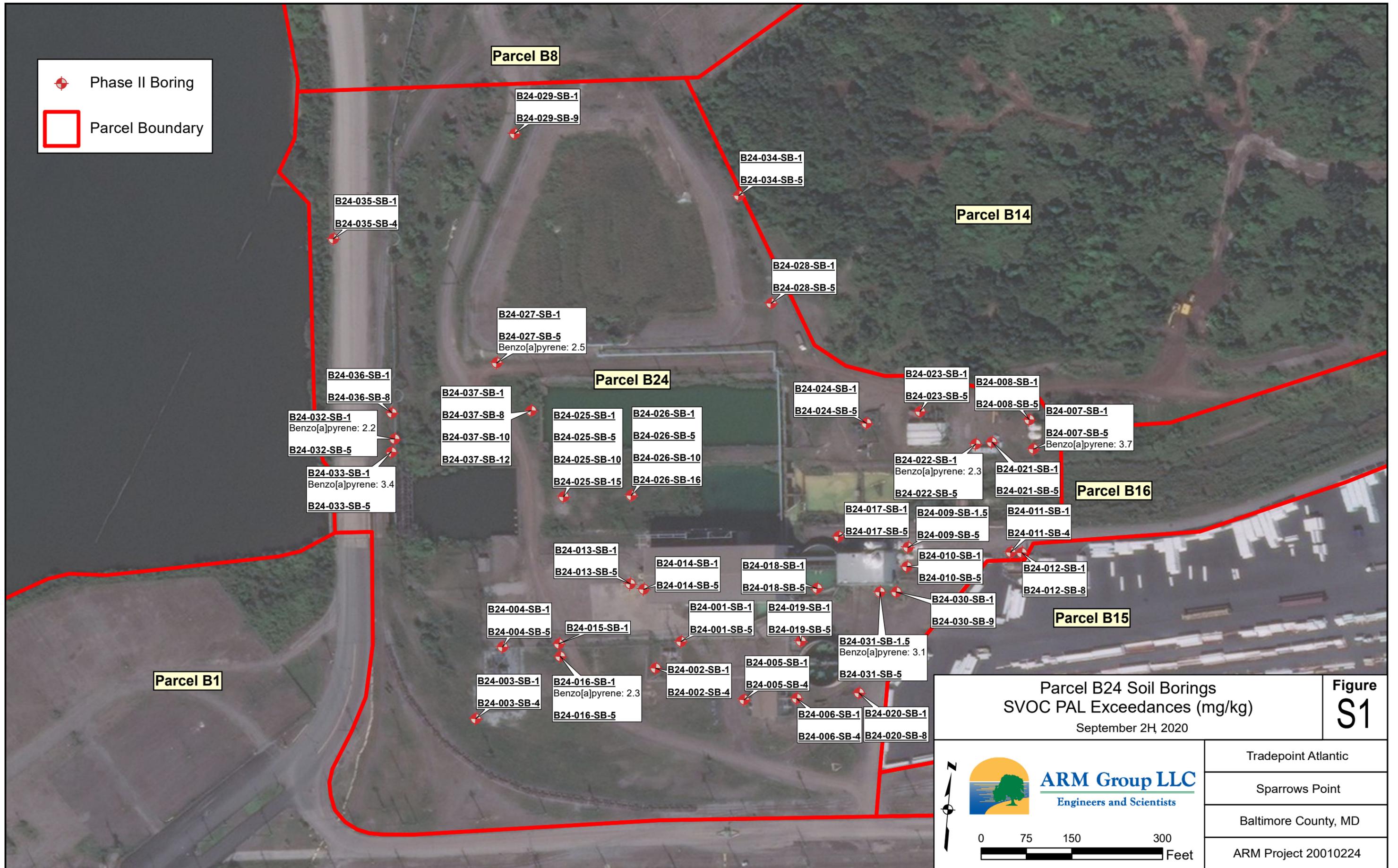


Figure 3



 Phase II Boring
 Parcel Boundary

Parcel B24 Soil Sample Locations September 2H, 2020		Figure 4
  ARM Group LLC Engineers and Scientists	0 75 150 300 Feet	
	Tradepoint Atlantic	
	Sparrows Point	
	Baltimore County, MD	
ARM Project 20010224		



**Figure
S1**

 Phase II Boring
 Parcel Boundary

- Parcel B8
 - B24-029-SB-1
 - B24-029-SB-9
- Parcel B14
 - B24-034-SB-1
 - B24-034-SB-5
 - B24-028-SB-1
 - B24-028-SB-5
- Parcel B24
 - B24-027-SB-1
 - B24-027-SB-5
 - Benzo[a]pyrene: 2.5
 - B24-023-SB-1
 - B24-023-SB-5
 - B24-008-SB-1
 - B24-008-SB-5
 - B24-007-SB-1
 - B24-007-SB-5
 - Benzo[a]pyrene: 3.7
 - B24-024-SB-1
 - B24-024-SB-5
 - B24-022-SB-1
 - Benzo[a]pyrene: 2.3
 - B24-022-SB-5
 - B24-021-SB-1
 - B24-021-SB-5
 - B24-017-SB-1
 - B24-017-SB-5
 - B24-009-SB-1.5
 - B24-009-SB-5
 - B24-011-SB-1
 - B24-011-SB-4
 - B24-010-SB-1
 - B24-010-SB-5
 - B24-012-SB-1
 - B24-012-SB-8
 - B24-013-SB-1
 - B24-013-SB-5
 - B24-014-SB-1
 - B24-014-SB-5
 - B24-018-SB-1
 - B24-018-SB-5
 - B24-030-SB-1
 - B24-030-SB-9
 - B24-015-SB-1
 - B24-001-SB-1
 - B24-019-SB-1
 - B24-001-SB-5
 - B24-019-SB-5
 - B24-031-SB-1.5
 - Benzo[a]pyrene: 3.1
 - B24-031-SB-5
 - B24-004-SB-1
 - B24-004-SB-5
 - B24-015-SB-1
 - B24-002-SB-1
 - B24-005-SB-1
 - B24-002-SB-4
 - B24-005-SB-4
 - B24-006-SB-1
 - B24-020-SB-1
 - B24-006-SB-4
 - B24-020-SB-8
 - B24-003-SB-1
 - B24-016-SB-1
 - Benzo[a]pyrene: 2.3
 - B24-003-SB-4
 - B24-016-SB-5
 - B24-032-SB-1
 - Benzo[a]pyrene: 2.2
 - B24-032-SB-5
 - B24-033-SB-1
 - Benzo[a]pyrene: 3.4
 - B24-033-SB-5
 - B24-036-SB-1
 - B24-036-SB-8
 - B24-037-SB-1
 - B24-037-SB-8
 - B24-037-SB-10
 - B24-037-SB-12
 - B24-025-SB-1
 - B24-025-SB-5
 - B24-025-SB-10
 - B24-025-SB-15
 - B24-026-SB-1
 - B24-026-SB-5
 - B24-026-SB-10
 - B24-026-SB-16
- Parcel B16
 - B24-007-SB-1
 - B24-007-SB-5
 - Benzo[a]pyrene: 3.7
- Parcel B15
 - B24-011-SB-1
 - B24-011-SB-4
 - B24-012-SB-1
 - B24-012-SB-8
- Parcel B1
 - B24-003-SB-1
 - B24-003-SB-4

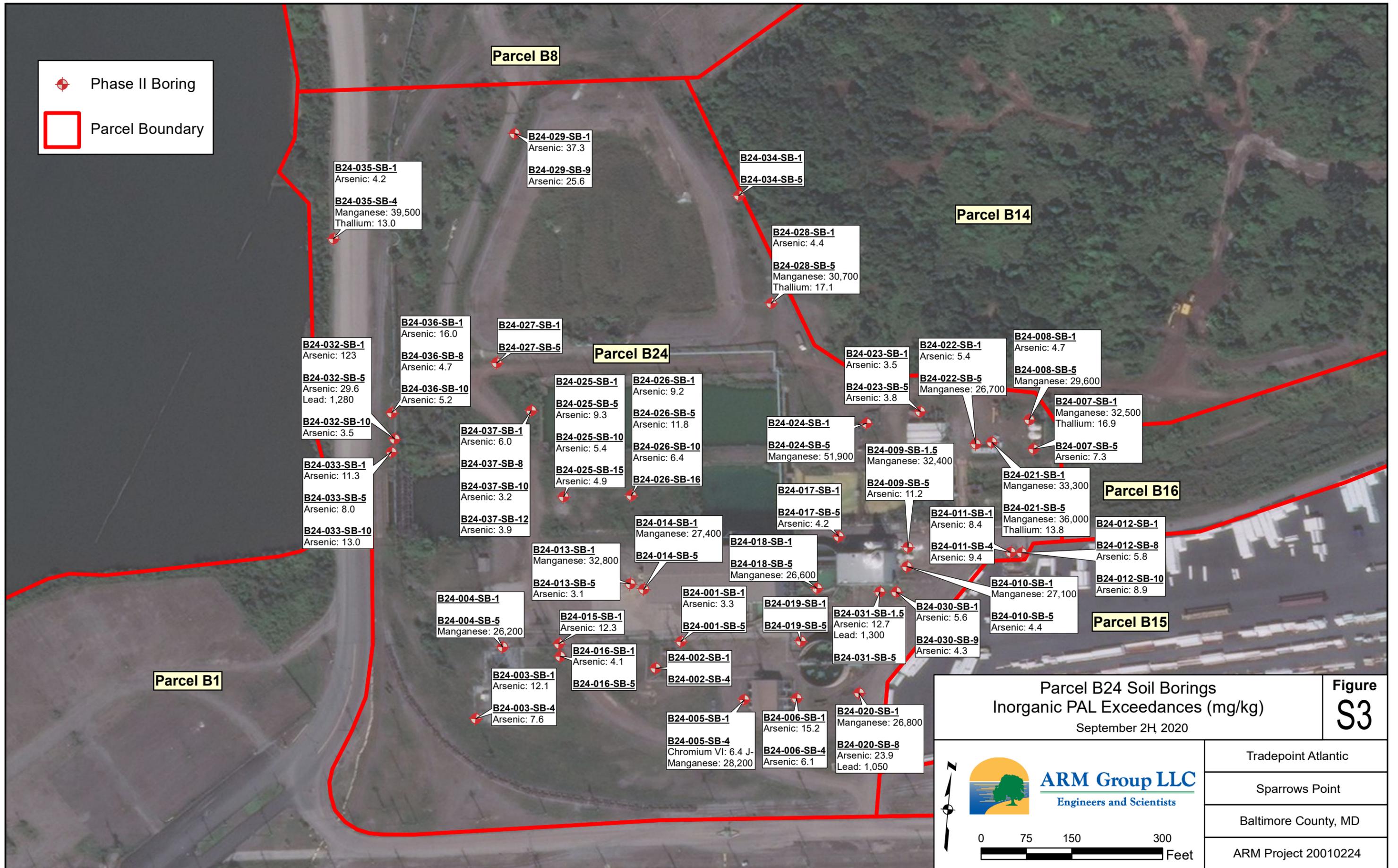
 Phase II Boring
 Phase II Boring (NAPL Observation)
 Parcel Boundary



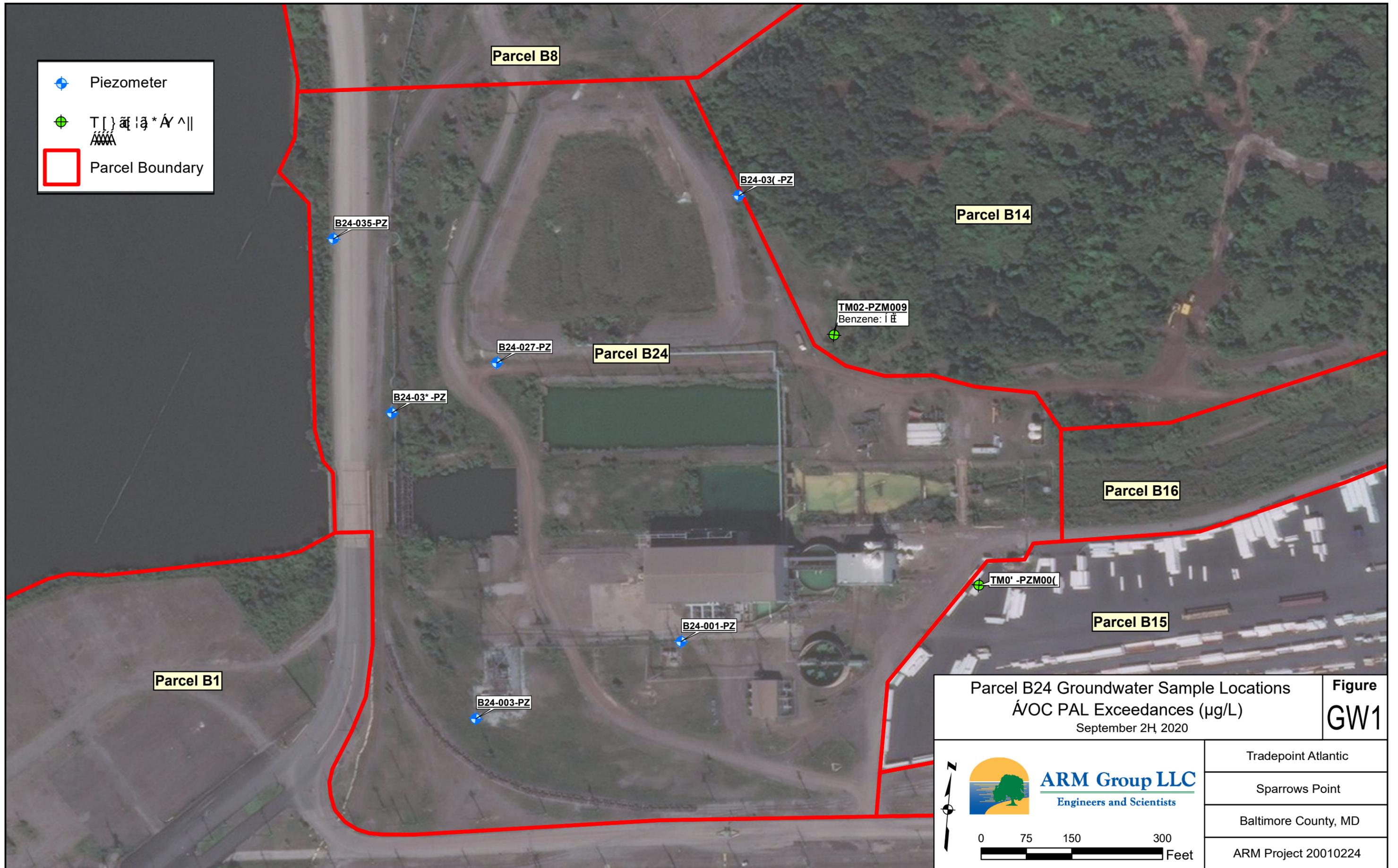
Parcel B24 Soil Borings
Oil & Grease PAL Exceedances (mg/kg)
 September 2H, 2020

Figure
S2

  ARM Group LLC Engineers and Scientists 	Tradepoint Atlantic
	Sparrows Point
	Baltimore County, MD
	ARM Project 20010224



**Figure
S3**



 Piezometer
 TM02-PZM009 Benzene: 1 ft
 Parcel Boundary

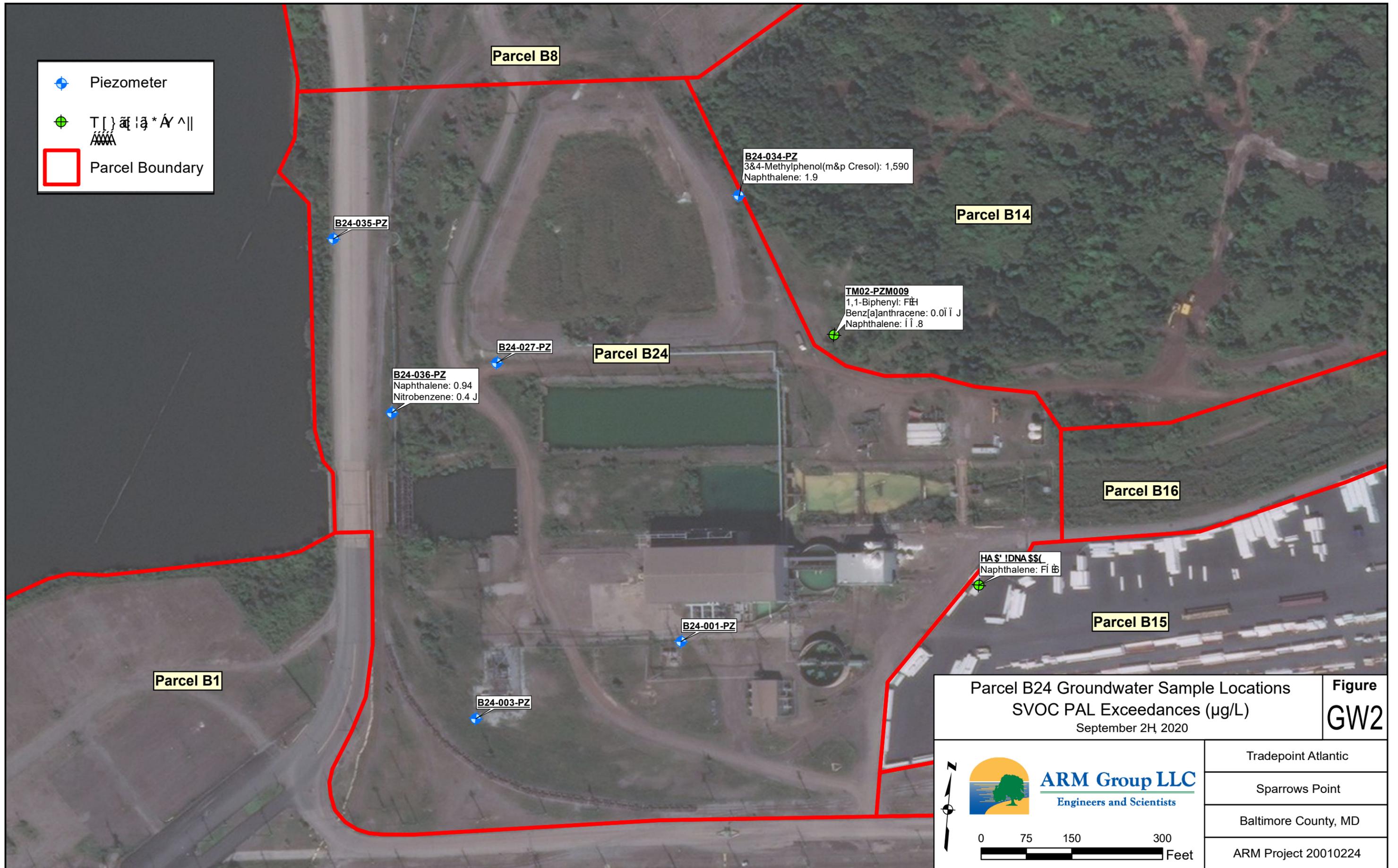
Parcel B24 Groundwater Sample Locations
AVOC PAL Exceedances ($\mu\text{g/L}$)
 September 2H, 2020

Figure
GW1


ARM Group LLC
 Engineers and Scientists

0 75 150 300
 Feet

Tradepoint Atlantic
Sparrows Point
Baltimore County, MD
ARM Project 20010224



Piezometer
 T [] } a [i a * A ^ ||
 Parcel Boundary

B24-035-PZ

B24-034-PZ
 3&4-Methylphenol(m&p Cresol): 1,590
 Naphthalene: 1.9

Parcel B14

TM02-PZM009
 1,1-Biphenyl: F#H
 Benz[a]anthracene: 0.0I i J
 Naphthalene: i i .8

B24-027-PZ

Parcel B24

B24-036-PZ
 Naphthalene: 0.94
 Nitrobenzene: 0.4 J

Parcel B16

HA \$' IDNA \$\$
 Naphthalene: FI B

Parcel B15

B24-001-PZ

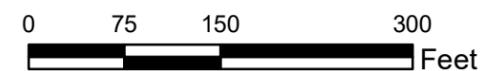
Parcel B1

B24-003-PZ

Parcel B24 Groundwater Sample Locations SVOC PAL Exceedances (µg/L) September 2H, 2020		Figure GW2
ARM Group LLC Engineers and Scientists		
Tradepoint Atlantic Sparrows Point Baltimore County, MD		
ARM Project 20010224		



 Piezometer
 T [] } ä [i ä * Á ^ ||
 Parcel Boundary

Parcel B24 Groundwater Sample Locations TPH/O&G PAL Exceedances (µg/L) September 2H, 2020		Figure GW3
		
		Tradepoint Atlantic Sparrows Point Baltimore County, MD ARM Project 20010224



Piezometer
 Total Metals (TM)
 Parcel Boundary

(T) = Total Metals
 (D) = Dissolved Metals

 ARM Group LLC Engineers and Scientists	Tradepoint Atlantic
	Sparrows Point
	Baltimore County, MD
	ARM Project 20010224

Figure
GW1

TABLES

**Table 1 - Parcel B24
Groundwater Elevation Data**

<u>Location Name</u>	<u>TOC Elevation (feet AMSL)</u>	<u>Ground Elevation (feet AMSL)</u>	<u>Measured DTW (feet)*</u>	<u>Groundwater Elevation (feet AMSL)</u>
B24-001-PZ	12.96	9.81	12.02	0.94
B24-003-PZ	13.93	10.61	12.17	1.76
B24-027-PZ	11.60	8.73	10.83	0.77
B24-034-PZ	11.51	8.71	10.72	0.79
B24-035-PZ	12.80	9.96	11.91	0.89
B24-036-PZ	14.05	11.25	13.64	0.41

DTW = Depth to water

TOC = Top of casing

AMSL = Above mean sea level

* DTW measurements taken prior to piezometer abandonments (July 1, 2020)

**Table 2 - Parcel B24
Historical Site Drawing Details**

<u>Set Name</u>	<u>Typical Features Shown</u>	<u>Drawing Number</u>	<u>Original Date Drawn</u>	<u>Latest Revision Date</u>
Plant Arrangement	Roads, water bodies, building/structure footprints, electric lines, above-ground pipelines (e.g.: steam, nitrogen, etc.)	5038	9/1/1958	3/11/1982
		5039	9/1/1958	3/11/1982
		5043	8/3/1959	3/11/1982
Plant Index	Roads, water bodies, demolished buildings/structures, electric lines, above-ground pipelines	5138	<i>Unknown</i>	1/10/2008
		5139	<i>Unknown</i>	1/16/2008
		5143	<i>Unknown</i>	8/15/2008
Plant Sewer Lines	Same as above plus trenches, sumps, underground piping (includes pipe materials)	5538	<i>Unknown</i>	2/10/1975
		5539	8/28/1959	2/21/1975
		5543	9/16/1959	4/1/1975
Drip Legs	Coke Oven Gas Drip Legs Locations	5887	<i>Unknown</i>	Sept. 1988

**Table 3 - Parcel B24
Field Shifted Boring Locations**

<u>Location ID</u>	<u>Sample Target</u>	<u>Proposed Location*</u>		<u>Final Location*</u>		<u>Relocation Distance & Direction</u>	
		<u>Northing</u>	<u>Easting</u>	<u>Northing</u>	<u>Easting</u>		
B24-001-SB	Sub-Station	568,722	1,457,143	568,717	1,457,146	6	SE
B24-003-SB	Sub-Station	568,565	1,456,822	568,562	1,456,819	4	SW
B24-018-SB	Thickener #1	568,807	1,457,369	568,824	1,457,363	19	N
B24-019-SB	Thickener #2	568,731	1,457,348	568,737	1,457,343	7	NW
B24-020-SB	Thickener #2	568,685	1,457,439	568,660	1,457,448	27	SE
B24-027-SB	Emergency Detention Basin	569,181	1,456,804	569,151	1,456,801	31	S
B24-028-SB	Emergency Detention Basin	569,286	1,457,202	569,288	1,457,246	42	E
B24-029-SB	Emergency Detention Basin	569,523	1,456,820	569,531	1,456,799	20	NW
B24-032-SB	Drip Leg #20	569,006	1,456,656	569,010	1,456,645	12	NW
B24-033-SB	Drip Leg #20	568,982	1,456,659	568,988	1,456,642	18	NW
B24-034-SB	Parcel B14 NAPL Detection Area	569,477	1,457,158	569,459	1,457,177	27	SE
B24-035-SB	Bear Creek Shoreline	569,454	1,456,497	569,328	1,456,518	11	E
B24-036-SB	Bear Creek Shoreline	569,041	1,456,539	569,054	1,456,639	100	E

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

**Table 4 - Parcel B24
Characterization Results for Solid IDW**

<u>Sample ID</u>	<u>Parameter</u>	<u>Result</u> <u>(mg/L)</u>	<u>Laboratory</u> <u>Flag</u>	<u>TCLP Limit</u> <u>(mg/L)</u>	<u>TCLP</u> <u>Exceedance</u>	<u>Laboratory</u> <u>LOQ (mg/L)</u>
B24 IDW (5/19/20)	1,1-Dichloroethene	0.05	U	0.7	no	0.05
	1,2-Dichloroethane	0.05	U	0.5	no	0.05
	1,4-Dichlorobenzene	0.5	U	7.5	no	0.5
	2,4,5-Trichlorophenol	5	U	400	no	5
	2,4,6-Trichlorophenol	0.1	U	2	no	0.1
	2,4-Dinitrotoluene	0.1	U	0.13	no	0.1
	2-Butanone (MEK)	0.1	U	200	no	0.1
	2-Methylphenol	2	U	200	no	2
	3&4-Methylphenol(m&p Cresol)	2	U	200	no	2
	Arsenic	0.025	U	5	no	0.025
	Barium	0.27		100	no	0.05
	Benzene	0.05	U	0.5	no	0.05
	Cadmium	0.002	J	1	no	0.015
	Carbon tetrachloride	0.05	U	0.5	no	0.05
	Chlorobenzene	0.05	U	100	no	0.05
	Chloroform	0.05	U	6	no	0.05
	Chromium	0.025	U	5	no	0.025
	Hexachlorobenzene	0.1	U	0.13	no	0.1
	Hexachloroethane	0.2	U	3	no	0.2
	Lead	0.05	U	5	no	0.05
	Mercury	0.001	U	0.2	no	0.001
	Nitrobenzene	0.1	U	2	no	0.1
	Pentachlorophenol	5	U	100	no	5
	Selenium	0.04	U	1	no	0.04
	Silver	0.03	U	5	no	0.03
	Tetrachloroethene	0.05	U	0.7	no	0.05
	Trichloroethene	0.05	U	0.5	no	0.05
	Vinyl chloride	0.05	U	0.2	no	0.05

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

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

TCLP: Toxicity Characteristic Leaching Procedure

LOQ: Limit of Quantitation

**Table 5 - Parcel B24
Characterization Results for Liquid IDW**

<u>Sample ID</u>	<u>Parameter</u>	<u>Result</u> <u>(mg/L)</u>	<u>Laboratory</u> <u>Flag</u>	<u>TCLP Limit</u> <u>(mg/L)</u>	<u>TCLP</u> <u>Exceedance</u>	<u>Laboratory</u> <u>LOQ (mg/L)</u>
IDW Water (5/19/20)	1,1-Dichloroethene	0.001	U	0.7	no	0.001
	1,2-Dichloroethane	0.001	U	0.5	no	0.001
	1,4-Dichlorobenzene	0.001	U	7.5	no	0.001
	2,4,5-Trichlorophenol	0.0025	U	400	no	0.0025
	2,4,6-Trichlorophenol	0.00099	U	2	no	0.00099
	2,4-Dinitrotoluene	0.00099	U	0.13	no	0.00099
	2-Butanone (MEK)	0.01	U	200	no	0.01
	2-Methylphenol	0.00099	U	200	no	0.00099
	3&4-Methylphenol(m&p Cresol)	0.002	U	200	no	0.002
	Arsenic	0.005	U	5	no	0.005
	Barium	0.0623		100	no	0.01
	Benzene	0.0063		0.5	no	0.001
	Cadmium	0.0061		1	no	0.003
	Carbon tetrachloride	0.001	U	0.5	no	0.001
	Chlorobenzene	0.001	U	100	no	0.001
	Chloroform	0.001	U	6	no	0.001
	Chromium	0.0023	J	5	no	0.005
	Hexachlorobenzene	0.00099	U	0.13	no	0.00099
	Hexachloroethane	0.00099	U	3	no	0.00099
	Lead	0.005	U	5	no	0.005
	Mercury	0.0002	U	0.2	no	0.0002
	Nitrobenzene	0.00099	U	2	no	0.00099
	Pentachlorophenol	0.0025	U	100	no	0.0025
	Selenium	0.008	U	1	no	0.008
	Silver	0.006	U	5	no	0.006
	Tetrachloroethene	0.001	U	0.7	no	0.001
	Trichloroethene	0.00092	J	0.5	no	0.001
	Vinyl chloride	0.001	U	0.2	no	0.001

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

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

TCLP: Toxicity Characteristic Leaching Procedure

LOQ: Limit of Quantitation

**Table 6 - Parcel B24
Summary of Organics Detected in Soil**

Parameter	Units	PAL	B24-001-SB-1*	B24-001-SB-5*	B24-002-SB-1	B24-002-SB-4	B24-003-SB-1*	B24-003-SB-4*	B24-004-SB-1*	B24-004-SB-5*	B24-005-SB-1	B24-005-SB-4	B24-006-SB-1	B24-006-SB-4
			4/14/2020	4/14/2020	4/17/2020	4/17/2020	4/16/2020	4/16/2020	4/16/2020	4/16/2020	4/16/2020	4/17/2020	4/17/2020	4/17/2020
Volatile Organic Compounds														
2-Butanone (MEK)	mg/kg	190,000	N/A	N/A	N/A	N/A	N/A	0.015 U	N/A	N/A	N/A	N/A	N/A	N/A
Acetone	mg/kg	670,000	N/A	N/A	N/A	N/A	N/A	0.014 J	N/A	N/A	N/A	N/A	N/A	N/A
Benzene	mg/kg	5.1	N/A	N/A	N/A	N/A	N/A	0.0076 U	N/A	N/A	N/A	N/A	N/A	N/A
Carbon disulfide	mg/kg	3,500	N/A	N/A	N/A	N/A	N/A	0.0034 J	N/A	N/A	N/A	N/A	N/A	N/A
Cyclohexane	mg/kg	27,000	N/A	N/A	N/A	N/A	N/A	0.015 U	N/A	N/A	N/A	N/A	N/A	N/A
Ethylbenzene	mg/kg	25	N/A	N/A	N/A	N/A	N/A	0.0076 U	N/A	N/A	N/A	N/A	N/A	N/A
Toluene	mg/kg	47,000	N/A	N/A	N/A	N/A	N/A	0.0076 U	N/A	N/A	N/A	N/A	N/A	N/A
Semi-Volatile Organic Compounds[^]														
1,1-Biphenyl	mg/kg	200	0.075 U	0.29	0.74 U	0.021 J	0.74 U	0.73 U	0.7 U	0.076	0.072 U	0.073 U	0.072 U	0.71 U
2-Methylnaphthalene	mg/kg	3,000	0.015	0.1	0.076	0.07	0.21	0.057 J	0.024 J	0.037 J	0.036	0.0067 J	0.078	0.041
3,3'-Dichlorobenzidine	mg/kg	5.1	0.075 U	0.072 U	0.74 UJ	0.071 UJ	0.74 U	0.73 U	0.7 U	0.07 U	0.072 UJ	0.073 UJ	0.072 UJ	0.71 UJ
Acenaphthene	mg/kg	45,000	0.019	0.023	0.12	0.072	0.058 J	0.015 J	0.011 J	0.071 U	0.024	0.024	0.019	0.1
Acenaphthylene	mg/kg	45,000	0.0064 J	0.0072 U	0.046	0.048	0.81	0.016 J	0.016 J	0.0055 J	0.02	0.0053 J	0.022	0.037
Acetophenone	mg/kg	120,000	0.075 U	0.072 U	0.74 U	0.071 U	0.74 U	0.73 U	0.7 U	0.07 U	0.072 U	0.073 U	0.072 U	0.71 U
Anthracene	mg/kg	230,000	0.016	0.028	0.097	0.32	0.71	0.047 J	0.035 J	0.039 J	0.064	0.1	0.09	0.31
Benz[a]anthracene	mg/kg	21	0.67	0.11	0.72	1.8	1.5	0.063 J	0.27	0.072	0.31	0.36	0.53	1.1
Benzaldehyde	mg/kg	120,000	0.075 U	0.072 U	0.74 U	0.071 U	0.74 U	0.73 U	0.7 U	0.07 U	0.072 U	0.073 U	0.072 U	0.71 U
Benzo[a]pyrene	mg/kg	2.1	1.6	0.19	1.1	1.7	2	0.051 J	0.39	0.055 J	0.35	0.29	0.48	0.98
Benzo[b]fluoranthene	mg/kg	21	1.8	0.22	1.3	2.7	5.2	0.075	0.69	0.14	0.48	0.43	0.67	1.3
Benzo[g,h,i]perylene	mg/kg		1.2	0.15	0.68	1.2	1.8	0.045 J	0.22	0.041 J	0.19	0.12	0.2	0.38
Benzo[k]fluoranthene	mg/kg	210	0.55	0.086	0.41	0.66	4	0.058 J	0.54	0.11	0.16	0.11	0.22	0.42
bis(2-Ethylhexyl)phthalate	mg/kg	160	0.048 J	0.045 J	0.74 U	0.059 B	0.74 U	0.73 U	0.7 U	0.033 J	0.052 B	0.089	0.05 B	0.71 U
Caprolactam	mg/kg	400,000	0.033 J	0.033 J	1.9 U	0.18 U	1.9 U	1.8 U	1.8 U	0.18 U	0.18 U	0.18 U	0.18 U	1.8 U
Carbazole	mg/kg		0.075 U	0.025 J	0.74 U	0.12	0.26 J	0.73 U	0.7 U	0.07 U	0.031 J	0.073 U	0.036 J	0.22 J
Chrysene	mg/kg	2,100	0.8	0.12	0.7	1.9	1.8	0.084	0.26	0.087	0.27	0.29	0.46	0.91
Dibenz[a,h]anthracene	mg/kg	2.1	0.33	0.045	0.18	0.26	0.59	0.074 U	0.076	0.016 J	0.059	0.043	0.072	0.14
Diethylphthalate	mg/kg	660,000	0.075 U	0.072 U	0.74 U	0.017 B	0.74 U	0.73 U	0.7 U	0.07 U	0.072 U	0.022 B	0.072 U	0.71 U
Di-n-butylphthalate	mg/kg	82,000	0.048 J	0.053 J	0.19 B	0.19	0.74 U	0.73 U	0.7 U	0.05 J	0.13 B	0.24	0.13 B	0.17 B
Di-n-octylphthalate	mg/kg	8,200	0.075 U	0.072 U	0.74 U	0.034 J	0.74 U	0.73 U	0.7 U	0.07 U	0.072 U	0.073 U	0.072 U	0.71 U
Fluoranthene	mg/kg	30,000	0.38	0.18	1.1	3.1	2.3	0.056 J	0.35	0.23	0.48	0.69	0.8	2
Fluorene	mg/kg	30,000	0.0043 J	0.0053 J	0.024	0.045	0.082	0.024 J	0.071 U	0.071 U	0.01	0.018	0.013	0.084
Indeno[1,2,3-c,d]pyrene	mg/kg	21	1	0.13	0.99	1.5	1.7	0.021 J	0.21	0.04 J	0.24	0.16	0.27	0.51
Naphthalene	mg/kg	8.6	0.02	2.1	0.3	0.22	0.36	0.018 J	0.045 J	0.094	0.044	0.018	0.042	0.054
Phenanthrene	mg/kg		0.067	0.26	0.39	1.2	0.94	0.15	0.13	0.25	0.25	0.39	0.38	1.2
Pyrene	mg/kg	23,000	0.48	0.15	1	3	2.2	0.19	0.32	0.16	0.41	0.52	0.69	1.6
PCBs														
Aroclor 1242	mg/kg	0.97	0.018 U	N/A	0.019 U	N/A	0.018 U	N/A	0.018 U	N/A	0.018 U	0.018 U	0.018 U	N/A
Aroclor 1248	mg/kg	0.94	0.018 U	N/A	0.019 U	N/A	0.018 U	N/A	0.018 U	N/A	0.018 U	0.018 U	0.018 U	N/A
Aroclor 1254	mg/kg	0.97	0.018 U	N/A	0.019 U	N/A	0.018 U	N/A	0.018 U	N/A	0.14	0.018 U	0.093	N/A
Aroclor 1260	mg/kg	0.99	0.019	N/A	0.082 J	N/A	0.25	N/A	0.031	N/A	0.12	0.0078 J	0.093	N/A
Aroclor 1268	mg/kg		0.018 U	N/A	0.019 U	N/A	0.018 U	N/A	0.018 U	N/A	0.018 U	0.018 U	0.018 U	N/A
PCBs (total)	mg/kg	0.97	0.17 U	N/A	0.082 J	N/A	0.25	N/A	0.16 U	N/A	0.26	0.16 U	0.19	N/A
TPH/Oil & Grease														
Diesel Range Organics	mg/kg	6,200	56.6	33.4	84.8 J	529 J	127	575	37	49.1	40.9 J	38.2 J	51.7 J	69.2 J
Gasoline Range Organics	mg/kg	6,200	12.6 U	9.9 U	12.7 UJ	10.7 UJ	17.4 U	9.8 U	11.4 U	13 U	12.7 UJ	9 UJ	12.6 UJ	11.8 UJ
Oil & Grease	mg/kg	6,200	103 J	49.2 J	171 J-	912 J-	214	1,130	196	127	72.2 J-	110 UJ	245 J-	202 J-

Detections in bold

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

*Indicates non-validated data

[^]PAH compounds were analyzed via SIM

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

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

UJ: This analyte was not detected in the sample. The actual 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 reported for this analyte is a quantitative estimate.

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

**Table 6 - Parcel B24
Summary of Organics Detected in Soil**

Parameter	Units	PAL	B24-007-SB-1*	B24-007-SB-5*	B24-008-SB-1	B24-008-SB-5	B24-009-SB-1.5	B24-009-SB-5	B24-010-SB-1	B24-010-SB-5	B24-011-SB-1	B24-011-SB-4	B24-012-SB-1	B24-012-SB-8
			4/21/2020	4/21/2020	4/20/2020	4/20/2020	4/20/2020	4/20/2020	4/20/2020	4/20/2020	4/20/2020	4/20/2020	4/20/2020	4/20/2020
Volatile Organic Compounds														
2-Butanone (MEK)	mg/kg	190,000	N/A	N/A	N/A	N/A	0.014 U	N/A	N/A	N/A	N/A	0.01 U	N/A	0.011 U
Acetone	mg/kg	670,000	N/A	N/A	N/A	N/A	0.014 B	N/A	N/A	N/A	N/A	0.0035 B	N/A	0.012 B
Benzene	mg/kg	5.1	N/A	N/A	N/A	N/A	0.0068 U	N/A	N/A	N/A	N/A	0.005 U	N/A	0.0053 U
Carbon disulfide	mg/kg	3,500	N/A	N/A	N/A	N/A	0.0023 J	N/A	N/A	N/A	N/A	0.005 U	N/A	0.0042 J
Cyclohexane	mg/kg	27,000	N/A	N/A	N/A	N/A	0.014 U	N/A	N/A	N/A	N/A	0.01 U	N/A	0.011 U
Ethylbenzene	mg/kg	25	N/A	N/A	N/A	N/A	0.0068 U	N/A	N/A	N/A	N/A	0.005 U	N/A	0.0053 U
Toluene	mg/kg	47,000	N/A	N/A	N/A	N/A	0.0068 U	N/A	N/A	N/A	N/A	0.005 U	N/A	0.0053 U
Semi-Volatile Organic Compounds[^]														
1,1-Biphenyl	mg/kg	200	0.11	0.26	0.38 J	0.63 J	0.73 U	0.77 U	0.72 U	0.076 U	0.71 U	0.74 U	0.73 U	0.81 U
2-Methylnaphthalene	mg/kg	3,000	0.075	0.2	0.066	0.1	0.027 J	0.021	0.081 U	0.0032 J	0.024	0.027	0.013	0.048
3,3'-Dichlorobenzidine	mg/kg	5.1	0.071 U	0.072 U	0.72 UJ	0.72 UJ	0.73 UJ	0.77 UJ	0.72 UJ	0.076 UJ	0.71 UJ	0.74 UJ	0.73 UJ	0.81 UJ
Acenaphthene	mg/kg	45,000	0.065	0.33	0.041	0.063	0.018 J	0.0088 U	0.081 U	0.0026 J	0.012	0.022	0.0042 J	0.034
Acenaphthylene	mg/kg	45,000	0.14	0.44	0.038	0.068	0.01 J	0.0054 J	0.081 U	0.024	0.071	0.11	0.034	0.19
Acetophenone	mg/kg	120,000	0.071 U	0.019 J	0.72 U	0.72 U	0.73 U	0.77 U	0.72 U	0.076 U	0.71 U	0.74 U	0.73 U	0.81 U
Anthracene	mg/kg	230,000	0.28	1.3	0.05	0.08	0.035	0.011	0.081 U	0.026	0.048	0.13	0.025	0.17
Benz[a]anthracene	mg/kg	21	1.4	4.5	0.23	0.35	0.21	0.04	0.081 U	0.19	0.25	0.62	0.14	0.42 J
Benzaldehyde	mg/kg	120,000	0.071 U	0.018 J	0.72 U	0.72 U	0.73 U	0.77 U	0.72 U	0.076 U	0.71 U	0.74 U	0.73 U	0.81 U
Benzo[a]pyrene	mg/kg	2.1	1.4	3.7	0.3	0.51	0.22	0.038	0.081 U	0.2	0.36	0.6	0.16	0.4 J
Benzo[b]fluoranthene	mg/kg	21	2	5.4	0.38	0.65	0.34	0.05	0.081 U	0.25	0.41	0.78	0.2	0.49 J
Benzo[g,h,i]perylene	mg/kg		0.96	2.4	0.22	0.45	0.12	0.018	0.2	0.051	0.27	0.38	0.14	0.24
Benzo[k]fluoranthene	mg/kg	210	0.48	1.5	0.11	0.18	0.12	0.019	0.081 U	0.096	0.16	0.26	0.06	0.13
bis(2-Ethylhexyl)phthalate	mg/kg	160	0.035 J	0.034 J	0.72 U	0.72 U	0.16 B	0.77 U	0.72 UJ	0.036 B	0.71 U	0.74 U	0.73 U	0.81 U
Caprolactam	mg/kg	400,000	0.18 U	0.031 J	1.8 U	1.8 U	1.8 U	1.9 U	1.8 U	0.19 U	1.8 U	1.9 U	1.8 U	2 U
Carbazole	mg/kg		0.08	0.34	0.72 U	0.72 U	0.73 U	0.32 J	0.72 U	0.076 U	0.71 U	0.74 U	0.73 U	0.81 U
Chrysene	mg/kg	2,100	1.2	3.6	0.2	0.3	0.21	0.038	0.081 U	0.15	0.23	0.51	0.13	0.33 J
Dibenz[a,h]anthracene	mg/kg	2.1	0.26	0.54	0.066	0.13	0.028 J	0.0044 J	0.081 U	0.019	0.07	0.12	0.041	0.076
Diethylphthalate	mg/kg	660,000	0.071 U	0.019 J	0.72 U	0.72 U	0.73 U	0.77 U	0.72 U	0.076 U	0.71 U	0.74 U	0.73 U	0.81 U
Di-n-butylphthalate	mg/kg	82,000	0.079	0.078 B	0.72 U	0.72 U	0.73 U	0.77 U	0.72 U	0.087 B	0.71 U	0.74 U	0.73 U	0.81 U
Di-n-ocetylphthalate	mg/kg	8,200	0.071 U	0.072 U	0.72 U	0.72 U	0.73 UJ	0.77 U	0.72 UJ	0.076 U	0.71 UJ	0.74 UJ	0.73 U	0.81 U
Fluoranthene	mg/kg	30,000	1.6	6.5	0.33	0.42	0.44	0.072	0.0094 J	0.17	0.32	0.93	0.18	1.1
Fluorene	mg/kg	30,000	0.043	0.28	0.015	0.024	0.0054 J	0.0023 J	0.081 U	0.003 J	0.0074 J	0.03	0.0044 J	0.11
Indeno[1,2,3-c,d]pyrene	mg/kg	21	1.1	2.8	0.26	0.51	0.14	0.02	0.14	0.078	0.31	0.52	0.16	0.3
Naphthalene	mg/kg	8.6	0.21	0.56	0.38	0.62	0.12	0.025	0.081 U	0.013	0.061	0.074	0.037	0.32
Phenanthrene	mg/kg		0.64	4.4	0.18	0.25	0.23	0.052	0.081 U	0.044	0.14	0.41	0.07	0.57 J
Pyrene	mg/kg	23,000	1.4	6.2	0.32	0.39	0.33	0.064	0.01 J	0.14	0.28	0.77	0.16	0.62 J
PCBs														
Aroclor 1242	mg/kg	0.97	0.053 J	N/A	0.018 U	N/A	0.18 U	N/A	0.18 U	N/A	0.088 U	N/A	0.018 U	N/A
Aroclor 1248	mg/kg	0.94	0.089 U	N/A	0.018 U	N/A	0.18 U	N/A	0.18 U	N/A	0.088 U	N/A	0.018 U	N/A
Aroclor 1254	mg/kg	0.97	0.089 U	N/A	0.067 J	N/A	0.16 J	N/A	0.18 U	N/A	0.096	N/A	0.019 J	N/A
Aroclor 1260	mg/kg	0.99	0.078 J	N/A	0.07 J	N/A	0.098 U	N/A	0.18 U	N/A	0.083 U	N/A	0.018 U	N/A
Aroclor 1268	mg/kg		0.089 U	N/A	0.018 U	N/A	0.18 U	N/A	0.18 U	N/A	0.088 U	N/A	0.018 U	N/A
PCBs (total)	mg/kg	0.97	0.8 U	N/A	0.14 J	N/A	1.6 U	N/A	1.7 U	N/A	0.79 U	N/A	0.17 U	N/A
TPH/Oil & Grease														
Diesel Range Organics	mg/kg	6,200	77.1	434	119 J	228	323	203	386	27.2	119 J	131	88	103 J
Gasoline Range Organics	mg/kg	6,200	13 U	10.7 U	11.8 UJ	9.8 UJ	12.4 U	11.7 U	12.7 U	11 U	13.1 UJ	11.7 UJ	11.9 UJ	11.1 UJ
Oil & Grease	mg/kg	6,200	263	1,120	845 J-	844 J-	976 J-	514 J-	5,830 J-	118 J-	1,460 J-	1,590 J-	419 J-	730 J-

Detections in bold

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

*Indicates non-validated data

[^]PAH compounds were analyzed via SIM

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

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

UJ: This analyte was not detected in the sample. The actual 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 reported for this analyte is a quantitative estimate.

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

**Table 6 - Parcel B24
Summary of Organics Detected in Soil**

Parameter	Units	PAL	B24-013-SB-1*	B24-013-SB-5*	B24-014-SB-1*	B24-014-SB-5*	B24-015-SB-1*	B24-016-SB-1*	B24-016-SB-5*	B24-017-SB-1	B24-017-SB-5	B24-018-SB-1	B24-018-SB-5	B24-019-SB-1
			4/14/2020	4/14/2020	4/14/2020	4/14/2020	4/16/2020	4/16/2020	4/16/2020	4/20/2020	4/20/2020	4/17/2020	4/17/2020	4/20/2020
Volatile Organic Compounds														
2-Butanone (MEK)	mg/kg	190,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Acetone	mg/kg	670,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzene	mg/kg	5.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Carbon disulfide	mg/kg	3,500	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cyclohexane	mg/kg	27,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ethylbenzene	mg/kg	25	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Toluene	mg/kg	47,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Semi-Volatile Organic Compounds[^]														
1,1-Biphenyl	mg/kg	200	0.76 U	0.071 U	0.72 U	0.07 U	0.72 U	0.045 J	0.058 J	0.72 U	0.73 U	0.7 U	0.073 U	0.072 U
2-Methylnaphthalene	mg/kg	3,000	0.0075 U	0.045	0.0038 J	0.0041 J	0.065 J	0.12	0.34	0.012	0.008 U	0.04	0.013	0.034
3,3'-Dichlorobenzidine	mg/kg	5.1	0.76 U	0.071 U	0.72 U	0.07 U	0.72 U	0.07 U	0.069 U	0.72 UJ	0.73 UJ	0.7 UJ	0.073 UJ	0.072 UJ
Acenaphthene	mg/kg	45,000	0.00087 J	0.0032 J	0.0073 U	0.0014 J	0.07 J	0.11	0.024 J	0.016	0.0084	0.095	0.039	0.012
Acenaphthylene	mg/kg	45,000	0.0075 U	0.0015 J	0.0073 U	0.0017 J	0.055 J	0.075	0.021 J	0.0074 J	0.0019 J	0.056	0.0074	0.0083
Acetophenone	mg/kg	120,000	0.76 U	0.071 U	0.72 U	0.07 U	0.72 U	0.07 U	0.061 J	0.72 U	0.73 U	0.7 U	0.073 U	0.072 U
Anthracene	mg/kg	230,000	0.00072 J	0.0034 J	0.0073 U	0.0041 J	0.11	0.17	0.077	0.015	0.0071 J	0.093	0.039	0.018
Benz[a]anthracene	mg/kg	21	0.0055 J	0.019	0.0013 J	0.039	0.67	1.3	0.34	0.19	0.096	0.72	0.24	0.18
Benzaldehyde	mg/kg	120,000	0.76 U	0.071 U	0.72 U	0.07 U	0.72 U	0.07 U	0.033 J	0.72 U	0.73 U	0.7 U	0.073 U	0.072 U
Benzo[a]pyrene	mg/kg	2.1	0.0096	0.022	0.0014 J	0.049	1.2	2.3	0.44	0.4	0.24	1.2	0.35	0.29
Benzo[b]fluoranthene	mg/kg	21	0.011	0.032	0.0031 J	0.071	1.9	3.8	0.86	0.56	0.35	1.4	0.41	0.34
Benzo[g,h,i]perylene	mg/kg		0.0091	0.022	0.0022 J	0.033	0.79	1.6	0.3	0.2	0.3	0.64	0.19	0.21
Benzo[k]fluoranthene	mg/kg	210	0.0045 J	0.011	0.0073 U	0.025	1.5	2.9	0.67	0.23	0.1	0.39	0.13	0.098
bis(2-Ethylhexyl)phthalate	mg/kg	160	0.76 U	0.08	0.72 U	1	0.72 U	0.041 J	0.05 J	0.72 U	0.73 U	0.7 U	0.022 B	0.079
Caprolactam	mg/kg	400,000	1.9 U	0.026 J	1.8 U	0.025 J	1.8 U	0.18 U	0.17 U	1.8 U	1.8 U	1.8 U	0.18 U	0.18 U
Carbazole	mg/kg		0.76 U	0.071 U	0.72 U	0.07 U	0.24 J	0.099	0.039 J	0.72 U	0.73 U	0.7 U	0.025 J	0.018 J
Chrysene	mg/kg	2,100	0.0089	0.024	0.0051 J	0.046	0.64	1.2	0.39	0.23	0.095	0.64	0.2	0.17
Dibenz[a,h]anthracene	mg/kg	2.1	0.0019 J	0.0054 J	0.0073 U	0.0093	0.24	0.49	0.11	0.061	0.082	0.18	0.052	0.054
Diethylphthalate	mg/kg	660,000	0.76 U	0.017 J	0.72 U	0.018 J	0.72 U	0.07 U	0.018 J	0.72 U	0.73 U	0.7 U	0.073 U	0.02 J
Di-n-butylphthalate	mg/kg	82,000	0.76 U	0.082	0.72 U	0.097	0.72 U	0.059 J	0.087	0.72 U	0.73 U	0.7 U	0.073 U	0.13
Di-n-octylphthalate	mg/kg	8,200	0.76 U	0.071 U	0.72 U	0.07 U	0.72 U	0.07 U	0.069 U	0.72 U	0.73 U	0.7 U	0.073 UJ	0.072 U
Fluoranthene	mg/kg	30,000	0.0062 J	0.036	0.0025 J	0.048	0.78	1.5	0.37	0.27	0.095	0.91	0.36	0.18
Fluorene	mg/kg	30,000	0.0075 U	0.0032 J	0.0073 U	0.00077 J	0.023 J	0.034 J	0.016 J	0.0013 J	0.0016 J	0.024	0.0092	0.0046 J
Indeno[1,2,3-c,d]pyrene	mg/kg	21	0.0065 J	0.015	0.0073 U	0.027	0.77	1.6	0.29	0.26	0.36	1.1	0.23	0.24
Naphthalene	mg/kg	8.6	0.0075 U	0.03	0.0073 U	0.0071 U	0.17	0.26	0.34	0.032	0.0023 J	0.16	0.026	0.063
Phenanthrene	mg/kg		0.004 J	0.026	0.0044 J	0.017	0.36	0.57	0.39	0.11	0.029	0.33	0.2	0.098
Pyrene	mg/kg	23,000	0.0071 J	0.039	0.0035 J	0.051	0.73	1.4	0.64	0.23	0.094	0.88	0.29	0.18
PCBs														
Aroclor 1242	mg/kg	0.97	0.019 U	N/A	0.018 U	N/A	0.089 U	0.017 U	N/A	0.018 U	N/A	0.089 U	N/A	0.018 U
Aroclor 1248	mg/kg	0.94	0.019 U	N/A	0.018 U	N/A	0.089 U	0.017 U	N/A	0.018 U	N/A	0.089 U	N/A	0.018 U
Aroclor 1254	mg/kg	0.97	0.019 U	N/A	0.018 U	N/A	0.089 U	0.017 U	N/A	0.08	N/A	0.089 U	N/A	0.017 U
Aroclor 1260	mg/kg	0.99	0.019 U	N/A	0.018 U	N/A	0.089 U	0.095	N/A	0.076	N/A	0.053 J	N/A	0.017 J
Aroclor 1268	mg/kg		0.019 U	N/A	0.018 U	N/A	0.54	0.017 U	N/A	0.018 U	N/A	0.089 U	N/A	0.018 U
PCBs (total)	mg/kg	0.97	0.17 U	N/A	0.16 U	N/A	0.54 J	0.095 J	N/A	0.16 J	N/A	0.8 U	N/A	0.16 U
TPH/Oil & Grease														
Diesel Range Organics	mg/kg	6,200	18.5	29.9	29.9	22.1	67.1	75.9	64	166	17.6 J	43.9 J	44.4 J	54.8 J
Gasoline Range Organics	mg/kg	6,200	19.8	12.2 U	13.3 U	9 J	11 U	11.6 U	12.1	10.7 U	12.2 U	9.6 UJ	10 UJ	11.2 U
Oil & Grease	mg/kg	6,200	175	129	180	58.7 J	217	168	241	527 J-	119 J-	200 J-	94.2 J-	926 J-

Detections in bold

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

*Indicates non-validated data

[^]PAH compounds were analyzed via SIM

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

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

UJ: This analyte was not detected in the sample. The actual 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 reported for this analyte is a quantitative estimate.

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

**Table 6 - Parcel B24
Summary of Organics Detected in Soil**

Parameter	Units	PAL	B24-019-SB-5	B24-020-SB-1	B24-020-SB-8	B24-021-SB-1*	B24-021-SB-5*	B24-022-SB-1*	B24-022-SB-5*	B24-023-SB-1*	B24-023-SB-5*	B24-024-SB-1*	B24-024-SB-5*	B24-025-SB-1*
			4/20/2020	4/17/2020	4/17/2020	4/21/2020	4/21/2020	4/21/2020	4/21/2020	4/21/2020	4/21/2020	4/21/2020	4/21/2020	4/21/2020
Volatile Organic Compounds														
2-Butanone (MEK)	mg/kg	190,000	N/A	N/A	0.0088 UJ	N/A	N/A							
Acetone	mg/kg	670,000	N/A	N/A	0.0071 B	N/A	N/A							
Benzene	mg/kg	5.1	N/A	N/A	0.0044 U	N/A	N/A							
Carbon disulfide	mg/kg	3,500	N/A	N/A	0.0044 U	N/A	N/A							
Cyclohexane	mg/kg	27,000	N/A	N/A	0.0088 U	N/A	N/A							
Ethylbenzene	mg/kg	25	N/A	N/A	0.0044 U	N/A	N/A							
Toluene	mg/kg	47,000	N/A	N/A	0.0044 U	N/A	N/A							
Semi-Volatile Organic Compounds[^]														
1,1-Biphenyl	mg/kg	200	0.72 U	0.71 U	0.069 U	0.71 U	0.14	0.076	0.13	0.027 J	0.11	0.022 J	0.07 U	0.74 U
2-Methylnaphthalene	mg/kg	3,000	0.14	0.023	0.0069 U	0.096	0.1	0.098	0.088	0.23	0.22	0.059	0.033	0.029
3,3'-Dichlorobenzidine	mg/kg	5.1	0.72 UJ	0.71 UJ	0.069 UJ	0.71 U	0.071 U	0.072 U	0.072 U	0.069 U	0.075 U	0.072 U	0.07 U	0.74 U
Acenaphthene	mg/kg	45,000	0.019	0.022	0.0069 U	0.11	0.049	0.09	0.075	0.025	0.026	0.049	0.0048 J	0.012
Acenaphthylene	mg/kg	45,000	0.017	0.077	0.0069 U	0.19	0.12	0.15	0.061	0.045	0.09	0.066	0.012	0.18
Acetophenone	mg/kg	120,000	0.72 U	0.71 U	0.069 U	0.71 U	0.071 U	0.072 U	0.072 U	0.069 U	0.075 U	0.072 U	0.07 U	0.74 U
Anthracene	mg/kg	230,000	0.068	0.14	0.00055 J	0.18	0.1	0.28	0.098	0.029	0.077	0.093	0.026	0.24
Benz[a]anthracene	mg/kg	21	0.48	0.45	0.0023 J	1.5	0.42	2.4	0.5	0.21	0.38	0.33	0.13	1.7
Benzaldehyde	mg/kg	120,000	0.72 U	0.71 U	0.069 U	0.71 U	0.071 U	0.072 U	0.016 J	0.069 U	0.017 J	0.072 U	0.07 U	0.74 U
Benzo[a]pyrene	mg/kg	2.1	0.67	0.42	0.0053 B	1.2	0.56	2.3	0.86	0.35	0.47	0.44	0.11	1.6
Benzo[b]fluoranthene	mg/kg	21	0.83	0.74	0.0076 J	1.6	0.64	3.6	1	0.44	0.68	0.52	0.18	2.4
Benzo[g,h,i]perylene	mg/kg		0.48	0.33	0.0069	0.92	0.39	1.7	0.83	0.26	0.4	0.41	0.067	0.77
Benzo[k]fluoranthene	mg/kg	210	0.24	0.24	0.0021 B	0.44	0.22	0.99	0.34	0.11	0.2	0.2	0.057	1
bis(2-Ethylhexyl)phthalate	mg/kg	160	0.72 U	0.71 U	0.069 U	0.71 U	0.025 J	0.031 J	0.022 J	0.13	0.037 J	0.022 J	0.021 J	0.74 U
Caprolactam	mg/kg	400,000	1.8 U	1.8 U	0.17 U	1.8 U	0.18 U	0.023 J	0.023 J	0.032 J	0.03 J	0.18 U	0.023 J	1.9 U
Carbazole	mg/kg		0.72 U	0.71 U	0.069 U	0.71 U	0.058 J	0.14	0.062 J	0.022 J	0.044 J	0.072 U	0.02 J	0.74 U
Chrysene	mg/kg	2,100	0.52	0.46	0.0024 J	0.91	0.4	2	0.47	0.2	0.42	0.34	0.13	1.8
Dibenz[a,h]anthracene	mg/kg	2.1	0.15	0.092	0.002 J	0.24	0.12	0.47	0.21	0.076	0.12	0.11	0.023	0.36
Diethylphthalate	mg/kg	660,000	0.72 U	0.71 U	0.069 U	0.71 U	0.071 U	0.072 U	0.072 U	0.021 J	0.016 J	0.072 U	0.07 U	0.74 U
Di-n-butylphthalate	mg/kg	82,000	0.72 U	0.71 U	0.069 U	0.71 U	0.062 B	0.066 B	0.057 B	0.065 B	0.058 B	0.041 B	0.065 B	0.74 U
Di-n-ocetylphthalate	mg/kg	8,200	0.72 U	0.71 U	0.069 U	0.71 U	0.071 U	0.072 U	0.072 U	0.069 U	0.093	0.072 U	0.026 J	0.74 U
Fluoranthene	mg/kg	30,000	0.49	1.2	0.0036 J	1.1	0.46	2.4	0.63	0.21	0.46	0.52	0.21	1.9
Fluorene	mg/kg	30,000	0.0077 J	0.014	0.0069 U	0.03	0.027	0.046	0.027	0.015	0.02	0.021	0.0039 J	0.017
Indeno[1,2,3-c,d]pyrene	mg/kg	21	0.53	0.39	0.0075 J	1	0.49	2	0.84	0.31	0.46	0.44	0.082	0.86
Naphthalene	mg/kg	8.6	0.14	0.038	0.0019 J	0.29	0.47	0.36	0.29	0.54	0.71	0.23	0.057	0.02
Phenanthrene	mg/kg		0.31	0.25	0.0025 J	0.6	0.3	0.85	0.37	0.11	0.23	0.32	0.085	0.66
Pyrene	mg/kg	23,000	0.61	0.94	0.0029 J	0.93	0.5	3	0.54	0.21	0.64	0.5	0.19	2.1
PCBs														
Aroclor 1242	mg/kg	0.97	N/A	0.09 U	N/A	0.17 U	N/A	0.091 U	N/A	0.088 U	N/A	0.09 U	N/A	0.018 U
Aroclor 1248	mg/kg	0.94	N/A	0.09 U	N/A	0.17 U	N/A	0.064 J	N/A	0.058 J	N/A	0.09 U	N/A	0.018 U
Aroclor 1254	mg/kg	0.97	N/A	0.16	N/A	0.12 J	N/A	0.2	N/A	0.075 J	N/A	0.09 U	N/A	0.018 U
Aroclor 1260	mg/kg	0.99	N/A	0.097	N/A	0.094 J	N/A	0.13	N/A	0.062 J	N/A	0.09 U	N/A	0.018 U
Aroclor 1268	mg/kg		N/A	0.09 U	N/A	0.17 U	N/A	0.091 U	N/A	0.088 U	N/A	0.09 U	N/A	0.018 U
PCBs (total)	mg/kg	0.97	N/A	0.26 J	N/A	1.6 U	N/A	0.39 J	N/A	0.79 U	N/A	0.81 U	N/A	0.16 U
TPH/Oil & Grease														
Diesel Range Organics	mg/kg	6,200	237	89.7 J	8.3 J	137	101	234	138	75.1	302	38.3	101	112
Gasoline Range Organics	mg/kg	6,200	9.8 U	9.6 UJ	10.6 UJ	10.1 U	7.9 U	10.7 U	11.7 U	11.1 U	11.6 U	10.9 U	11.1 J	10.8 U
Oil & Grease	mg/kg	6,200	343 J-	468 J-	42.1 J-	933	171	387	161	245	1,110	195	260	361

Detections in bold

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

*Indicates non-validated data

[^]PAH compounds were analyzed via SIM

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

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

UJ: This analyte was not detected in the sample. The actual 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 reported for this analyte is a quantitative estimate.

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

**Table 6 - Parcel B24
Summary of Organics Detected in Soil**

Parameter	Units	PAL	B24-025-SB-5*	B24-025-SB-10*	B24-025-SB-15*	B24-026-SB-1*	B24-026-SB-5*	B24-026-SB-10*	B24-026-SB-16*	B24-027-SB-1*	B24-027-SB-5*	B24-028-SB-1*	B24-028-SB-5*	B24-029-SB-1
			4/14/2020	4/14/2020	4/15/2020	4/14/2020	4/14/2020	4/14/2020	4/14/2020	4/14/2020	4/16/2020	4/16/2020	4/21/2020	4/21/2020
Volatile Organic Compounds														
2-Butanone (MEK)	mg/kg	190,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Acetone	mg/kg	670,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzene	mg/kg	5.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Carbon disulfide	mg/kg	3,500	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cyclohexane	mg/kg	27,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ethylbenzene	mg/kg	25	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Toluene	mg/kg	47,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Semi-Volatile Organic Compounds[^]														
1,1-Biphenyl	mg/kg	200	0.073 U	0.077 U	0.076 U	0.073 U	0.079 U	0.079 U	0.072 U	0.7 U	2.1	0.21	0.047 J	0.75 U
2-Methylnaphthalene	mg/kg	3,000	0.013	0.006 J	0.077 U	0.062	0.028	0.014	0.0073 U	0.041 J	0.14	0.15	0.28	0.031
3,3'-Dichlorobenzidine	mg/kg	5.1	0.073 U	0.077 U	0.076 U	0.073 U	0.079 U	0.079 U	0.072 U	0.7 U	0.71 U	0.073 U	0.073 U	0.75 UJ
Acenaphthene	mg/kg	45,000	0.0025 J	0.0018 J	0.0069 J	0.012	0.0066 J	0.0048 J	0.00093 J	0.057 J	0.23	0.1	0.13	0.12
Acenaphthylene	mg/kg	45,000	0.017	0.012	0.0076 J	0.063	0.082	0.045	0.0029 J	0.06 J	0.035 J	0.14	0.11	0.051
Acetophenone	mg/kg	120,000	0.073 U	0.077 U	0.076 U	0.073 U	0.079 U	0.079 U	0.072 U	0.7 U	0.71 U	0.073 U	0.02 J	0.75 U
Anthracene	mg/kg	230,000	0.054	0.013	0.025 J	0.098	0.14	0.073	0.0052 J	0.12	0.23	0.14	0.33	0.26
Benz[a]anthracene	mg/kg	21	0.088	0.087	0.074 J	0.39	0.95	0.33	0.019	0.44	1.3	0.69	1.2	1.5
Benzaldehyde	mg/kg	120,000	0.073 U	0.077 U	0.076 U	0.073 U	0.079 U	0.079 U	0.072 U	0.7 U	0.71 U	0.073 U	0.018 J	0.75 U
Benzo[a]pyrene	mg/kg	2.1	0.087	0.084	0.057 J	0.39	0.79	0.28	0.016	0.72	2.5	0.82	1.1	1.4
Benzo[b]fluoranthene	mg/kg	21	0.16	0.15	0.14	0.66	1.5	0.51	0.032	1.4	3.9	1.1	1.4	2.1
Benzo[g,h,i]perylene	mg/kg		0.067	0.05	0.044 J	0.21	0.43	0.13	0.0081	0.2	1.5	0.6	0.79	1
Benzo[k]fluoranthene	mg/kg	210	0.061	0.052	0.11	0.25	0.53	0.17	0.0089	1.1	3	0.33	0.51	0.51
bis(2-Ethylhexyl)phthalate	mg/kg	160	0.1	0.07 J	0.076 U	0.063 J	0.04 J	0.047 J	0.077	0.7 U	0.71 U	0.028 J	0.028 J	0.75 U
Caprolactam	mg/kg	400,000	0.029 J	0.028 J	0.19 U	0.18 U	0.2 U	0.2 U	0.035 J	1.8 U	1.8 U	0.18 U	0.028 J	1.9 U
Carbazole	mg/kg		0.021 J	0.077 U	0.035 J	0.15	0.12	0.044 J	0.072 U	0.7 U	0.71 U	0.072 J	0.065 J	0.75 U
Chrysene	mg/kg	2,100	0.11	0.1	0.078	0.39	0.96	0.35	0.021	0.42	1.2	0.62	0.92	1.3
Dibenz[a,h]anthracene	mg/kg	2.1	0.024	0.02	0.077 U	0.087	0.2	0.06	0.0036 J	0.086	0.46	0.18	0.21	0.3
Diethylphthalate	mg/kg	660,000	0.02 J	0.016 J	0.076 U	0.073 U	0.079 U	0.079 U	0.02 J	0.7 U	0.71 U	0.073 U	0.073 U	0.75 U
Di-n-butylphthalate	mg/kg	82,000	0.093	0.071 J	0.049 J	0.06 J	0.047 J	0.048 J	0.078	0.7 U	0.71 U	0.072 B	0.058 B	0.75 U
Di-n-octylphthalate	mg/kg	8,200	0.073 U	0.077 U	0.076 U	0.073 U	0.079 U	0.079 U	0.072 U	0.7 U	0.71 U	0.073 U	0.027 J	0.75 U
Fluoranthene	mg/kg	30,000	0.12	0.14	0.13	0.62	1.4	0.49	0.029	0.62	1.5	0.72	1.9	2.4
Fluorene	mg/kg	30,000	0.0049 J	0.0016 J	0.0099 J	0.026	0.0095	0.0099	0.00095 J	0.047 J	0.051 J	0.038	0.027 J	0.093
Indeno[1,2,3-c,d]pyrene	mg/kg	21	0.065	0.05	0.041 J	0.22	0.48	0.15	0.0093	0.23	1.5	0.72	0.91	0.84
Naphthalene	mg/kg	8.6	0.014	0.0089	0.077 U	0.058	0.051	0.02	0.0032 J	0.094	0.78	0.55	0.85	0.048
Phenanthrene	mg/kg		0.059	0.049	0.091	0.38	0.67	0.23	0.018	0.37	0.79	0.43	1.5	1
Pyrene	mg/kg	23,000	0.11	0.11	0.11	0.49	1.1	0.37	0.023	0.55	1.6	0.87	1.5	1.9
PCBs														
Aroclor 1242	mg/kg	0.97	N/A	N/A	N/A	0.018 U	N/A	N/A	N/A	0.018 U	N/A	0.091 U	N/A	0.019 U
Aroclor 1248	mg/kg	0.94	N/A	N/A	N/A	0.018 U	N/A	N/A	N/A	0.093	N/A	0.052 J	N/A	0.019 U
Aroclor 1254	mg/kg	0.97	N/A	N/A	N/A	0.018 U	N/A	N/A	N/A	0.018 U	N/A	0.067 J	N/A	0.019 U
Aroclor 1260	mg/kg	0.99	N/A	N/A	N/A	0.018 U	N/A	N/A	N/A	0.073	N/A	0.072 J	N/A	0.048 NJ
Aroclor 1268	mg/kg		N/A	N/A	N/A	0.018 U	N/A	N/A	N/A	0.018 U	N/A	0.091 U	N/A	0.019 U
PCBs (total)	mg/kg	0.97	N/A	N/A	N/A	0.16 U	N/A	N/A	N/A	0.17	N/A	0.82 U	N/A	0.048 NJ
TPH/Oil & Grease														
Diesel Range Organics	mg/kg	6,200	34.2	78	67.4	61.7	75.2	31.4	45.5	157	199	128	198	144
Gasoline Range Organics	mg/kg	6,200	11.5 U	9.3 U	9.7 U	12.4 U	10.7 U	9.7 U	11.2 U	11 U	11.8 U	13.5 U	11.8 U	13.2 UJ
Oil & Grease	mg/kg	6,200	124	283	637	156	158	105 J	98.6 J	731	676	416	487	249 J-

Detections in bold

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

*Indicates non-validated data

[^]PAH compounds were analyzed via SIM

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

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

UJ: This analyte was not detected in the sample. The actual 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 reported for this analyte is a quantitative estimate.

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

**Table 6 - Parcel B24
Summary of Organics Detected in Soil**

Parameter	Units	PAL	B24-029-SB-9	B24-030-SB-1	B24-030-SB-9	B24-031-SB-1.5	B24-031-SB-5	B24-032-SB-1*	B24-032-SB-5*	B24-032-SB-10*	B24-033-SB-1*	B24-033-SB-5*
			4/20/2020	4/17/2020	4/17/2020	4/17/2020	4/17/2020	4/15/2020	4/15/2020	4/15/2020	4/15/2020	4/15/2020
Volatile Organic Compounds												
2-Butanone (MEK)	mg/kg	190,000	0.011 U	N/A	0.0068 J	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Acetone	mg/kg	670,000	0.0069 B	N/A	0.011 B	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzene	mg/kg	5.1	0.0057 U	N/A	0.001 J	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Carbon disulfide	mg/kg	3,500	0.0057 U	N/A	0.0058 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cyclohexane	mg/kg	27,000	0.011 U	N/A	0.0026 J	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ethylbenzene	mg/kg	25	0.0057 U	N/A	0.0058 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Toluene	mg/kg	47,000	0.0057 U	N/A	0.002 J	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Semi-Volatile Organic Compounds^												
1,1-Biphenyl	mg/kg	200	0.72 U	0.73 U	0.074 U	0.73 U	0.71 U	0.76 U	0.81 U	N/A	0.74 U	0.086 U
2-Methylnaphthalene	mg/kg	3,000	0.14	0.059	0.01	0.035 J	0.01	0.38	0.089	N/A	0.61	0.0048 J
3,3'-Dichlorobenzidine	mg/kg	5.1	0.72 UJ	0.73 UJ	0.074 UJ	0.73 UJ	0.71 UJ	0.76 U	0.81 U	N/A	0.74 U	0.086 U
Acenaphthene	mg/kg	45,000	0.024	0.056	0.0062 J	0.11	0.0071 U	0.064 J	0.082 U	N/A	0.03 J	0.0022 J
Acenaphthylene	mg/kg	45,000	0.033	0.049	0.031	0.073	0.0096	0.68	0.014 J	N/A	1.4	0.0086 U
Acetophenone	mg/kg	120,000	0.72 U	0.73 U	0.074 U	0.73 U	0.71 U	0.76 U	0.81 U	N/A	0.74 U	0.086 U
Anthracene	mg/kg	230,000	0.077	0.22	0.023	0.6	0.0057 J	0.45	0.015 J	N/A	0.85	0.0086 U
Benz[a]anthracene	mg/kg	21	0.16	2.1	0.1	3.6	0.016	1.8	0.053 J	N/A	1.7	0.002 J
Benzaldehyde	mg/kg	120,000	0.72 U	0.73 U	0.074 U	0.73 U	0.71 U	0.76 U	0.81 U	N/A	0.74 U	0.086 U
Benzo[a]pyrene	mg/kg	2.1	0.17	1.9	0.12	3.1	0.03	2.2	0.1	N/A	3.4	0.0014 J
Benzo[b]fluoranthene	mg/kg	21	0.26	2.4	0.16	5.6	0.048	4.8	0.18	N/A	8.5	0.0022 J
Benzo[g,h,i]perylene	mg/kg		0.1	1.1	0.058	1.3	0.035	1.1	0.077 J	N/A	1.4	0.0086 U
Benzo[k]fluoranthene	mg/kg	210	0.061	0.61	0.055	1.4	0.013	3.7	0.14	N/A	6.6	0.0086 U
bis(2-Ethylhexyl)phthalate	mg/kg	160	0.72 U	0.73 U	0.016 B	0.73 U	0.71 U	0.76 U	0.81 U	N/A	0.74 U	0.086 U
Caprolactam	mg/kg	400,000	1.8 U	1.8 U	0.19 U	1.8 U	1.8 U	1.9 U	2 U	N/A	1.9 U	0.045 J
Carbazole	mg/kg		0.72 U	0.73 U	0.018 J	0.73 U	0.71 U	0.76 U	0.81 U	N/A	0.74 U	0.086 U
Chrysene	mg/kg	2,100	0.17	1.6	0.096	3.1	0.02	1.8	0.13	N/A	1.9	0.0014 J
Dibenz[a,h]anthracene	mg/kg	2.1	0.034	0.23	0.019	0.46	0.0086	0.45	0.05 J	N/A	0.67	0.0086 U
Diethylphthalate	mg/kg	660,000	0.72 U	0.73 U	0.074 U	0.73 U	0.71 U	0.76 U	0.81 U	N/A	0.74 U	0.017 J
Di-n-butylphthalate	mg/kg	82,000	0.72 U	0.73 U	0.074 U	0.73 U	0.71 U	0.76 U	0.81 U	N/A	0.74 U	0.064 J
Di-n-octylphthalate	mg/kg	8,200	0.72 U	0.73 UJ	0.074 UJ	0.73 UJ	0.71 UJ	0.76 U	0.81 U	N/A	0.74 U	0.086 U
Fluoranthene	mg/kg	30,000	0.25	2.7	0.16	5.9	0.019	2.2	0.07 J	N/A	1.6	0.0016 J
Fluorene	mg/kg	30,000	0.035	0.044	0.0075 J	0.063	0.0071 U	0.061 J	0.082 U	N/A	0.033 J	0.0086 U
Indeno[1,2,3-c,d]pyrene	mg/kg	21	0.12	1.4	0.073	1.8	0.035	1.2	0.039 J	N/A	1.6	0.0086 U
Naphthalene	mg/kg	8.6	0.75	0.14	0.035	0.074	0.012	0.35	0.082	N/A	0.58	0.0055 J
Phenanthrene	mg/kg		0.27	1	0.086	2.2	0.016	0.84	0.094	N/A	0.9	0.0028 J
Pyrene	mg/kg	23,000	0.21	2.4	0.13	5.2	0.026	2.4	0.076 J	N/A	1.8	0.0014 J
PCBs												
Aroclor 1242	mg/kg	0.97	N/A	0.18 U	N/A	0.089 U	N/A	0.019 U	N/A	N/A	0.094 U	N/A
Aroclor 1248	mg/kg	0.94	N/A	0.18 U	N/A	0.089 U	N/A	0.019 U	N/A	N/A	0.094 U	N/A
Aroclor 1254	mg/kg	0.97	N/A	0.38	N/A	0.12	N/A	0.019 U	N/A	N/A	0.094 U	N/A
Aroclor 1260	mg/kg	0.99	N/A	0.21	N/A	0.12 J	N/A	0.019 U	N/A	N/A	0.094 U	N/A
Aroclor 1268	mg/kg		N/A	0.18 U	N/A	0.089 U	N/A	0.019 U	N/A	N/A	0.094 U	N/A
PCBs (total)	mg/kg	0.97	N/A	0.59 J	N/A	0.24 J	N/A	0.17 U	N/A	N/A	0.84 U	N/A
TPH/Oil & Grease												
Diesel Range Organics	mg/kg	6,200	238	235 J	31.6 J	211 J	25.2 J	86.7	1,010	N/A	146	8.9
Gasoline Range Organics	mg/kg	6,200	9.6 UJ	12.5 UJ	9.8 UJ	12.7 UJ	12.9 UJ	12.5 U	19.1 U	N/A	12.6 J	21.4 U
Oil & Grease	mg/kg	6,200	496 J-	2,630 J-	113 UJ	1,050 J-	731 J-	679	32,200	68.9 J	640	133 U

Detections in bold

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

*Indicates non-validated data

^PAH compounds were analyzed via SIM

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

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

UJ: This analyte was not detected in the sample. The actual 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 reported for this analyte is a quantitative estimate.

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

**Table 6 - Parcel B24
Summary of Organics Detected in Soil**

Parameter	Units	PAL	B24-034-SB-1*	B24-034-SB-5*	B24-035-SB-1*	B24-035-SB-4*	B24-036-SB-1*	B24-036-SB-8*	B24-037-SB-1*	B24-037-SB-8*	B24-037-SB-10*	B24-037-SB-12*
			4/21/2020	4/21/2020	4/15/2020	4/15/2020	4/15/2020	4/15/2020	4/16/2020	4/16/2020	4/16/2020	4/16/2020
Volatile Organic Compounds												
2-Butanone (MEK)	mg/kg	190,000	N/A	N/A	N/A	0.0099 U	N/A	0.021 U	N/A	0.02	N/A	N/A
Acetone	mg/kg	670,000	N/A	N/A	N/A	0.0045 B	N/A	0.0098 B	N/A	0.012 J	N/A	N/A
Benzene	mg/kg	5.1	N/A	N/A	N/A	0.0015 J	N/A	0.011 U	N/A	0.0024 J	N/A	N/A
Carbon disulfide	mg/kg	3,500	N/A	N/A	N/A	0.0049 U	N/A	0.011 U	N/A	0.0039 J	N/A	N/A
Cyclohexane	mg/kg	27,000	N/A	N/A	N/A	0.0099 U	N/A	0.021 U	N/A	0.013	N/A	N/A
Ethylbenzene	mg/kg	25	N/A	N/A	N/A	0.0049 U	N/A	0.011 U	N/A	0.0019 J	N/A	N/A
Toluene	mg/kg	47,000	N/A	N/A	N/A	0.0049 U	N/A	0.011 U	N/A	0.0032 J	N/A	N/A
Semi-Volatile Organic Compounds^												
1,1-Biphenyl	mg/kg	200	0.75 U	0.051 J	0.71 U	0.072 U	0.73 U	0.093 U	0.72 U	0.73 U	0.71 U	0.73 U
2-Methylnaphthalene	mg/kg	3,000	0.18	0.1	0.11	0.047 J	0.13	0.0036 J	0.097	0.024 J	0.07 U	0.044 J
3,3'-Dichlorobenzidine	mg/kg	5.1	0.75 U	0.016 J	0.71 U	0.072 U	0.73 U	0.093 U	0.72 U	0.73 U	0.18 J	0.73 U
Acenaphthene	mg/kg	45,000	0.066	0.082	0.028 J	0.17	0.016 J	0.0034 J	0.014 J	0.018 J	0.023 J	0.057 J
Acenaphthylene	mg/kg	45,000	0.059	0.13	0.088	0.019 J	0.13	0.0091 U	0.083	0.028 J	0.026 J	0.033 J
Acetophenone	mg/kg	120,000	0.75 U	0.072 U	0.71 U	0.072 U	0.73 U	0.093 U	0.72 U	0.73 U	0.71 U	0.73 U
Anthracene	mg/kg	230,000	0.084	0.53	0.076	0.089	0.13	0.0091 U	0.094	0.11	0.035 J	0.19
Benz[a]anthracene	mg/kg	21	0.52	0.66	0.4	0.58	0.58	0.0029 J	0.38	0.41	0.13	0.32
Benzaldehyde	mg/kg	120,000	0.75 U	0.072 U	0.71 U	0.072 U	0.73 U	0.093 U	0.72 U	0.73 U	0.71 U	0.73 U
Benzo[a]pyrene	mg/kg	2.1	0.68	0.9	0.51	1.1	0.8	0.0029 J	0.44	0.42	0.15	0.26
Benzo[b]fluoranthene	mg/kg	21	0.88	1.2	1.1	1.9	1.8	0.0047 J	0.97	1	0.59	0.49
Benzo[g,h,i]perylene	mg/kg		0.46	0.59	0.14	0.38	0.19	0.0091 U	0.2	0.1	0.063 J	0.14
Benzo[k]fluoranthene	mg/kg	210	0.29	0.39	0.83	1.5	1.4	0.0091 U	0.75	0.77	0.46	0.38
bis(2-Ethylhexyl)phthalate	mg/kg	160	0.75 U	0.032 J	0.71 U	0.072 U	0.73 U	0.093 U	0.72 U	0.73 U	0.71 U	0.73 U
Caprolactam	mg/kg	400,000	1.9 U	0.027 J	1.8 U	0.027 J	1.8 U	0.055 J	1.8 U	1.8 U	1.8 U	1.8 U
Carbazole	mg/kg		0.75 U	0.11	0.71 U	0.072 U	0.73 U	0.093 U	0.72 U	0.73 U	0.71 U	0.73 U
Chrysene	mg/kg	2,100	0.5	0.79	0.38	0.54	0.61	0.0025 J	0.41	0.44	0.31	0.37
Dibenz[a,h]anthracene	mg/kg	2.1	0.13	0.18	0.067 J	0.18	0.099	0.0091 U	0.088	0.049 J	0.029 J	0.045 J
Diethylphthalate	mg/kg	660,000	0.75 U	0.072 U	0.71 U	0.072 U	0.73 U	0.019 J	0.72 U	0.73 U	0.71 U	0.73 U
Di-n-butylphthalate	mg/kg	82,000	0.75 U	0.09	0.71 U	0.042 J	0.73 U	0.084 J	0.72 U	0.73 U	0.71 U	0.73 U
Di-n-octylphthalate	mg/kg	8,200	0.75 U	0.073	0.71 U	0.072 U	0.73 U	0.093 U	0.72 U	0.73 U	0.71 U	0.73 U
Fluoranthene	mg/kg	30,000	0.68	1.2	0.57	0.67	0.68	0.0031 J	0.48	0.78	0.21	0.93
Fluorene	mg/kg	30,000	0.024	0.051	0.015 J	0.029 J	0.014 J	0.0091 U	0.015 J	0.036 J	0.02 J	0.075
Indeno[1,2,3-c,d]pyrene	mg/kg	21	0.51	0.84	0.17	0.45	0.24	0.0091 U	0.21	0.1	0.05 J	0.14
Naphthalene	mg/kg	8.6	0.69	0.36	0.11	0.076	0.11	0.01	0.073	0.026 J	0.018 J	0.075
Phenanthrene	mg/kg		0.35	0.53	0.27	0.33	0.31	0.0044 J	0.14	0.42	0.12	0.6
Pyrene	mg/kg	23,000	0.62	0.94	0.54	0.62	0.69	0.0026 J	0.5	0.59	0.22	1.1
PCBs												
Aroclor 1242	mg/kg	0.97	0.093 U	N/A	0.017 U	N/A	0.018 U	N/A	0.018 U	N/A	N/A	N/A
Aroclor 1248	mg/kg	0.94	0.071 J	N/A	0.017 U	N/A	0.018 U	N/A	0.018 U	N/A	N/A	N/A
Aroclor 1254	mg/kg	0.97	0.087 J	N/A	0.017 U	N/A	0.018 U	N/A	0.018 U	N/A	N/A	N/A
Aroclor 1260	mg/kg	0.99	0.053 J	N/A	0.11	N/A	0.018 U	N/A	0.068	N/A	N/A	N/A
Aroclor 1268	mg/kg		0.093 U	N/A	0.017 U	N/A	0.018 U	N/A	0.018 U	N/A	N/A	N/A
PCBs (total)	mg/kg	0.97	0.84 U	N/A	0.11 J	N/A	0.16 U	N/A	0.068 J	N/A	N/A	N/A
TPH/Oil & Grease												
Diesel Range Organics	mg/kg	6,200	89.7	466	69.7	45.3	67.6	12.6	124	1,230	491	252
Gasoline Range Organics	mg/kg	6,200	12.4 U	11.3 U	12.9 U	11.6 U	15.6 U	23.6 U	14.6 U	23.7	9.2 U	9.6 U
Oil & Grease	mg/kg	6,200	306	1,280	441	135	342	140 U	1,900	14,900	19,200	2,860

Detections in bold

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*Indicates non-validated data

^PAH compounds were analyzed via SIM

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

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

UJ: This analyte was not detected in the sample. The actual 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 reported for this analyte is a quantitative estimate.

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

**Table 7 - Parcel B24
Summary of Inorganics Detected in Soil**

Parameter	Units	PAL	B24-001-SB-1*	B24-001-SB-5*	B24-002-SB-1	B24-002-SB-4	B24-003-SB-1*	B24-003-SB-4*	B24-004-SB-1*	B24-004-SB-5*
			4/14/2020	4/14/2020	4/17/2020	4/17/2020	4/16/2020	4/16/2020	4/16/2020	4/16/2020
Metals										
Aluminum	mg/kg	1,100,000	6,960	5,590	11,000 J	7,700 J	6,680	12,700	13,500	5,660
Antimony	mg/kg	470	3.3 U	3.2 U	3.2 UJ	3 UJ	3 U	3.1 U	2.9 U	2.9 U
Arsenic	mg/kg	3	3.3	2.7 U	2.6 U	2.5 U	12.1	7.6	2.4 U	2.4 U
Barium	mg/kg	220,000	148	157	203	125	118	143	143	87.6
Beryllium	mg/kg	2,300	0.78 J	0.8 J	0.87 J	0.34 J	0.82 J	0.81 J	1.1	0.17 J
Cadmium	mg/kg	980	0.59 J	1.3 J	2.2	4.2	1.3 J	1.6 U	1.3 J	1.1 J
Chromium	mg/kg	120,000	640	1,230	973 J	1,530 J	35	81.8	780	1,400
Chromium VI	mg/kg	6.3	0.81 J	3	0.63 J-	0.54 J-	0.84 J	0.79 J	0.79 J	2.7
Cobalt	mg/kg	350	7.3	2.2 J	10.1 J	8.5 J	9.6	7.6	6.3	11.6
Copper	mg/kg	47,000	53.3	28.2	74.6	74.7	62.9	87.6	52.2	35
Iron	mg/kg	820,000	229,000	148,000	134,000	185,000	36,600	72,300	158,000	177,000
Lead	mg/kg	800	35.8	44.7	212	218	99	15.5	75.8	37.4
Manganese	mg/kg	26,000	18,600	23,500	18,100	25,000	1,030	15,200	23,300	26,200
Mercury	mg/kg	350	0.11 U	0.1 U	0.088 J	0.081 J	0.088 J	0.0067 J	0.045 J	0.021 J
Nickel	mg/kg	22,000	40.5	14.6	29.4	23.8	25.7	14.5	21.2	12.6
Selenium	mg/kg	5,800	4.5 U	4.3 U	4.2 U	3.9 U	4 U	4.2 U	3.9 U	3.9 U
Thallium	mg/kg	12	11.2 U	11.6	10.6 U	9.9 U	10.1 U	10.4 U	9.7 U	3.6 J
Vanadium	mg/kg	5,800	903	3,140	1,510	2,820	77	476	821	3,000
Zinc	mg/kg	350,000	194	341	512 J	447 J	293	24	277	218
Other										
Cyanide	mg/kg	150	1.3	0.55 J	1.3 J-	1.1 J-	0.27 J	0.33 J	1	0.52 J

Detections in bold

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

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

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

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

**Table 7 - Parcel B24
Summary of Inorganics Detected in Soil**

Parameter	Units	PAL	B24-005-SB-1	B24-005-SB-4	B24-006-SB-1	B24-006-SB-4	B24-007-SB-1*	B24-007-SB-5*	B24-008-SB-1	B24-008-SB-5
			4/17/2020	4/17/2020	4/17/2020	4/17/2020	4/21/2020	4/21/2020	4/20/2020	4/20/2020
Metals										
Aluminum	mg/kg	1,100,000	12,600 J	12,400 J	7,370 J	8,560 J	6,890	10,600	8,210	10,400
Antimony	mg/kg	470	3.1 UJ	3.1 UJ	2.9 UJ	3 UJ	2.9 U	3 U	3 UJ	3 UJ
Arsenic	mg/kg	3	2.6 U	2.6 U	15.2	6.1	2.4 U	7.3	4.7	2.5 J
Barium	mg/kg	220,000	112	54.5	128	143	186	158	122	274
Beryllium	mg/kg	2,300	0.57 J	1 U	0.39 J	0.42 J	0.69 J	0.96 J	0.79 J	1.3
Cadmium	mg/kg	980	4	1.6	5.8	6.2	1.5	7.3	1.5	1.3 J
Chromium	mg/kg	120,000	1,020 J	1,220 J	728 J	937 J	1,260	964	1,070	1,160
Chromium VI	mg/kg	6.3	0.77 J-	6.4 J-	0.65 J-	0.76 J-	0.6 J	1.1 U	1.1 R	0.55 B
Cobalt	mg/kg	350	6.2 J	2.7 J	13.4 J	9.3 J	6.3	13	13.3	9.6
Copper	mg/kg	47,000	72.6	43.1	182	140	2,050	169	104	80.7
Iron	mg/kg	820,000	170,000	178,000	166,000	169,000	136,000	165,000	167,000	199,000
Lead	mg/kg	800	294	47.8	481	516	115	750	164	122
Manganese	mg/kg	26,000	22,500	28,200	14,600	19,700	32,500	21,800	22,400	29,600
Mercury	mg/kg	350	0.065 J	0.013 J	0.5	0.33	0.083 J	0.18	0.2	0.14
Nickel	mg/kg	22,000	24.2	12.7	62.2	52.3	33.5	46.1	45.8	32.6
Selenium	mg/kg	5,800	4.1 U	4.1 U	3.9 U	4 U	3.8 U	4.1 U	3.9 U	4 U
Thallium	mg/kg	12	10.3 U	10.2 U	9.7 U	10 U	16.9	6 J	6.2 J	8.2 J
Vanadium	mg/kg	5,800	888	809	398	1,060	3,760	1,650	2,160 J	2,760 J
Zinc	mg/kg	350,000	470 J	146 J	909 J	1,020 J	293	1,100	467 J	328 J
Other										
Cyanide	mg/kg	150	1.1 UJ	0.29 J-	1.5 J-	1.1 J-	1.1	1.7	2.7 J-	1.3 J-

Detections in bold

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

**Table 7 - Parcel B24
Summary of Inorganics Detected in Soil**

Parameter	Units	PAL	B24-009-SB-1.5	B24-009-SB-5	B24-010-SB-1	B24-010-SB-5	B24-011-SB-1	B24-011-SB-4	B24-012-SB-1	B24-012-SB-8
			4/20/2020	4/20/2020	4/20/2020	4/20/2020	4/20/2020	4/20/2020	4/20/2020	4/20/2020
Metals										
Aluminum	mg/kg	1,100,000	7,920	7,750	24,200	13,400	19,800	19,100	27,500	15,600
Antimony	mg/kg	470	3 UJ	3.1 UJ	3.1 UJ	3.2 UJ	3 UJ	3 UJ	3 UJ	3.4 UJ
Arsenic	mg/kg	3	2.5 U	11.2	2.6 U	4.4	8.4	9.4	2.5 U	5.8
Barium	mg/kg	220,000	465	127	81.2	41.1	169	182	236	103
Beryllium	mg/kg	2,300	0.94 J	0.7 J	0.48 J	0.41 J	2.1	2	4.6	0.91 J
Cadmium	mg/kg	980	2.2	1.9	0.83 J	1.6 U	3.3	2.3	1.4 J	0.47 J
Chromium	mg/kg	120,000	1,300	77.1	1,330	35.7	346	435	532	54.6
Chromium VI	mg/kg	6.3	0.72 B	1.1 R	1.6 J-	0.81 B	1.1 R	1.1 R	0.55 B	1.3 R
Cobalt	mg/kg	350	4.3 J	17.6	0.72 J	2.6 J	10.9	15.5	3.2 J	5.7 J
Copper	mg/kg	47,000	115	101	20.5	14.5	91.2	74.4	43.6	22.3
Iron	mg/kg	820,000	206,000	70,900	182,000	16,900	89,900	94,300	130,000	29,300
Lead	mg/kg	800	128	567	11.4	16.6	216	382	53.8	83.2
Manganese	mg/kg	26,000	32,400	3,750	27,100	100	6,470	16,700	16,000	1,490
Mercury	mg/kg	350	0.049 J	0.083 J	0.1 U	0.011 J	0.15	0.028 J	0.012 J	0.055 J
Nickel	mg/kg	22,000	18.1	45.2	12.5	7.4 J	64	74.1	19.8	13.4
Selenium	mg/kg	5,800	4 U	4.1 U	4.1 U	4.3 U	4 U	4 U	4 U	4.6 U
Thallium	mg/kg	12	10.7	10.3 U	10.3 U	10.6 U	10.1 U	10 U	10.1 U	11.5 U
Vanadium	mg/kg	5,800	3,200 J	128 J	623 J	46.3 J	214 J	519 J	567 J	119 J
Zinc	mg/kg	350,000	423 J	778 J	223 J	42.6 J	725 J	598 J	801 J	166 J
Other										
Cyanide	mg/kg	150	1.5 J-	2.4 J-	0.62 J-	0.59 J-	2.5 J-	1.3 J-	1.1 J-	0.78 J-

Detections in bold

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**Table 7 - Parcel B24
Summary of Inorganics Detected in Soil**

Parameter	Units	PAL	B24-012-SB-10*	B24-013-SB-1*	B24-013-SB-5*	B24-014-SB-1*	B24-014-SB-5*	B24-015-SB-1*	B24-016-SB-1*	B24-016-SB-5*
			4/20/2020	4/14/2020	4/14/2020	4/14/2020	4/14/2020	4/16/2020	4/16/2020	4/16/2020
Metals										
Aluminum	mg/kg	1,100,000	N/A	13,000	37,900	21,600	39,800	12,000	7,420	8,520
Antimony	mg/kg	470	N/A	3.1 U	2.9 U	3.1 U	3 U	3.1 U	2.9 U	2.9 U
Arsenic	mg/kg	3	8.9	2.6 U	3.1	2.6 U	2.5 U	12.3	4.1	2.4 U
Barium	mg/kg	220,000	N/A	53.4	369	46.5	392	183	131	208
Beryllium	mg/kg	2,300	N/A	0.33 J	7	0.19 J	7.7	1	0.43 J	0.45 J
Cadmium	mg/kg	980	N/A	1.4 J	1.5 U	0.59 J	1.5 U	3.1	11.3	1.4 J
Chromium	mg/kg	120,000	N/A	1,900	21.8	1,200	19.9	649	557	1,370
Chromium VI	mg/kg	6.3	N/A	1 J	1.1 U	4.6	0.62 J	0.76 J	0.64 J	0.72 J
Cobalt	mg/kg	350	N/A	1.7 J	0.89 J	1.2 J	0.79 J	17.6	10.4	8.5
Copper	mg/kg	47,000	N/A	27	4.9 U	20	5.1 U	123	87.1	51.4
Iron	mg/kg	820,000	N/A	196,000	14,300	155,000	25,000	164,000	153,000	194,000
Lead	mg/kg	800	N/A	4.8	3.8	4.3	3.6	322	171	64.3
Manganese	mg/kg	26,000	N/A	32,800	2,410	27,400	2,540	22,100	13,500	23,500
Mercury	mg/kg	350	N/A	0.11 U	0.1 U	0.1 U	0.1 U	0.11	0.1	0.097 J
Nickel	mg/kg	22,000	N/A	24.2	3.3 J	14.9	4.2 J	55.6	40.7	17
Selenium	mg/kg	5,800	N/A	4.2 U	3.9 U	4.1 U	4 J	4.1 U	3.8 U	3.8 U
Thallium	mg/kg	12	N/A	10.4 U	9.8 U	10.3 U	10.1 U	10.2 U	9.5 U	9.6 U
Vanadium	mg/kg	5,800	N/A	905	17.3	713	15.7	964	1,350	2,880
Zinc	mg/kg	350,000	N/A	69.8	5.8	60.3	6.2	684	529	337
Other										
Cyanide	mg/kg	150	N/A	0.57 J	0.64 J	0.57 J	0.83 J	2.4	1.7	1.2

Detections in bold

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**Table 7 - Parcel B24
Summary of Inorganics Detected in Soil**

Parameter	Units	PAL	B24-017-SB-1	B24-017-SB-5	B24-018-SB-1	B24-018-SB-5	B24-019-SB-1	B24-019-SB-5	B24-020-SB-1	B24-020-SB-8
			4/20/2020	4/20/2020	4/17/2020	4/17/2020	4/20/2020	4/20/2020	4/17/2020	4/17/2020
Metals										
Aluminum	mg/kg	1,100,000	16,100	22,500	14,900 J	7,650 J	20,200	8,610	20,600 J	4,240 J
Antimony	mg/kg	470	3 UJ	3.1 UJ	2.9 UJ	3 UJ	3 UJ	3 UJ	2.9 UJ	12.7 J
Arsenic	mg/kg	3	2.5 U	4.2	2.9	2.5 U	2.5 U	2.4 J	2.8	23.9
Barium	mg/kg	220,000	172	277	184	127	205	106	123	51.2
Beryllium	mg/kg	2,300	1.8	3.2	2	0.2 J	2.9	0.72 J	0.62 J	0.21 J
Cadmium	mg/kg	980	2.7	1.4 J	2.9	1 J	1.6	0.95 J	2.7	1.8
Chromium	mg/kg	120,000	582	494	645 J	1,180 J	668	832	874 J	295 J
Chromium VI	mg/kg	6.3	1.1 R	0.58 B	0.7 J-	0.76 J-	0.62 B	0.6 B	0.56 J-	5.6 J-
Cobalt	mg/kg	350	5.2	5.4	7.1 J	7 J	3.4 J	7.6	6.6 J	48.3 J
Copper	mg/kg	47,000	61.3	65.6	60	44	40.6	68.7	86.9	381
Iron	mg/kg	820,000	122,000	105,000	123,000	208,000	109,000	236,000	211,000	267,000
Lead	mg/kg	800	95.2	133	311	124	82.4	61.7	98.8	1,050
Manganese	mg/kg	26,000	14,400	13,400	13,200	26,600	16,200	21,300	26,800	4,700
Mercury	mg/kg	350	0.087 J	0.11 U	0.14	0.035 J	0.046 J	0.063 J	0.067 J	0.098 U
Nickel	mg/kg	22,000	31.9	30.6	27.4	13.6	22.1	29.6	37.4	109
Selenium	mg/kg	5,800	4 U	4.1 U	3.9 U	4 U	4 U	4 U	3.9 U	3.8 U
Thallium	mg/kg	12	9.9 U	10.2 U	9.8 U	10.1 U	10 U	5.7 J	9.8 U	9.6 U
Vanadium	mg/kg	5,800	422 J	944 J	1,030	3,320	647 J	1,950 J	671	878
Zinc	mg/kg	350,000	436 J	240 J	596 J	245 J	335 J	217 J	553 J	1,790 J
Other										
Cyanide	mg/kg	150	1 J-	0.16 J-	1.4 J-	1.1 J-	1.3 J-	3.2 J-	0.99 J-	0.44 J-

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**Table 7 - Parcel B24
Summary of Inorganics Detected in Soil**

Parameter	Units	PAL	B24-021-SB-1*	B24-021-SB-5*	B24-022-SB-1*	B24-022-SB-5*	B24-023-SB-1*	B24-023-SB-5*	B24-024-SB-1*	B24-024-SB-5*
			4/21/2020	4/21/2020	4/21/2020	4/21/2020	4/21/2020	4/21/2020	4/21/2020	4/21/2020
Metals										
Aluminum	mg/kg	1,100,000	7,370	7,240	12,300	8,140	10,400	6,630	21,700	9,430
Antimony	mg/kg	470	2.9 U	2.9 U	3 U	3 U	3 U	3.1 U	3 U	2.9 U
Arsenic	mg/kg	3	2.6	2.4 U	5.4	2.5 U	3.5	3.8	2.5 U	2.4 U
Barium	mg/kg	220,000	66	100	176	98.1	111	77.8	256	162
Beryllium	mg/kg	2,300	0.67 J	0.69 J	1.2	0.81 J	0.89 J	0.44 J	2.5	0.68 J
Cadmium	mg/kg	980	0.73 J	0.78 J	6.3	0.99 J	1.8	1.4 J	1.1 J	2.2
Chromium	mg/kg	120,000	532	1,270	1,120	1,020	916	503	839	1,100
Chromium VI	mg/kg	6.3	1.1 J	1.4	1.1 U	0.57 J	0.55 J	0.65 J	0.67 J	0.95 J
Cobalt	mg/kg	350	5.5	12.1	8.6	6.2	14.4	10.5	8.6	9.4
Copper	mg/kg	47,000	47.6	74.2	110	121	67	151	2,180	91.9
Iron	mg/kg	820,000	143,000	182,000	166,000	195,000	134,000	111,000	129,000	131,000
Lead	mg/kg	800	66.2	81	428	94.4	204	201	172	150
Manganese	mg/kg	26,000	33,300	36,000	18,500	26,700	20,100	11,900	16,400	51,900
Mercury	mg/kg	350	0.11	0.085 J	0.25	0.049 J	0.15	0.11 J	0.049 J	0.029 J
Nickel	mg/kg	22,000	17.4	26.8	36.1	19.4	41.6	34.7	39.1	33.9
Selenium	mg/kg	5,800	3.9 U	3.9 U	4 U	4 U	3.9 U	4.1 U	4 U	3.9 U
Thallium	mg/kg	12	9.7 U	13.8	7.9 J	10.6	7.6 J	4.6 J	3.5 J	9.7 U
Vanadium	mg/kg	5,800	1,530	3,270	1,880	2,760	2,220	1,240	1,500	2,600
Zinc	mg/kg	350,000	188	286	943	383	621	945	257	348
Other										
Cyanide	mg/kg	150	0.37 J	0.98 U	2.4	3	2.3	1.4	1.1 J	0.81 J

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**Table 7 - Parcel B24
Summary of Inorganics Detected in Soil**

Parameter	Units	PAL	B24-025-SB-1*	B24-025-SB-5*	B24-025-SB-10*	B24-025-SB-15*	B24-026-SB-1*	B24-026-SB-5*	B24-026-SB-10*
			4/14/2020	4/14/2020	4/14/2020	4/15/2020	4/14/2020	4/14/2020	4/14/2020
Metals									
Aluminum	mg/kg	1,100,000	8,190	7,730	7,950	14,800	13,900	12,400	14,200
Antimony	mg/kg	470	3.2 U	3 U	3.2 U	3.5 U	3.2 U	3.3 U	3.5 U
Arsenic	mg/kg	3	2.6 U	9.3	5.4	4.9	9.2	11.8	6.4
Barium	mg/kg	220,000	79.2	151	106	305	191	145	75
Beryllium	mg/kg	2,300	0.56 J	0.38 J	0.46 J	1.1 J	1.4	0.68 J	0.61 J
Cadmium	mg/kg	980	1.3 J	2.6	3.4	4.6	1.7	8.1	4.8
Chromium	mg/kg	120,000	518	416	386	264	188	146	90.6
Chromium VI	mg/kg	6.3	0.66 J	0.73 J	0.84 J	0.81 J	1.1 U	1.2 U	0.64 J
Cobalt	mg/kg	350	4.4 J	6.3	7.6	4.6 J	19.3	14.3	8
Copper	mg/kg	47,000	43.6	69.6	70.6	57.5	126	143	44.5
Iron	mg/kg	820,000	108,000	128,000	127,000	72,700	60,300	54,700	57,700
Lead	mg/kg	800	158	489	305	293	176	750	230
Manganese	mg/kg	26,000	10,800	8,410	9,000	8,190	14,100	2,970	1,810
Mercury	mg/kg	350	0.034 J	0.14	0.14	0.053 J	0.18	0.1 J	0.081 J
Nickel	mg/kg	22,000	26.4	33.6	39.6	22	47.1	53.8	26.4
Selenium	mg/kg	5,800	4.2 U	4 U	4.3 U	4.6 U	4.3 U	4.4 U	4.7 U
Thallium	mg/kg	12	10.6 U	10.1 U	10.6 U	11.6 U	10.7 U	11.1 U	11.7 U
Vanadium	mg/kg	5,800	570	394	380	290	173	273	82.4
Zinc	mg/kg	350,000	372	1,010	649	554	552	1,760	753
Other									
Cyanide	mg/kg	150	0.63 J	0.73 J	1.2	1.1	1.5	1.5	0.61 J

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Summary of Inorganics Detected in Soil**

Parameter	Units	PAL	B24-026-SB-16*	B24-027-SB-1*	B24-027-SB-5*	B24-028-SB-1*	B24-028-SB-5*	B24-029-SB-1	B24-029-SB-9
			4/14/2020	4/16/2020	4/16/2020	4/21/2020	4/21/2020	4/20/2020	4/20/2020
Metals									
Aluminum	mg/kg	1,100,000	18,500	10,800	7,960	9,010	6,580	12,800	7,220
Antimony	mg/kg	470	3.3 U	3 U	3 U	3 U	3 U	3 UJ	4.1 J
Arsenic	mg/kg	3	2.8 U	2.5 U	2.5 U	4.4	2.5 U	37.3	25.6
Barium	mg/kg	220,000	200	161	128	118	142	209	161
Beryllium	mg/kg	2,300	2.6	0.85 J	0.36 J	0.72 J	0.71 J	1.8	0.57 J
Cadmium	mg/kg	980	2	1.3 J	1.1 J	4.4	0.54 J	1.5 U	2.7
Chromium	mg/kg	120,000	409	646	1,080	987	1,560	34.3	192
Chromium VI	mg/kg	6.3	0.62 J	1.1 U	0.81 J	1.1 U	0.94 J	1.1 R	1.1 R
Cobalt	mg/kg	350	9.2	9.1	9.6	10.8	4.3 J	10.5	31
Copper	mg/kg	47,000	33	56.2	59	83.9	42.5	45.7	519
Iron	mg/kg	820,000	54,700	118,000	183,000	145,000	166,000	29,000	250,000
Lead	mg/kg	800	98.3	84.3	86.7	240	37.6	31.5	259
Manganese	mg/kg	26,000	3,370	16,800	25,700	18,600	30,700	651	3,780
Mercury	mg/kg	350	0.11 U	0.081 J	0.054 J	0.09 J	0.13	0.012 J	0.097 J
Nickel	mg/kg	22,000	36.1	24.7	26.4	52	13.3	22.1	94.5
Selenium	mg/kg	5,800	4.4 U	4 U	3.9 U	4 U	4 U	4 U	4 U
Thallium	mg/kg	12	11.1 U	9.9 U	9.9 U	9.6 J	17.1	10.1 U	10 U
Vanadium	mg/kg	5,800	144	1,430	2,480	2,280	4,250	75.4 J	440 J
Zinc	mg/kg	350,000	521	366	253	774	112	140 J	628 J
Other									
Cyanide	mg/kg	150	0.54 J	1.8	1.1	1.8	0.67 J	0.5 J-	0.84 J-

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**Table 7 - Parcel B24
Summary of Inorganics Detected in Soil**

Parameter	Units	PAL	B24-030-SB-1	B24-030-SB-9	B24-031-SB-1.5	B24-031-SB-5	B24-032-SB-1*	B24-032-SB-5*	B24-032-SB-10*
			4/17/2020	4/17/2020	4/17/2020	4/17/2020	4/15/2020	4/15/2020	4/15/2020
Metals									
Aluminum	mg/kg	1,100,000	18,400 J	6,180 J	17,500 J	5,440 J	21,500	6,320	N/A
Antimony	mg/kg	470	3.1 UJ	3.1 UJ	3 UJ	2.9 UJ	3.3 U	37.4	N/A
Arsenic	mg/kg	3	5.6	4.3	12.7	2.4 U	123	29.6	3.5
Barium	mg/kg	220,000	242	63.6	207	63.5	587	137	N/A
Beryllium	mg/kg	2,300	3	1 U	2.4	0.19 J	1.7	0.81 J	N/A
Cadmium	mg/kg	980	4.3	1.6	12.2	0.8 J	2.2	2.9	N/A
Chromium	mg/kg	120,000	471 J	508 J	622 J	761 J	121	50.9	N/A
Chromium VI	mg/kg	6.3	1.1 UJ	0.63 J-	1.1 UJ	0.54 J-	0.71 J	0.87 J	N/A
Cobalt	mg/kg	350	10.2 J	23 J	10.6 J	3.8 J	14.4	18	N/A
Copper	mg/kg	47,000	104	106	141	32.9	241	4,660	N/A
Iron	mg/kg	820,000	106,000	179,000	109,000	78,700	89,600	121,000	N/A
Lead	mg/kg	800	433	178	1,300	28.9	273	1,280	211
Manganese	mg/kg	26,000	10,300	20,700	14,300	9,210	11,100	1,180	N/A
Mercury	mg/kg	350	0.18	0.15	0.25	0.011 J	0.11	0.043 J	N/A
Nickel	mg/kg	22,000	50.8	46.3	49.8	6 J	51	56	N/A
Selenium	mg/kg	5,800	4.1 U	4.1 U	3.9 U	3.9 U	4.4 U	4.9 U	N/A
Thallium	mg/kg	12	10.2 U	10.4 U	9.8 U	9.8 U	11 U	12.2 U	N/A
Vanadium	mg/kg	5,800	343	1,340	293	835	269	111	N/A
Zinc	mg/kg	350,000	806 J	571 J	1,820 J	168 J	626	6,810	N/A
Other									
Cyanide	mg/kg	150	0.64 J-	1.9 J-	1.9 J-	0.3 J-	1.2	0.69 J	N/A

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**Table 7 - Parcel B24
Summary of Inorganics Detected in Soil**

Parameter	Units	PAL	B24-033-SB-1*	B24-033-SB-5*	B24-033-SB-10*	B24-034-SB-1*	B24-034-SB-5*	B24-035-SB-1*	B24-035-SB-4*
			4/15/2020	4/15/2020	4/15/2020	4/21/2020	4/21/2020	4/15/2020	4/15/2020
Metals									
Aluminum	mg/kg	1,100,000	15,000	32,100	N/A	9,190	8,810	38,200	6,530
Antimony	mg/kg	470	3.1 U	3.7 U	N/A	3.2 U	2.9 U	3 U	3.2 U
Arsenic	mg/kg	3	11.3	8	13	2.6 U	2.4 U	4.2	2.6 U
Barium	mg/kg	220,000	271	436	N/A	100	128	461	68.9
Beryllium	mg/kg	2,300	1.2	2.3	N/A	1 J	0.99	7.2	1.4
Cadmium	mg/kg	980	0.91 J	1.8 U	N/A	2	1.6	1.2 J	0.94 J
Chromium	mg/kg	120,000	101	35.6	N/A	957	961	122	1,350
Chromium VI	mg/kg	6.3	0.81 J	0.7 J	N/A	1.1 U	0.55 J	1.1 U	0.86 J
Cobalt	mg/kg	350	11.1	1.5 J	N/A	16.6	9.4	2.4 J	9.4
Copper	mg/kg	47,000	113	14.9	N/A	79.2	76.7	30.6	56.2
Iron	mg/kg	820,000	65,700	6,960	N/A	149,000	145,000	35,500	227,000
Lead	mg/kg	800	189	7.6	N/A	105	143	84.9	36.1
Manganese	mg/kg	26,000	3,100	4,680	N/A	20,400	18,200	5,630	39,500
Mercury	mg/kg	350	0.089 J	0.13 U	N/A	0.092 J	0.096 J	0.065 J	0.11 U
Nickel	mg/kg	22,000	28.7	2.4 J	N/A	61.2	42.4	14.9	66.3
Selenium	mg/kg	5,800	4.1 U	4.9 U	N/A	4.2 U	3.9 U	4 U	4.2 U
Thallium	mg/kg	12	10.2 U	12.2 U	N/A	10.5 U	3.8 J	10 U	13
Vanadium	mg/kg	5,800	345	285	N/A	1,280	1,480	132	3,900
Zinc	mg/kg	350,000	287	4.2 B	N/A	521	351	322	174
Other									
Cyanide	mg/kg	150	1.5	2.9	N/A	2.2	2	0.81 J	1

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

*Indicates non-validated data

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

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

UJ: This analyte was not detected in the sample. The actual 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 reported for this analyte is a quantitative estimate.

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

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

**Table 7 - Parcel B24
Summary of Inorganics Detected in Soil**

Parameter	Units	PAL	B24-036-SB-1*	B24-036-SB-8*	B24-036-SB-10*	B24-037-SB-1*	B24-037-SB-8*	B24-037-SB-10*	B24-037-SB-12*
			4/15/2020	4/15/2020	4/15/2020	4/16/2020	4/16/2020	4/16/2020	4/16/2020
Metals									
Aluminum	mg/kg	1,100,000	23,900	26,300	N/A	18,300	15,300	18,800	13,700
Antimony	mg/kg	470	3.4	3.8 U	N/A	3 U	3.1 U	3 U	3 U
Arsenic	mg/kg	3	16	4.7	5.2	6	2.6 U	3.2	3.9
Barium	mg/kg	220,000	361	1,510	N/A	179	140	176	190
Beryllium	mg/kg	2,300	2.8	3.9	N/A	1.6	1.4	2.4	1.5
Cadmium	mg/kg	980	1.1 J	0.48 J	N/A	1.7	0.66 J	0.45 J	2.2
Chromium	mg/kg	120,000	73.4	152	N/A	321	248	27.7	749
Chromium VI	mg/kg	6.3	0.7 J	0.77 J	N/A	0.66 J	0.56 J	1.1 U	0.57 J
Cobalt	mg/kg	350	7.7	10.4	N/A	10.3	5.6	3.1 J	10
Copper	mg/kg	47,000	75.7	15	N/A	75.1	32.3	14.8	75.6
Iron	mg/kg	820,000	57,700	11,400	N/A	78,400	94,400	21,000	106,000
Lead	mg/kg	800	112	17	N/A	118	51.2	31.6	87.2
Manganese	mg/kg	26,000	2,890	11,300	N/A	21,300	6,680	1,090	23,000
Mercury	mg/kg	350	0.095 J	0.14 U	N/A	0.26	0.026 J	0.021 J	0.18
Nickel	mg/kg	22,000	25.7	53.5	N/A	28.3	29.7	12.5	33.5
Selenium	mg/kg	5,800	4.1 U	5.1 U	N/A	4 U	4.1 U	4 U	4 U
Thallium	mg/kg	12	10.2 U	12.7 U	N/A	10.1 U	10.2 U	10.1 U	9.9 U
Vanadium	mg/kg	5,800	227	61.2	N/A	278	375	47.6	1,100
Zinc	mg/kg	350,000	222	76.5	N/A	452	432	46.3	536
Other									
Cyanide	mg/kg	150	0.88 J	1.8	N/A	4.9	0.59 J	3.5	1.4

Detections in bold

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

*Indicates non-validated data

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

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

UJ: This analyte was not detected in the sample. The actual 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 reported for this analyte is a quantitative estimate.

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

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

**Table 8 - Parcel B24
Summary of Soil PAL Exceedances**

<u>Parameter</u>	<u>CAS#</u>	<u>Frequency of Detections (%)</u> *	<u>Frequency of Exceedances (%)</u> *	<u>Sample ID of Max Result</u>	<u>Max Result (mg/kg)</u>	<u>PAL Solid (mg/kg)</u>
Arsenic	7440-38-2	61%	55%	B24-032-SB-1	123	3
Benzo[a]pyrene	50-32-8	97%	9%	B24-007-SB-5	3.7	2.1
Chromium VI	18540-29-9	73%	1%	B24-005-SB-4	6.4 J-	6.3
Lead	7439-92-1	100%	4%	B24-031-SB-1.5	1,300	800
Manganese	7439-96-5	100%	20%	B24-024-SB-5	51,900	26,000
Oil & Grease	O&G	95%	4%	B24-032-SB-5	32,200	6,200
Thallium	7440-28-0	23%	5%	B24-028-SB-5	17.1	12

*Frequency of detections and exceedances calculated as a percentage based on the total number of samples analyzed for the parameter (excluding any rejected data results).

**Table 9 - Parcel B24
Soil PAL Exceedances for Specific Targets**

<u>Target Feature</u>	<u>Boring ID</u>	<u>Sample Depth</u>	<u>Parameter</u>	<u>PAL (mg/kg)</u>	<u>Result (mg/kg)</u>	<u>Final Flag</u>
Electrical Sub-Stations (& HCWWTP)	B24-001-SB	1	Arsenic	3	3.3	
	B24-003-SB	1	Arsenic	3	12.1	
		4	Arsenic	3	7.6	
	B24-004-SB	5	Manganese	26,000	26,200	
	B24-005-SB	4	Chromium VI	6.3	6.4	J-
		4	Manganese	26,000	28,200	
	B24-006-SB	1	Arsenic	3	15.2	
4		Arsenic	3	6.1		
Caustic Solution Tanks	B24-007-SB	1	Manganese	26,000	32,500	
		1	Thallium	12	16.9	
		5	Arsenic	3	7.3	
		5	Benzo[a]pyrene	2.1	3.7	
	B24-008-SB	1	Arsenic	3	4.7	
		5	Manganese	26,000	29,600	
Control Building/ Polymer Storage Tank/White Chemical Powder	B24-009-SB	1.5	Manganese	26,000	32,400	
		5	Arsenic	3	11	
	B24-010-SB	1	Manganese	26,000	27,100	
		5	Arsenic	3	4	
Sodium Hydrosulfide Tank	B24-011-SB	1	Arsenic	3	8.4	
		4	Arsenic	3	9.4	
	B24-012-SB	8	Arsenic	3	5.8	
		10	Arsenic	3	8.9	
Sulfuric Acid Tank	B24-013-SB	1	Manganese	26,000	32,800	
		5	Arsenic	3	3.1	
	B24-014-SB	1	Manganese	26,000	27,400	
Former Oil Aboveground Storage Tank	B24-015-SB	1	Arsenic	3	12.3	
	B24-016-SB	1	Arsenic	3	4.1	
		1	Benzo[a]pyrene	2.1	2.3	
Thickener Tanks	B24-017-SB	5	Arsenic	3	4.2	
	B24-018-SB	5	Manganese	26,000	26,600	
	B24-020-SB	1	Manganese	26,000	26,800	
		8	Arsenic	3	24	
		8	Lead	800	1,050	
Sea Container/ Chemical Storage	B24-021-SB	1	Manganese	26,000	33,300	
		5	Manganese	26,000	36,000	
		5	Thallium	12	13.8	
	B24-022-SB	1	Arsenic	3	5.4	
		1	Benzo[a]pyrene	2.1	2.3	
		5	Manganese	26,000	26,700	
Trailer/ Equipment Storage	B24-023-SB	1	Arsenic	3	3.5	
		5	Arsenic	3	3.8	
	B24-024-SB	5	Manganese	26,000	51,900	

**Table 9 - Parcel B24
Soil PAL Exceedances for Specific Targets**

<u>Target Feature</u>	<u>Boring ID</u>	<u>Sample Depth</u>	<u>Parameter</u>	<u>PAL (mg/kg)</u>	<u>Result (mg/kg)</u>	<u>Final Flag</u>
Settling Basin # 2/ Fill Material	B24-025-SB	5	Arsenic	3	9.3	
		10	Arsenic	3	5.4	
		15	Arsenic	3	4.9	
	B24-026-SB	1	Arsenic	3	9.2	
		5	Arsenic	3	12	
		10	Arsenic	3	6	
Emergency Detention Basin	B24-027-SB	5	Benzo[a]pyrene	2.1	2.5	
	B24-028-SB	1	Arsenic	3	4.4	
		5	Manganese	26,000	30,700	
		5	Thallium	12	17.1	
	B24-029-SB	1	Arsenic	3	37	
		9	Arsenic	3	25.6	
Sludge Filter Cake Area	B24-030-SB	1	Arsenic	3	5.6	
		9	Arsenic	3	4.3	
	B24-031-SB	1.5	Arsenic	3	12.7	
		1.5	Benzo[a]pyrene	2	3	
		1.5	Lead	800	1,300	
Drip Leg #20	B24-032-SB	1	Arsenic	3	123	
		1	Benzo[a]pyrene	2.1	2.2	
		5	Arsenic	3	29.6	
		5	Lead	800	1,280	
		5	Oil & Grease	6,200	32,200	
		10	Arsenic	3	3.5	
	B24-033-SB	1	Arsenic	3	11.3	
		1	Benzo[a]pyrene	2.1	3.4	
		5	Arsenic	3	8	
		10	Arsenic	3	13	
Bear Creek Shoreline	B24-035-SB	1	Arsenic	3	4.2	
		4	Manganese	26,000	39,500	
		4	Thallium	12	13	
	B24-036-SB	1	Arsenic	3	16	
		10	Arsenic	3	5.2	
Settling Basin # 3	B24-037-SB	1	Arsenic	3	6	
		8	Oil & Grease	6,200	14,900	
		10	Arsenic	3	3	
		10	Oil & Grease	6,200	19,200	
		12	Arsenic	3	3.9	

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

**Table 10 - Parcel B24
Summary of Organics Detected in Groundwater**

Parameter	Units	PAL	B24-001-PZ*	B24-003-PZ*	B24-027-PZ	B24-034-PZ	B24-035-PZ	B24-036-PZ*	TM02-PZM009*	TM03-PZM004*
			5/1/2020	5/1/2020	4/29/2020	4/29/2020	4/29/2020	5/1/2020	9/17/2020	8/6/2020
Volatile Organic Compounds										
2-Butanone (MEK)	µg/L	5,600	10 U	10 U	10 U	5.1 J	10 U	10 U	10 U	10 U
2-Hexanone	µg/L	38	10 U	10 U	10 U	1.4 J	10 U	10 U	10 U	10 U
4-Methyl-2-pentanone (MIBK)	µg/L	1,200	10 U	10 U	10 U	3.3 J	10 U	10 U	10 U	10 U
Acetone	µg/L	14,000	10 U	10 U	10 U	15.3	10 U	10 U	7.8 J	10 U
Benzene	µg/L	5	1 U	1 U	1 U	1 U	1 U	1 U	5.7	1 U
Carbon disulfide	µg/L	810	1 U	1 U	1 U	1 U	1 U	0.5 J	1 U	1 U
Methyl Acetate	µg/L	20,000	5 U	5 U	5 U	1.1 J	5 U	5 U	5 U	5 U
Toluene	µg/L	1,000	1 U	1 U	1 U	118	1 U	0.46 J	3.1	1 U
Xylenes	µg/L	10,000	3 U	3 U	3 U	3 U	3 U	3 U	6.4	3 U
Semi-Volatile Organic Compounds^										
1,1-Biphenyl	µg/L	0.83	0.97 U	0.98 U	0.99 U	1 U	1 U	0.99 U	1.3	0.64 J
2,3,4,6-Tetrachlorophenol	µg/L	240	0.97 U	0.98 U	0.99 U	0.31 J	1 U	0.99 U	0.98 U	0.98 U
2,4-Dimethylphenol	µg/L	360	0.4 J	0.98 U	0.99 U	304	1 U	0.99 U	34.7	0.85 J
2-Chloronaphthalene	µg/L	750	0.97 U	0.98 U	0.99 U	5.4	1 U	0.99 U	4	0.98 U
2-Methylnaphthalene	µg/L	36	0.097 U	0.057 J	0.099 U	0.37 J	0.099 U	0.1	4.6	2
2-Methylphenol	µg/L	930	0.97 U	0.98 U	0.99 U	1 U	1 U	0.99 U	1.5	0.98 U
3&4-Methylphenol(m&p Cresol)	µg/L	930	1.9 U	2 U	2 U	1,590	2 U	2 U	14.9	2 U
Acenaphthene	µg/L	530	0.17	0.13	0.047 J	1 U	0.099 U	0.4	2.2	2.4
Acenaphthylene	µg/L	530	0.097 U	0.098 U	0.039 J	1 U	0.099 U	0.099 U	0.85	1.1
Acetophenone	µg/L	1,900	0.97 U	0.98 U	0.99 U	1 U	1 U	0.99 U	0.81 J	0.98 U
Anthracene	µg/L	1,800	0.082 J	0.09 J	0.055 J	1 U	0.099 U	0.038 J	0.6	1
Benz[a]anthracene	µg/L	0.03	0.097 U	0.098 U	0.099 U	1 U	0.099 U	0.099 U	0.077 J	0.98 U
Benzo[a]pyrene	µg/L	0.2	0.033 J	0.098 U	0.099 U	1 U	0.02 J	0.099 U	0.012 J	0.98 U
Benzo[b]fluoranthene	µg/L	0.25	0.061 J	0.098 U	0.099 U	1 U	0.038 J	0.099 U	0.098 U	0.98 U
Benzo[k]fluoranthene	µg/L	2.5	0.054 J	0.098 U	0.099 U	1 U	0.03 J	0.099 U	0.098 U	0.98 U
bis(2-Ethylhexyl)phthalate	µg/L	6	0.97 U	0.98 U	0.99 U	0.99 J	1 U	0.99 U	0.98 U	0.98 U
Carbazole	µg/L		0.97 U	0.98 U	0.99 U	0.31 J	1 U	0.99 U	4.5	5.3
Chrysene	µg/L	25	0.043 J	0.098 U	0.099 U	1 U	0.099 U	0.099 U	0.074 J	0.98 U
Di-n-butylphthalate	µg/L	900	0.97 U	0.98 U	0.99 U	1.5	0.45 B	0.38 J	0.98 U	0.98 U
Di-n-ocetylphthalate	µg/L	200	0.97 U	0.98 U	0.99 U	1 UJ	1 U	0.99 U	0.98 U	0.88 J
Fluoranthene	µg/L	800	0.21	0.098 U	0.13	1 U	0.099 U	0.12	1.2	2.9
Fluorene	µg/L	290	0.098	0.19	0.039 J	1 U	0.099 U	0.23	2.4	3.3
Naphthalene	µg/L	0.12	0.038 J	0.06 J	0.099 U	1.9	0.099 U	0.94	56.8	15.6
Nitrobenzene	µg/L	0.14	0.97 U	0.98 U	0.99 U	20.4 U	1 U	0.4 J	9.8 U	0.98 U
Phenanthrene	µg/L		0.13	0.31	0.099 U	1 U	0.099 U	0.43	4	5.4
Phenol	µg/L	5,800	0.97 U	0.98 U	0.99 U	163	1 U	0.99 U	0.98 U	0.98 U
Pyrene	µg/L	120	0.29	0.13	0.13	1 U	0.099 U	0.073 J	0.81	2.4
TPH/Oil & Grease										
Diesel Range Organics	µg/L	47	266	152	378 J	8,200 J	99.5 UJ	327	1,770	636
Oil & Grease	µg/L	47	4,750 U	4,750 U	4,750 U	3,800 J	4,750 U	4,750 U	4,750 U	1,000 J

Detections in bold

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

*Indicates non-validated data

^PAH compounds were analyzed via SIM

Highlighted PAH compounds were not analyzed via SIM

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

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

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

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

**Table 11 - Parcel B24
Summary of Inorganics Detected in Groundwater**

Parameter	Units	PAL	B24-001-PZ*	B24-003-PZ*	B24-027-PZ	B24-034-PZ	B24-035-PZ	B24-036-PZ*	TM02-PZM009*	TM03-PZM004*
			5/1/2020	5/1/2020	4/29/2020	4/29/2020	4/29/2020	5/1/2020	9/17/2020	8/6/2020
Total Metals										
Aluminum	µg/L	20,000	N/A	N/A	N/A	N/A	N/A	N/A	89.2	259
Arsenic	µg/L	10	N/A	N/A	N/A	N/A	N/A	N/A	5 U	3.2 J
Barium	µg/L	2,000	N/A	N/A	N/A	N/A	N/A	N/A	64.2	34.4
Chromium	µg/L	100	N/A	N/A	N/A	N/A	N/A	N/A	1 J	10.6
Chromium VI	µg/L	0.035	N/A	N/A	N/A	N/A	N/A	N/A	N/A	11
Copper	µg/L	1,300	N/A	N/A	N/A	N/A	N/A	N/A	2.7 J	5 U
Iron	µg/L	14,000	N/A	N/A	N/A	N/A	N/A	N/A	70 U	212
Manganese	µg/L	430	N/A	N/A	N/A	N/A	N/A	N/A	5 U	13.3
Nickel	µg/L	390	N/A	N/A	N/A	N/A	N/A	N/A	2.6 J	10 U
Vanadium	µg/L	86	N/A	N/A	N/A	N/A	N/A	N/A	61.3	188
Zinc	µg/L	6,000	N/A	N/A	N/A	N/A	N/A	N/A	10 U	5.6 J
Dissolved Metals										
Aluminum, Dissolved	µg/L	20,000	298	50 U	131	164	34.5 J	160	59.4	285
Arsenic, Dissolved	µg/L	10	5 U	5 U	5 U	6.9	5 U	5 U	5 U	5 U
Barium, Dissolved	µg/L	2,000	60.1	59.1	129	32.2	46.4	82.2	61.7	39
Cadmium, Dissolved	µg/L	5	3 U	0.39 J	3 U	3 U	0.91 J	3 U	3 U	3 U
Chromium VI, Dissolved	µg/L	0.035	8.4 J	10 U	23.6	10 U	3.8 J	100 U	10 U	13.4
Chromium, Dissolved	µg/L	100	14.2	0.48 B	30.4	30.8	5	0.91 B	0.99 J	17
Cobalt, Dissolved	µg/L	6	5 U	5 U	5 U	1.4 J	10 U	5 U	5 U	5 U
Iron, Dissolved	µg/L	14,000	70 U	252	70 U	65.2 J	70 U	70 U	70 U	64.3 J
Manganese, Dissolved	µg/L	430	1.3 J	285	5 U	2.7 J	5 U	5 U	5 U	1.6 J
Nickel, Dissolved	µg/L	390	10 U	10 U	10 U	7.5 J	10 U	10 U	2.5 J	10 U
Vanadium, Dissolved	µg/L	86	154	5 U	27.4	312	112	3.8 J	57.6	208
Zinc, Dissolved	µg/L	6,000	10 U	10 U	10 U	3.6 J	10 U	10 U	10 U	10 U
Other										
Available Cyanide	µg/L	200	5 U	5 U	2 J	9	4 J	5 U	N/A	N/A
Amenable Cyanide	µg/L	200	N/A	N/A	N/A	N/A	N/A	N/A	16	14
Total Cyanide	µg/L	200	5 J	10 U	4.9 J	24	7.3 J	10 U	26 / 16.2	87 / 47.8

Detections in bold

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

*Indicates non-validated data

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

Total Cyanide was run by both Pace and Alpha Laboratories

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

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

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

**Table 12 - Parcel B24
Cumulative Vapor Intrusion Criteria Comparison**

				B24-001-PZ* 5/1/2020		B24-003-PZ* 5/1/2020		B24-027-PZ 4/29/2020		B24-034-PZ 4/29/2020	
Parameter	Type	Organ Systems	VI Screening Criteria	Conc. ug/L	Risk/Hazard						
Cancer Risk											
Naphthalene	SVOC		200	0.038 J	1.9E-09	0.06 J	3.0E-09	0.099 U	0	1.9	9.5E-08
Nitrobenzene	SVOC		3,100	0.97 U	0	0.98 U	0	0.99 U	0	20.4 U	0
Benzene	VOC		69	1 U	0	1 U	0	1 U	0	1 U	0
Cumulative Vapor Intrusion Risk				2E-09		3E-09		0		1E-07	
Non-Cancer Hazard											
Cumulative Vapor Intrusion Non-Cancer Hazard				0		0		0		0	

				B24-035-PZ 4/29/2020		B24-036-PZ* 5/1/2020		TM02-PZM009* 9/17/2020		TM03-PZM004* 8/6/2020	
Parameter	Type	Organ Systems	VI Screening Criteria	Conc. ug/L	Risk/Hazard	Conc. ug/L	Risk/Hazard	Conc. ug/L	Risk/Hazard	Conc. ug/L	Risk/Hazard
Cancer Risk											
Naphthalene	SVOC		200	0.099 U	0	0.94	4.7E-08	56.8	2.8E-06	15.6	7.8E-07
Nitrobenzene	SVOC		3,100	1 U	0	0.4 J	1.3E-09	9.8 U	0	0.98 U	0
Benzene	VOC		69	1 U	0	1 U	0	5.7	8.3E-07	1 U	0
Cumulative Vapor Intrusion Risk				0		5E-08		4E-06		8E-07	
Non-Cancer Hazard											
Cumulative Vapor Intrusion Non-Cancer Hazard				0		0		0		0	

Highlighted values indicate exceedances of the cumulative vapor intrusion criteria:

TCR > 1E-05 THI > 1

Conc. = Concentration

*Indicates non-validated data

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

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

**Table 13 - Parcel B24
Rejected Analytical Soil Results**

<u>Sample ID</u>	<u>Parameter</u>	<u>Result (mg/kg)</u>	<u>Flag</u>	<u>PAL (mg/kg)</u>	<u>Exceeds PAL?</u>
B24-002-SB-4	2,3,4,6-Tetrachlorophenol	0.071	R	25,000	no
	2,4,5-Trichlorophenol	0.18	R	82,000	no
	2,4,6-Trichlorophenol	0.071	R	210	no
	2,4-Dichlorophenol	0.071	R	2,500	no
	2,4-Dimethylphenol	0.071	R	16,000	no
	2,4-Dinitrophenol	0.18	R	1,600	no
	2-Chlorophenol	0.071	R	5,800	no
	2-Methylphenol	0.071	R	41,000	no
	3&4-Methylphenol(m&p Cresol)	0.14	R	41,000	no
	Pentachlorophenol	0.18	R	4	no
	Phenol	0.071	R	250,000	no
B24-005-SB-4	2,3,4,6-Tetrachlorophenol	0.073	R	25,000	no
	2,4,5-Trichlorophenol	0.18	R	82,000	no
	2,4,6-Trichlorophenol	0.073	R	210	no
	2,4-Dichlorophenol	0.073	R	2,500	no
	2,4-Dimethylphenol	0.073	R	16,000	no
	2,4-Dinitrophenol	0.18	R	1,600	no
	2-Chlorophenol	0.073	R	5,800	no
	2-Methylphenol	0.073	R	41,000	no
	3&4-Methylphenol(m&p Cresol)	0.15	R	41,000	no
	Pentachlorophenol	0.18	R	4	no
	Phenol	0.073	R	250,000	no
B24-008-SB-1	Chromium VI	1.1	R	6.3	no
B24-009-SB-1.5	1,4-Dioxane	0.14	R	24	no
B24-009-SB-5	Chromium VI	1.1	R	6.3	no
B24-011-SB-1	Chromium VI	1.1	R	6.3	no
B24-011-SB-4	1,4-Dioxane	0.1	R	24	no
	Chromium VI	1.1	R	6.3	no
B24-012-SB-8	1,1,2,2-Tetrachloroethane	0.0053	R	2.7	no
	1,4-Dioxane	0.11	R	24	no
	Chromium VI	1.3	R	6.3	no
B24-017-SB-1	Chromium VI	1.1	R	6.3	no

**Table 13 - Parcel B24
Rejected Analytical Soil Results**

<u>Sample ID</u>	<u>Parameter</u>	<u>Result (mg/kg)</u>	<u>Flag</u>	<u>PAL (mg/kg)</u>	<u>Exceeds PAL?</u>
B24-018-SB-5	2,3,4,6-Tetrachlorophenol	0.073	R	25,000	no
	2,4,5-Trichlorophenol	0.18	R	82,000	no
	2,4,6-Trichlorophenol	0.073	R	210	no
	2,4-Dichlorophenol	0.073	R	2,500	no
	2,4-Dimethylphenol	0.073	R	16,000	no
	2,4-Dinitrophenol	0.18	R	1,600	no
	2-Chlorophenol	0.073	R	5,800	no
	2-Methylphenol	0.073	R	41,000	no
	3&4-Methylphenol(m&p Cresol)	0.15	R	41,000	no
	Pentachlorophenol	0.18	R	4	no
	Phenol	0.073	R	250,000	no
B24-019-SB-1	2,3,4,6-Tetrachlorophenol	0.072	R	25,000	no
	2,4,5-Trichlorophenol	0.18	R	82,000	no
	2,4,6-Trichlorophenol	0.072	R	210	no
	2,4-Dichlorophenol	0.072	R	2,500	no
	2,4-Dimethylphenol	0.072	R	16,000	no
	2,4-Dinitrophenol	0.18	R	1,600	no
	2-Chlorophenol	0.072	R	5,800	no
	2-Methylphenol	0.072	R	41,000	no
	3&4-Methylphenol(m&p Cresol)	0.14	R	41,000	no
	Pentachlorophenol	0.18	R	4	no
	Phenol	0.072	R	250,000	no
B24-020-SB-8	1,4-Dioxane	0.088	R	24	no
B24-029-SB-1	Chromium VI	1.1	R	6.3	no
B24-029-SB-9	1,4-Dioxane	0.11	R	24	no
	Chromium VI	1.1	R	6.3	no
B24-030-SB-9	1,4-Dioxane	0.12	R	24	no

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APPENDIX A

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**Parcel B24 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
Electrical Sub-Stations (& HCWWTP)	†REC 7A-7B, Findings 165-172	Site Visit, Aerial, Drawings 5038, 5138, 5538	Investigate potential impacts related to electric sub-stations in the vicinity of the HCWWTP (potential leaks or releases).	6	B24-001 through B24-006	Total depth of 20 feet or groundwater.	0-1', 4-5', 9-10' bgs. 4-5' interval may be adjusted in the field based on observations or field screening.	VOC [^] , SVOC, Metals, DRO/GRO, O&G, PCBs (0-1')
Caustic Solution Tanks		Drawing 5139	Investigate potential impacts related to the caustic solution tanks associated with wastewater treatment processes (potential leaks or releases).	2	B24-007 and B24-008	Total depth of 20 feet or groundwater.	0-1', 4-5', 9-10' bgs. 4-5' interval may be adjusted in the field based on observations or field screening.	VOC [^] , SVOC, Metals, DRO/GRO, O&G, PCBs (0-1')
Control Building/ Polymer Storage Tank/White Chemical Powder	†REC 7A-7B, Findings 165-172	Site Visit, Drawing 5139	Investigate potential impacts related to the control building and polymer storage tank (potential leaks or releases) and the wastewater treatment chemical powder found on the ground.	2	B24-009 and B24-010	Total depth of 20 feet or groundwater.	0-1', 4-5', 9-10' bgs. 4-5' interval may be adjusted in the field based on observations or field screening.	VOC [^] , SVOC, Metals, DRO/GRO, O&G, PCBs (0-1')
Sodium Hydrosulfide Tank		Site Visit, Aerial	Investigate potential impacts related to the sodium hydrosulfide tank (potential leaks or releases).	2	B24-011 and B24-012	Total depth of 20 feet or groundwater.	0-1', 4-5', 9-10' bgs. 4-5' interval may be adjusted in the field based on observations or field screening.	VOC [^] , SVOC, Metals, DRO/GRO, O&G, PCBs (0-1')
Sulfuric Acid Tank	†REC 7A-7B, Findings 165-172	Site Visit, Aerial	Investigate potential impacts related to the sulfuric acid tank (potential leaks or releases).	2	B24-013 and B24-014	Total depth of 20 feet or groundwater.	0-1', 4-5', 9-10' bgs. 4-5' interval may be adjusted in the field based on observations or field screening.	VOC [^] , SVOC, Metals, DRO/GRO, O&G, PCBs (0-1')

**Parcel B24 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
Former Oil Aboveground Storage Tank		Drawings 5038, 5138, 5538	Investigate potential impacts related to the former oil AST and associated pump (potential leaks or releases).	2	B24-015 and B24-016	Total depth of 20 feet or groundwater.	0-1', 4-5', 9-10' bgs. 4-5' interval may be adjusted in the field based on observations or field screening.	VOC [^] , SVOC, Metals, DRO/GRO, O&G, PCBs (0-1')
Thickener Tanks	†REC 7A-7B, Findings 165-172	Drawings 5038, 5138, 5538	Investigate potential impacts related to wastewater thickeners (potential leaks or releases).	4	B24-017 through B24-020	Total depth of 20 feet or groundwater.	0-1', 4-5', 9-10' bgs. 4-5' interval may be adjusted in the field based on observations or field screening.	VOC [^] , SVOC, Metals, DRO/GRO, O&G, PCBs (0-1')
Sea Container/ Chemical Storage		Site Visit, Aerial	Investigate potential impacts related to chemical storage tanks located outside of a sea container storage unit (potential leaks or releases).	2	B24-021 and B24-022	Total depth of 20 feet or groundwater.	0-1', 4-5', 9-10' bgs. 4-5' interval may be adjusted in the field based on observations or field screening.	VOC [^] , SVOC, Metals, DRO/GRO, O&G, PCBs (0-1')
Trailer/ Equipment Storage		Site Visit, Aerial	Investigate potential impacts related to equipment stored outdoors on-site (potential leaks or releases).	2	B24-023 and B24-024	Total depth of 20 feet or groundwater.	0-1', 4-5', 9-10' bgs. 4-5' interval may be adjusted in the field based on observations or field screening.	VOC [^] , SVOC, Metals, DRO/GRO, O&G, PCBs (0-1')
Settling Basin # 2/ Fill Material	†REC 7A-7B, Findings 165-172	Drawings 5038, 5138, 5538	Investigate backfilled area of settling basin # 2 for soil contamination from treatment activities and backfilling (potential leaks or releases).	2	B24-025 and B24-026	Total depth of 20 feet.	0-1', 4-5', 9-10', 17-18' bgs. 4-5' interval may be adjusted in the field based on observations or field screening.	VOC [^] , SVOC, Metals, DRO/GRO, O&G, PCBs (0-1')

**Parcel B24 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
Emergency Detention Basin	REC 7C, Finding 173	Site Visit, Aerial, Industrial Water Utility Drawings	Investigate potential impacts related to the use of the emergency detention basin (potential leaks or releases), which served as a bypass system for the HCWWTP to be used in the event of treatment upsets. The detention basin includes a composite liner; therefore, soil borings are proposed at locations surrounding the basin.	3	B24-027 through B24-029	Total depth of 20 feet or groundwater.	0-1', 4-5', 9-10' bgs. 4-5' interval may be adjusted in the field based on observations or field screening.	VOC [^] , SVOC, Metals, DRO/GRO, O&G, PCBs (0-1')
Sludge Filter Cake Area	†REC 7A-7B, Findings 165-172	Site Visit, Aerial	Investigate potential impacts related to the sludge collection boxes which handle sludge filter cake from wastewater treatment operations (potential leaks or releases).	2	B24-030 and B24-031	Total depth of 20 feet or groundwater.	0-1', 4-5', 9-10' bgs. 4-5' interval may be adjusted in the field based on observations or field screening.	VOC [^] , SVOC, Metals, DRO/GRO, O&G, PCBs (0-1')
Drip Leg #20		Drip Leg Drawing 5887	Coke oven gas condensate was removed from the gas pipelines at drip legs located throughout the distribution system. The condensate was typically discharged to drums, although it is possible some spilled out of the drums and on to the ground.	2	B24-032 and B24-033	Total depth of 20 feet or groundwater.	0-1', 4-5', 9-10' bgs. 4-5' interval may be adjusted in the field based on observations or field screening.	VOC [^] , SVOC, Metals, DRO/GRO, O&G, PCBs (0-1')
Parcel B14 NAPL Detection Area		MDE Request	Investigate impacts from NAPL area detected in piezometer B14-037-PZ during Parcel B14 NAPL Delineation activities.	1	B24-034	Total depth of 20 feet or groundwater.	0-1', 4-5', 9-10' bgs. 4-5' interval may be adjusted in the field based on observations or field screening.	VOC [^] , SVOC, Metals, DRO/GRO, O&G, PCBs (0-1')
Bear Creek Shoreline		MDE Request	Investigate the migration of potential contaminants within the site towards the Bear Creek shoreline.	2	B24-035 and B24-036	Total depth of 20 feet or groundwater.	0-1', 4-5', 9-10' bgs. 4-5' interval may be adjusted in the field based on observations or field screening.	VOC [^] , SVOC, Metals, DRO/GRO, O&G, PCBs (0-1')

**Parcel B24 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
Settling Basin # 3	†REC 7A-7B, Findings 165-172	MDE Request	Investigate area adjacent to settling basin # 3 for soil contamination from treatment activities and sludge storage (potential leaks or releases).	1	B24-037	Total depth of 20 feet.	0-1', 4-5', 9-10', 17-18' bgs. 4-5' interval may be adjusted in the field based on observations or field screening.	VOC [^] , SVOC, Metals, DRO/GRO, O&G, PCBs (0-1')
Total:				37				

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 (N/A)

No Engineered Barrier (25.7 acres) = **18 borings required, 37 completed**

Includes Building Footprints (1.00 acres)

VOCs - Volatile Organic Compounds (Target Compound List)

[^]VOCs are only collected if the PID reading exceeds 10 ppm

SVOCs - Semivolatile Organic Compounds (Target Compound List)

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

O&G - Oil and Grease

DRO/GRO - Diesel Range Organics/Gasoline Range Organics

PCBs - Polychlorinated Biphenyls

bgs - Below Ground Surface

†REC 7A-7B and Findings 165-172 (various SWMUs) are targeted by multiple soil borings which additionally provide general sampling coverage of the HCWWTP.

**Parcel B24 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
Electrical Sub-Station (& HCWWTP)	REC 7A-7B, Findings 165-172	Drawings 5038, 5138, 5538	N/A	2	B24-001 and B24-003	Total depth of 7 feet below water table.	7 feet below water table to 3 feet above water table.	VOC, SVOC, Metals (dissolved), Cyanide (total/available), O&G, DRO/GRO
Emergency Detention Basin	REC 7C, Finding 173	Site Visit, Aerial, Industrial Water Utility Drawings	N/A	1	B24-027	Total depth of 7 feet below water table.	7 feet below water table to 3 feet above water table.	VOC, SVOC, Metals (dissolved), Cyanide (total/available), O&G, DRO/GRO
Parcel B14 NAPL Detection		MDE Request	N/A	1	B24-034	Total depth of 7 feet below water table.	7 feet below water table to 3 feet above water table.	VOC, SVOC, Metals (dissolved), Cyanide (total/available), O&G, DRO/GRO
Bear Creek Shoreline		MDE Request	N/A	2	B24-035 and B24-036	Total depth of 7 feet below water table.	7 feet below water table to 3 feet above water table.	VOC, SVOC, Metals (dissolved), Cyanide (total/available), O&G, DRO/GRO

**Parcel B24 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
Upgradient from TMC (supplemental)		CBF Request	Good Condition	2	TM02-PZM009 and TM03-PZM004	21 feet bgs and 15 feet bgs	11 to 21 feet bgs and 5 to 15 feet bgs	VOC, SVOC, Metals (total/dissolved), Cyanide (total/amenable), O&G, DRO/GRO
			Total:	8				

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

VOCs - Volatile Organic Compounds (Target Compound List)
 SVOCs - Semivolatile Organic Compounds (Target Compound List)
 Metals - (Target Analyte List plus Hexavalent Chromium)
 O&G - Oil and Grease
 DRO/GRO - Diesel Range Organics/Gasoline Range Organics
 bgs - Below Ground Surface

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APPENDIX B

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Client : ~~Vista~~ [redacted]
 ARM Project No. : 20010224
 Project Description : Sparrows Point - Parcel B24
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : GSI
 Driller : D. Marchese
 Drilling Equipment : Geoprobe 7822DT

Soil Boring Installation Date : 04/14/2020
 Piezometer Installation Date : 04/14/2020
 Casing/Riser/Screen Type : PVC
 Borehole Diameter : 2.25"
 Riser/Screen Diameter : 1"
 Northing (US ft) : 568717.23
 Easting (US ft) : 1457146.26
 48-Hr DTW : 11.84' TOC
 No LNAPL or DNAPL detected at 0 or 48 hours

Boring ID: B24-001-SB/PZ

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	USCS	REMARKS
0		0.0	B24-001-SB-1	(0-0.25') ORGANIC SILT, loose, very dark brown, dry, no plasticity, no cohesion	OL	<p>1" PVC Riser Bentonite Seal Sand Pack 1" PVC Screen End Cap</p> <p>Wet at 8.5' bgs</p>
	94	0.0		(0.25-5') Non-native SAND and SLAG GRAVEL, fine to coarse, medium, dark brown and gray, dry, no plasticity, no cohesion	SW/GW	
		0.0				
		0.0	B24-001-SB-5			
5		0.0		(5-9') NON-NATIVE SAND and SLAG BRICK GRAVEL, fine to coarse, medium to dense, very dark brown and yellow, dry then moist at 8.5' bgs, no plasticity, no cohesion	SW/GW	
	96	0.3				
		0.1				
		0.0				
10		0.0		(9-13') SLAG GRAVEL, medium, very dark brown with gray, wet, no plasticity, no cohesion	GW	
	56	-				
		0.0				
		0.0		(13-15') NON-NATIVE fine to very fine SAND and SILT with some fine GRAVEL, dense, very dark brown with trace white, wet, no plasticity, no cohesion	SP/ML	
15		0.0				
	0	-		(15-16') No Recovery	NA	
				End of Boring		
20						

Boring terminated at 16' bgs due to water and piezometer installation
 TOC: Top of PVC casing
 DTW: Depth to water
 bgs: Below ground surface

Riser Stickup: 2.97'
 Riser: 0 - 6' bgs
 Screen: 6 - 16' bgs [Slot Size: 0.010"]
 Sand Pack: 4 - 16' bgs [Grain Size: WG #2]
 Bentonite Seal: 0 - 4' bgs [Grain Size: bentonite chips]



Client : ~~Vista [redacted]~~
 ARM Project No. : 20010224
 Project Description : Sparrows Point - Parcel B24
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : GSI
 Driller : D. Marchese
 Drilling Equipment : Geoprobe 7822DT

Date : 04/17/2020

Northing (US ft) : 568669.94
 Easting (US ft) : 1457108.02

Boring ID: B24-002-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	USCS	REMARKS
0		0.0	B24-002-SB-1	(0-0.1') SILT with SAND and ORGANIC MATTER, soft, dark brown, dry, no plasticity, no cohesion	ML	No water encountered
				(0.1-0.5') SAND with trace SILT, very fine to fine, yellow, dry, no plasticity, no cohesion	SW	
100		0.1		(0.5-4') NON-NATIVE SAND and SLAG GRAVEL with trace BRICK GRAVEL, fine to coarse, dark brown, dry, no plasticity, no cohesion	SW/GW	
		1.7				
		0.3	B24-002-SB-4			
End of Boring						
5						
10						

Total Borehole Depth: 4' bgs due to multiple refusals.



Client : ~~Via~~ [redacted]
 ARM Project No. : 20010224
 Project Description : Sparrows Point - Parcel B24
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : GSI
 Driller : D. Marchese
 Drilling Equipment : Geoprobe 7822DT

Soil Boring Installation Date : 04/16/2020
 Piezometer Installation Date : 04/16/2020
 Casing/Riser/Screen Type : PVC
 Borehole Diameter : 2.25"
 Riser/Screen Diameter : 1"
 Northing (US ft) : 568561.39
 Easting (US ft) : 1456819.39
 48-Hr DTW : 11.56' TOC
 Trace NAPL detected at 0 hours
 No LNAPL or DNAPL detected at 48 hours

Boring ID: B24-003-SB/PZ

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	USCS	REMARKS
0		-	B24-003-SB-1	(0-3.5') SLAG with some SILT, SAND, and ROOTS at the surface, SAND and GRAVEL-sized, medium, very dark brown, dry, no plasticity, no cohesion	SW/GP	<p>Wet at 8' bgs</p> <p>Very light product seen from 13.7 to 14.3' bgs</p>
1.9	80	22.6				
11.2		11.2	B24-003-SB-4	(3.5-9.3') SLAG GRAVEL with some SAND-sized SLAG, dense, light gray with some brown, very moist then dry at 4' bgs then wet at 8' bgs, no plasticity, no cohesion	GW	
0.0		0.0				
5		-				
60		0.9				
4.2		4.2				
10		2.1		(9.3-11') CLAY, soft to firm, light brown with reddish yellow mottling, very moist, low plasticity, cohesive	CL	
-		-		(11-13.7') CLAY with SAND, soft to firm, light grayish brown with reddish yellow mottling, very moist, low plasticity, cohesive	CL	
60		0.0				
0.0		0.0				
15		0.0		(13.7-14.3') CLAYEY SAND and CLAYEY GRAVEL, fine, loose, very dark brown, wet, no plasticity, no cohesion	SC/GC CL	
				(14.3-15') CLAY with SAND, soft to firm, light grayish brown with reddish yellow mottling, very moist, low plasticity, cohesive		
				End of Boring		

Boring terminated at 15' bgs due to water and piezometer installation
 TOC: Top of PVC casing
 DTW: Depth to water
 bgs: Below ground surface

Riser Stickup: 3.20'
 Riser: 0 - 5' bgs
 Screen: 5 - 15' bgs [Slot Size: 0.010"]
 Sand Pack: 3 - 15' bgs [Grain Size: WG #2]
 Bentonite Seal: 0 - 3' bgs [Grain Size: bentonite chips]



ARM Group LLC
Engineers and Scientists

Client : ~~Vista~~ [redacted]
 ARM Project No. : 20010224
 Project Description : Sparrows Point - Parcel B24
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : GSI
 Driller : D. Marchese
 Drilling Equipment : Geoprobe 7822DT

Date : 04/16/2020

Northing (US ft) : 568682.51
 Easting (US ft) : 1456853.30

Boring ID: B24-004-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	USCS	REMARKS
0		-	B24-004-SB-1	(0-7.5') NON-NATIVE SAND (very fine to coarse) with some GRAVEL (fine to coarse), medium, very dark brown with trace gray and yellowish brown, dry, no plasticity, no cohesion	SW/GW	
		0.0				
80		0.0				
		0.1				
		0.0	B24-004-SB-5			
5		-				
		0.0				
82		0.0		(7.5-10') SLAG GRAVEL (fine to coarse) with trace NON-NATIVE SAND, dense, light gray and gray with trace brown, moist then wet at 7.8' bgs, no plasticity, no cohesion	GW	Wet at 7.8' bgs
		0.0				
		0.0				
10				End of Boring		

Total Borehole Depth: 10' bgs due to water.



Client : Viasat [30] [30] [30]
 ARM Project No. : 20010224
 Project Description : Sparrows Point - Parcel B24
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : GSI
 Driller : D. Marchese
 Drilling Equipment : Geoprobe 7822DT

Date : 04/17/2020

Northing (US ft) : 568630.70
 Easting (US ft) : 1457258.75

Boring ID: B24-005-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	USCS	REMARKS
0		-	B24-005-SB-1	(0-4') NON-NATIVE SAND and SLAG GRAVEL with trace BRICK GRAVEL, fine to coarse, medium, dark gray and dark brown, dry, no plasticity, no cohesion	SW/GW	Limited amount of organics at the surface
80	0.1					No water encountered
	0.1					
	0.0	B24-005-SB-4				
End of Boring						
5						
10						

Total Borehole Depth: 4' bgs due to multiple refusals.



Client : ~~Vista [REDACTED]~~
 ARM Project No. : 20010224
 Project Description : Sparrows Point - Parcel B24
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : GSI
 Driller : D. Marchese
 Drilling Equipment : Geoprobe 7822DT

Date : 04/17/2020

Northing (US ft) : 568640.52
 Easting (US ft) : 1457344.78

Boring ID: B24-006-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	USCS	REMARKS
0		-	B24-006-SB-1	(0-4') NON-NATIVE SAND and SLAG GRAVEL with trace COBBLES, fine to coarse, medium, dark brown, dry, no plasticity, no cohesion	SW/GW	Limited amount of organics at the surface
75	0.1					
	0.1					
	0.0	B24-006-SB-4	No water encountered			
End of Boring						
5						
10						

Total Borehole Depth: 4' bgs due to multiple refusals.



Client : Viasat [a] [c] [c] [c]
 ARM Project No. : 20010224
 Project Description : Sparrows Point - Parcel B24
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : GSI
 Driller : K. Pumphrey
 Drilling Equipment : Geoprobe 7822DT

Date : 04/21/2020

Northing (US ft) : 569084.38
 Easting (US ft) : 1457699.34

Boring ID: B24-007-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	USCS	REMARKS
0		0.0	B24-007-SB-1	(0-0.5') SILTY SAND, very fine to fine, loose to medium, brown, dry, no plasticity, no cohesion	SM	Organics present
		0.0		(0.5-1.7') NON-NATIVE SAND and SLAG GRAVEL, fine to coarse, medium, brown with gray, dry, no plasticity, no cohesion	SW/GW	
		0.0		(1.7-2.3') CLAY with trace SAND, very firm, grayish brown and reddish yellow, dry, low plasticity, cohesive	CL	
90		0.0		(2.3-6.5') NON-NATIVE SAND (very fine to coarse) with SLAG GRAVEL (fine to coarse), and SAND-sized SLAG, medium, brown and dark brown with gray, dry, no plasticity, no cohesion	SW/GW	
		0.0	B24-007-SB-5			
5		1.7				
83		0.6		(6.5-8') SLAG BRICK with NON-NATIVE SAND, SAND and GRAVEL-sized, medium, brown, yellow, and red, with pale yellowish green at 7' bgs, dry then wet at 7' bgs, no plasticity, no cohesion	SW/GW	Wet at 7' bgs
		0.0				
End of Boring						
10						

Total Borehole Depth: 8' bgs due to water and refusal.



Client : Viasat [a] [c] [c]
 ARM Project No. : 20010224
 Project Description : Sparrows Point - Parcel B24
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : GSI
 Driller : K. Pumphrey
 Drilling Equipment : Geoprobe 7822DT

Date : 04/20/2020

Northing (US ft) : 569132.13
 Easting (US ft) : 1457687.67

Boring ID: B24-008-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	USCS	REMARKS
0		-	B24-008-SB-1	(0-0.5') SAND with SILT, very fine to fine, medium dense, dark brown, dry, no plasticity, no cohesion	SW-SM	Trace rganics present Wet at 6.8' bgs
	82	0.6		(0.5-6.8') NON-NATIVE SAND and SLAG, SAND and GRAVEL-sized with purple SLAG GRAVEL at 2' bgs, medium, dark brown, dry, no plasticity, no cohesion	SW/GW	
		0.7				
		0.8				
		4.6	B24-008-SB-5			
5		-				
		0.6				
	70	0.8		(6.8-7.7') SLAG GRAVEL with some NON-NATIVE SAND, fine to coarse, medium to dense, dark brown, wet, no plasticity, no cohesion	GW	
		2.0		(7.7-8.3') BRICK GRAVEL and COBBLES, dense, yellow, wet, no plasticity, no cohesion	GW	
		2.2		(8.3-10') SLAG GRAVEL, fine to coarse, light gray, wet, no plasticity, no cohesion	GP	
10	End of Boring					

Total Borehole Depth: 10' bgs due to water.



Client : ~~Via~~ [redacted]
 ARM Project No. : 20010224
 Project Description : Sparrows Point - Parcel B24
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : GSI
 Driller : K. Pumphrey
 Drilling Equipment : Geoprobe 7822DT

Date : 04/20/2020

Northing (US ft) : 568904.77
 Easting (US ft) : 1457506.58

Boring ID: B24-009-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	USCS	REMARKS
0				(0-0.2') NON-NATIVE SAND with fine GRAVEL, loose, brown, dry, no plasticity, no cohesion	SW/GP	Wet at 8.3' bgs
				(0.2-0.7') ASPHALT, black	NA	
			B24-009-SB-1.5	(0.7-4.5') NON-NATIVE SAND and SLAG BRICK GRAVEL, medium, dark brown and grayish brown, dry, no plasticity, no cohesion	SW/GW	
	92	13.9				
		3.8				
		1.3				
		0.0	B24-009-SB-5	(4.5-7') CLAY with SLAG BRICK GRAVEL, very firm, light brown with dark brown, dry, low plasticity, cohesive	CL/GW	
5						
				(7-7.3') BRICK GRAVEL, coarse, dense, red, dry, no plasticity, no cohesion	GP	
	60	1.5		(7.3-8.3') BRICK GRAVEL with firm light brown CLAY, coarse, medium, yellow and red, wet, no plasticity, no cohesion	GP	
		19.2		(8.3-9.5') CLAY, soft to firm, light brown, very moist to wet, low plasticity, cohesive	CL	
		2.4		(9.5-10') CLAYEY GRAVEL, loose, dark brown and light brown, wet, no plasticity, no cohesion	GC	
10				End of Boring		

Total Borehole Depth: 10' bgs due to water.



Client : ~~Via~~ [redacted]
 ARM Project No. : 20010224
 Project Description : Sparrows Point - Parcel B24
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : GSI
 Driller : K. Pumphrey
 Drilling Equipment : Geoprobe 7822DT

Date : 04/20/2020

Northing (US ft) : 568873.21
 Easting (US ft) : 1457507.37

Boring ID: B24-010-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	USCS	REMARKS
0		-	B24-010-SB-1	(0-2.9') NON-NATIVE SAND and SLAG GRAVEL with trace BRICK, fine to coarse, medium, dark brown and dark gray with trace yellow, dry, no pasticity, no cohesion	SW/GW	Trace SILT at surface
	84	0.0				
		0.0		(2.9-3.8') SLAG, SAND and GRAVEL-sized, medium, grayish brown, dry, no plasticity, no cohesion	SW/GW	
		0.0	B24-010-SB-5	(3.8-4.4') BRICK GRAVEL with some SAND-sized BRICK, coarse, dense, black and yellow, dry, no plasticity, no cohesion	GP	
5		-		(4.4-7.7') CLAY with coarse GRAVEL, very firm to hard, light brown with black, dry, low plasticity, cohesive	CL	
	64	0.0				
		0.0		(7.7-8.5') NON-NATIVE SAND and SLAG GRAVEL, medium to dense, black and brown, dry to moist, no plasticity, no cohesion	SW/GW	
		0.0		(8.5-10') CLAYEY BRICK GRAVEL, medium, dark brown and brown with yellow, wet, no plasticity, no cohesion	GC	Wet at 8.5' bgs
10				End of Boring		

Total Borehole Depth: 10' bgs due to water.



Client : Viasat [a] [c] [c]
 ARM Project No. : 20010224
 Project Description : Sparrows Point - Parcel B24
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : GSI
 Driller : K. Pumphrey
 Drilling Equipment : Geoprobe 7822DT

Date : 04/20/2020

Northing (US ft) : 568911.39
 Easting (US ft) : 1457676.38

Boring ID: B24-011-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	USCS	REMARKS
0		-	B24-011-SB-1	(0-3.5') NON-NATIVE SAND with ORGANICS from 0-0.3' bgs then non-native SAND and BRICK and SLAG GRAVEL, medium dense, brown and yellow with gray, dry, no pasticity, no cohesion, trace CLAY		
	78	1.6			SW/GW	
		2.7				
		115.2	B24-011-SB-4	(3.5-4.5') CLAY with trace SAND, light brown, moist, low plasticity, cohesive	CL	
		63.7		(4.5-5.5') SLAG GRAVEL, fine to coarse, loose, black with yellowish red, dry, non-plastic, non-cohesive	GW	
5		-		(5.5-6.7') CLAY, firm, light brown with reddish yellow, dry to moist, low plasticity, cohesive, trace SAND	CL	
		2.9		(6.7-6.9') CONCRETE GRAVEL, white, dry, non-plastic, non-cohesive	NA	
	75	0.0		(6.9-7.7') CLAY, firm, light brown with reddish yellow, dry to moist, low plasticity, cohesive, trace SAND	CL	
		0.0		(7.7-9') CLAYEY GRAVEL with SAND, medium dense, very moist then wet at 8.1' bgs, no plasticity, no cohesion	GC	Wet at 8.1' bgs
				End of Boring		
10						

Total Borehole Depth: 9' bgs due to refusal.



Client : ~~Via~~ [~~3~~ / ~~0~~ / ~~20~~]
 ARM Project No. : 20010224
 Project Description : Sparrows Point - Parcel B24
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : GSI
 Driller : K. Pumphrey
 Drilling Equipment : Geoprobe 7822DT

Date : 04/20/2020

Northing (US ft) : 568912.72
 Easting (US ft) : 1457694.57

Boring ID: B24-012-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	USCS	REMARKS
0		0.1	B24-012-SB-1	(0-0.5') SILT with some SAND and trace GRAVEL, soft, brown, dry, no plasticity, no cohesion	ML	
		0.3		(0.5-2.1') NON-NATIVE SAND and SLAG BRICK GRAVEL, SAND and GRAVEL-sized, medium to dense, brown with some yellow, dry, no plasticity, no cohesion	SW/GW	
	98	0.0		(2.1-8.5') CLAY with trace WOOD at 6.5' bgs, hard, grayish brown and brown, dry to moist, low plasticity, cohesive		
		3.3				
		1.1				
5		0.6			CL	
		1.1				
	100	7.7	B24-012-SB-8			
		0.6		(8.5-9.2') NON-NATIVE SAND and SLAG GRAVEL, very dark gray, dry, no plasticity, no cohesion	SW/GW	
		9.9	B24-012-SB-10	(9.2-10') CLAY, very firm, very dark gray, dry, low plasticity, cohesive	CL	
10		3.2		(10-11') CONCRETE, greenish gray, dry, no plasticity, no cohesion	NA	
		6.1		(11-12.2') CLAY with trace SAND and GRAVEL, very firm to hard, dark gray, dry, low plasticity, cohesive	CL	
	100	1.9		(12.2-12.5') GRAVEL with CLAY, medium, dark gray, moist, no plasticity, no cohesion	GW/GC	
		0.5		(12.5-13.8') CLAY with trace SAND and GRAVEL, very firm to hard, dark gray, dry, low plasticity, cohesive	CL	
				(13.8-14') CLAYEY GRAVEL, loose, dark gray, wet, no plasticity, no cohesion	GC	Wet at 13.8' bgs
15				End of Boring		

Total Borehole Depth: 14' bgs due to water.



ARM Group LLC
Engineers and Scientists

Client : Viasat [a/c]
 ARM Project No. : 20010224
 Project Description : Sparrows Point - Parcel B24
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : GSI
 Driller : D. Marchese
 Drilling Equipment : Geoprobe 7822DT

Date : 04/14/2020

Northing (US ft) : 568805.12
 Easting (US ft) : 1457054.26

Boring ID: B24-013-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	USCS	REMARKS
0				(0-0.3') ASPHALT	NA	
		0.0	B24-013-SB-1	(0.3-1.9') NON-NATIVE SAND (fine to coarse) with trace SLAG GRAVEL (fine) and trace SILT, medium to dense, brown, dry, no plasticity, no cohesion	SW	
		0.0				
	96	0.0		(1.9-5') SLAG, SAND and GRAVEL-sized, medium to dense, light grayish brown, dry to moist, no plasticity, no cohesion	SW/GW	
		0.0				
		1.9	B24-013-SB-5			
5		0.5		(5-10') NON-NATIVE SAND and SLAG GRAVEL, fine to coarse, medium, brown to dark brown, moist then wet at 9' bgs, no plasticity, no cohesion	SW/GW	
		0.5				
	100	0.2			SW/GW	
		1.0				
		0.2				Wet at 9' bgs
10				End of Boring		

Total Borehole Depth: 10' bgs due to water.



Client : Viasat [300] [300]
 ARM Project No. : 20010224
 Project Description : Sparrows Point - Parcel B24
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : GSI
 Driller : D. Marchese
 Drilling Equipment : Geoprobe 7822DT

Date : 04/14/2020

Northing (US ft) : 568797.86
 Easting (US ft) : 1457077.16

Boring ID: B24-014-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	USCS	REMARKS
0				(0-0.2') ASPHALT	NA	
		-	B24-014-SB-1	(0.2-4') SLAG with some NON-NATIVE SAND, SAND and GRAVEL-sized, medium to dense, light brownish gray to brown, dry, no plasticity, no cohesion		
	80	0.0			SW/GW	
		0.0				
		0.0				
		0.1	B24-014-SB-5	(4-5') SLAG, SAND and GRAVEL-sized, medium, light brownish gray, dry, no plasticity, no cohesion	SW/GW	
5		0.4		(5-8') SLAG with some NON-NATIVE SAND, SAND and GRAVEL-sized, medium to dense, brown with light brownish gray, dry, no plasticity, no cohesion		
	100	0.5			SW/GW	
		0.1				
		0.0		(8-8.3') SLAG GRAVEL, fine, loose, dark green, dry, no plasticity, no cohesion	GP	
	75	0.0		(8.3-10') SLAG with NON-NATIVE SAND, fine GRAVEL-sized, loose to medium, dark brown, moist then wet at 9.8' bgs, no plasticity, no cohesion	GP/SW	Wet at 9.8' bgs
		0.0				
10				End of Boring		

Total Borehole Depth: 10' bgs due to water.



Client : Viasat [a] [c] [c]
 ARM Project No. : 20010224
 Project Description : Sparrows Point - Parcel B24
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : GSI
 Driller : D. Marchese
 Drilling Equipment : Geoprobe 7822DT

Date : 04/16/2020

Northing (US ft) : 568696.40
 Easting (US ft) : 1456945.45

Boring ID: B24-015-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	USCS	REMARKS
0		0.0	B24-015-SB-1	(0-0.7') ORGANIC SILT, soft, dark brown, dry to moist, no plasticity, no cohesion	OL	No water encountered
100		0.0		(0.7-2.5') SLAG, SAND and GRAVEL-sized, medium, gray and brown, dry, no plasticity, no cohesion	SW/GW	
		0.0		End of Boring		

Total Borehole Depth: 2.5' bgs due to multiple refusals.



ARM Group LLC
Engineers and Scientists

Client : Viasat [301] CA
 ARM Project No. : 20010224
 Project Description : Sparrows Point - Parcel B24
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : GSI
 Driller : D. Marchese
 Drilling Equipment : Geoprobe 7822DT

Date : 04/16/2020

Northing (US ft) : 568675.93
 Easting (US ft) : 1456949.43

Boring ID: B24-016-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	USCS	REMARKS
0		0.0	B24-016-SB-1	(0-0.5') ORGANIC SILT with some SAND, soft, brown, dry, no plasticity, no cohesion	ML	Moderate amount of organics
		0.0		(0.5-5') SLAG, SAND and GRAVEL-sized, medium to dense, brown to light grayish brown, dry, no plasticity, no cohesion		
90		0.0			SW/GW	No water encountered
		0.0				
		0.1	B24-016-SB-5			
5			End of Boring			
10						

Total Borehole Depth: 5' bgs due to multiple refusals.



ARM Group LLC
Engineers and Scientists

Client : ~~Vista~~ [redacted]
 ARM Project No. : 20010224
 Project Description : Sparrows Point - Parcel B24
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : GSI
 Driller : K. Pumphrey
 Drilling Equipment : Geoprobe 7822DT

Date : 04/20/2020

Northing (US ft) : 568913.42
 Easting (US ft) : 1457390.69

Boring ID: B24-017-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	USCS	REMARKS
0		0.0	B24-017-SB-1	(0-1.4') NON-NATIVE SAND with SLAG GRAVEL, medium, brown with gray, dry, no plasticity, no cohesion	SW/GW	No water encountered
		0.0		(1.4-4.8') SLAG, SAND and GRAVEL-sized, medium, light brownish gray, dry, no plasticity, no cohesion	SW/GW	
90		1.3				
		0.0				
		0.0	B24-017-SB-5			
5		0.0		(4.8-7') NON-NATIVE SAND with SLAG BRICK GRAVEL, medium, dark brown with gray, dry, no plasticity, no cohesion	SW/GW	
100		0.0				
				End of Boring		
10						

Total Borehole Depth: 7' bgs due to multiple refusals.



ARM Group LLC
Engineers and Scientists

Client : ~~Vista [REDACTED]~~
 ARM Project No. : 20010224
 Project Description : Sparrows Point - Parcel B24
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : GSI
 Driller : D. Marchese
 Drilling Equipment : Geoprobe 7822DT

Date : 04/17/2020

Northing (US ft) : 568824.45
 Easting (US ft) : 1457362.65

Boring ID: B24-018-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	USCS	REMARKS
0				(0-0.25') SILT with SAND and ORGANIC MATTER, soft, brown, dry, no plasticity, no cohesion	ML	
			B24-018-SB-1	(0.25-10') SLAG wit NON-NATIVE SAND with trace yellow BRICK, SAND and GRAVEL-sized, medium to dense, dark brown and gray, dry then wet at 9.1' bgs, no plasticity, no cohesion		
	90	0.0				
		0.0				
		0.0				
		0.0	B24-018-SB-5			
5					SW/GW	
		0.0				
		0.0				
		0.0				
		0.0				
	82	0.0				
		0.0				
		0.0				
		0.0				
10				End of Boring		Wet at 9.1' bgs

Total Borehole Depth: 10' bgs due to water.



Client : ~~Vista~~ [~~3014~~]
 ARM Project No. : 20010224
 Project Description : Sparrows Point - Parcel B24
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : GSI
 Driller : K. Pumphrey
 Drilling Equipment : Geoprobe 7822DT

Date : 04/20/2020

Northing (US ft) : 568735.14
 Easting (US ft) : 1457343.65

Boring ID: B24-019-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	USCS	REMARKS
0		0.0	B24-019-SB-1	(0-8.6') SLAG GRAVEL with trace yellow BRICK and trace SILT at 1.5' bgs, fine to coarse with some SAND-sized, medium, dark brown to very dark brown and dark gray, dry, no plasticity, no cohesion	GW	
		0.0				
90		0.0				
		0.0				
		0.0	B24-019-SB-5			
5		-				
		0.0				
80		3.5				
		3.6		(8.6-9') BRICK, SAND and GRAVEL-sized, dense, yellow, dry, no plasticity, no cohesion	GW/SW	Wet at 9' bgs
		0.2		(9-10') SLAG GRAVEL, SAND and GRAVEL-sized, medium, dark brown, dry, no plasticity, no cohesion	SW/GW	
10				End of Boring		

Total Borehole Depth: 10' bgs due to water.



ARM Group LLC
Engineers and Scientists

Client : Viasat [300] [300] [300]
 ARM Project No. : 20010224
 Project Description : Sparrows Point - Parcel B24
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : GSI
 Driller : D. Marchese
 Drilling Equipment : Geoprobe 7822DT

Date : 04/17/2020

Northing (US ft) : 568658.79
 Easting (US ft) : 1457446.65

Boring ID: B24-020-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	USCS	REMARKS
0		-	B24-020-SB-1	(0-7.2') NON-NATIVE SAND and SLAG BRICK, SAND and GRAVEL-sized, dense to medium, dark brown, light grayish brown, with trace yellow, dry, no plasticity, no cohesion	SW/GW	
	78	0.1				
		0.4				
		0.9				
		0.1				
5		-		(7.2-8.8') BRICK SLAG, SAND and GRAVEL-sized, dense, reddish brown, dark brown, and pale red with trace reddish yellow, dry no plasticity, no cohesion	SW/GW	
	66	19.6	B24-020-SB-8			
		1.3				
		0.2		(8.8-10') SLAG, SAND and GRAVEL-sized, dense, dark brown and dark gray, dry then wet at 9.4' bgs, no plasticity, no cohesion	SW/GW	Wet at 9.4' bgs
10				End of Boring		

Total Borehole Depth: 10' bgs due to water.



Client : ~~Via~~ [~~3~~ / ~~0~~ / ~~20~~]
 ARM Project No. : 20010224
 Project Description : Sparrows Point - Parcel B24
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : GSI
 Driller : K. Pumphrey
 Drilling Equipment : Geoprobe 7822DT

Date : 04/21/2020

Northing (US ft) : 569089.83
 Easting (US ft) : 1457629.59

Boring ID: B24-021-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	USCS	REMARKS
0		0.0	B24-021-SB-1	(0-0.3') SILTY SAND with ORGANIC MATTER, loose to medium, dark brown, dry, no plasticity, no cohesion	SM	
				(0.3-0.5') CONCRETE, white, dry, no plasticity, no cohesion	NA	
		0.0		(0.5-7') NON-NATIVE SAND with SLAG BRICK, SAND and GRAVEL-sized, medium, dark brown with red and yellow, dry, no plasticity, no cohesion		
100		0.0				
		0.1			SW/GW	
		2.6	B24-021-SB-5			
5		0.0				
		0.7				
94		0.0		(7-10') SLAG BRICK GRAVEL, fine to coarse with some SAND-sized, medium, dark brown, very moist then wet at 7.2' bgs, no plasticity, no cohesion		Wet at 7.2' bgs
		0.2			GW	
		0.0				
10				End of Boring		

Total Borehole Depth: 10' bgs due to water.



Client : ~~Via~~ [~~3~~ / ~~0~~ / ~~20~~]
 ARM Project No. : 20010224
 Project Description : Sparrows Point - Parcel B24
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : GSI
 Driller : K. Pumphrey
 Drilling Equipment : Geoprobe 7822DT

Date : 04/21/2020

Northing (US ft) : 569084.48
 Easting (US ft) : 1457603.33

Boring ID: B24-022-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	USCS	REMARKS
0		0.0	B24-022-SB-1	(0-7.5') NON-NATIVE SAND with SLAG BRICK, very fine to coarse and SAND and GRAVEL-sized, medium, dark brown with yellow and gray, dry, no plasticity, no cohesion	SW/GW	
		0.0				
94		0.0				
		0.1				
		0.0	B24-022-SB-5			
5		-				
		0.0				
84		0.0		(7.5-7.7') SILT with SAND, firm, black with white speckles, moist, no plasticity, no cohesion	ML	Wet at 7.7' bgs
		0.0		(7.7-9.7') SLAG BRICK GRAVEL with NON-NATIVE SAND, medium, dark brown, wet, no plasticity, no cohesion	GW/SW	
		0.0				
10				(9.7-10') SILT with SAND, firm, black with white speckles, wet, no plasticity, no cohesion	ML	
				End of Boring		

Total Borehole Depth: 10' bgs due to water.



Client : ~~Via~~ [redacted]
 ARM Project No. : 20010224
 Project Description : Sparrows Point - Parcel B24
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : GSI
 Driller : K. Pumphrey
 Drilling Equipment : Geoprobe 7822DT

Date : 04/21/2020

Northing (US ft) : 569129.89
 Easting (US ft) : 1457507.18

Boring ID: B24-023-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	USCS	REMARKS
0		-	B24-023-SB-1	(0-0.25') SAND with SILT, very fine to fine, loose to medium, brown, dry, no plasticity, no cohesion	SW-SM	
		0.5		(0.25-5.5') NON-NATIVE SAND with SLAG GRAVEL, fine to coarse with large metallic-like SLAG COBBLES at 4' bgs, brown with gray, dry, no plasticity, no cohesion		
	82	0.2			SW/GW	
		0.3				
		0.0	B24-023-SB-5			
5		-		(5.5-10') SLAG with trace BRICK GRAVEL, SAND and GRAVEL-sized, medium, light gray, wet, no plasticity, no cohesion		
	80	0.0			SW/GW	Wet at 7.2' bgs
		0.0				
		0.0				
10				End of Boring		

Total Borehole Depth: 10' bgs due to water.



Client : Viasat [a] [c] [c] [c]
 ARM Project No. : 20010224
 Project Description : Sparrows Point - Parcel B24
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : GSI
 Driller : K. Pumphrey
 Drilling Equipment : Geoprobe 7822DT

Date : 04/21/2020

Northing (US ft) : 569102.78
 Easting (US ft) : 1457420.36

Boring ID: B24-024-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	USCS	REMARKS
0				(0-0.5') SAND with SILT, very fine to fine, loose, light brown, dry, no plasticity, no cohesion	SW-SM	
		0.2	B24-024-SB-1	(0.5-8.7') NON-NATIVE SAND with SLAG BRICK, SAND and GRAVEL-sized, medium, dark brown with gray and yellow, dry then wet at 8.5' bgs, no plasticity, no cohesion		
		0.3				
	94	0.8				
		0.3				
		2.0	B24-024-SB-5		SW/GW	
5		-				
		0.1				
	84	0.1				
		0.1				
		0.1		(8.7-8.9') CLAY with trace SAND and GRAVEL, soft, very moist, brownish gray, low plasticity, cohesive	CL	Wet at 8.5' bgs
		0.1		(8.9-10') SLAG BRICK, SAND and GRAVEL-sized, medium to dense, dark brown with dark gray, wet, no plasticity, no cohesion	GW	
10				End of Boring		

Total Borehole Depth: 10' bgs due to water.



Client : Viasat [a] [c] [c] [c]
 ARM Project No. : 20010224
 Project Description : Sparrows Point - Parcel B24
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : GSI
 Driller : D. Marchese
 Drilling Equipment : Geoprobe 7822DT

Date : 04/14/2020

Northing (US ft) : 568938.09
 Easting (US ft) : 1456932.26

Boring ID: B24-025-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	USCS	REMARKS
0		0.0	B24-025-SB-1	(0-0.25') SAND with trace CONCRETE GRAVEL, fine to medium, loose, pale yellow and dark brown, dry, no plasticity, no cohesion	SW	Wet at 8' bgs
	92	0.0		(0.25-2') NON-NATIVE SAND with trace SLAG BRICK GRAVEL with trace large BRICK GRAVEL, very fine to medium, medium, dark brown, brown, and yellow, dry, no plasticity, no cohesion	SW/GW	
		0.2		(2-5.5') NON-NATIVE SAND and SLAG BRICK GRAVEL, fine, medium, brown, yellow, light grayish brown, dry, no plasticity, no cohesion	SW/GP	
		0.6				
		0.9	B24-025-SB-5			
5		-		(5.5-10.5') SLAG BRICK GRAVEL and NON-NATIVE SAND, fine to coarse with cobbles, dense to medium, dark brown, yellow, and brown, dry then wet at 8' bgs, no plasticity, no cohesion	GW	
	66	1.9				
		0.0				
		0.0	B24-025-SB-10			
10		-		(10.5-12.7') GRAVEL, fine, medium, dark brown, wet, no plasticity, no cohesion	GW	
	65	0.4				
		0.0		(12.7-14') NON-NATIVE SAND with SLAG BRICK GRAVEL with CONCRETE GRAVEL at 13.5' bgs, medium to dense, dark brown with yellow, wet, no plasticity, no cohesion	SW/GW	
		0.0				
	100	0.0	B24-025-SB-15	(14-15') SLAG BRICK GRAVEL with trace SILT, fine to coarse, dense, yellow and brown, wet, no plasticity, no cohesion	GW	
15				End of Boring		

Total Borehole Depth: 15' bgs due to refusal.



Client : Viasat [a] [a] [a] [a]
 ARM Project No. : 20010224
 Project Description : Sparrows Point - Parcel B24
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : GSI
 Driller : D. Marchese
 Drilling Equipment : Geoprobe 7822DT

Date : 04/14/2020

Northing (US ft) : 568950.35
 Easting (US ft) : 1457043.58

Boring ID: B24-026-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	USCS	REMARKS
0		-	B24-026-SB-1	(0-6') SILT with SAND and GRAVEL with trace COBBLES, medium, dark brown with trace gray and white, dry, no plasticity, no cohesion		Trace amount of organics at the surface Wet at 6.5' bgs
	74	0.0			ML	
		0.0				
		0.0				
		0.0	B24-026-SB-5			
5		-		(6-8') BRICK GRAVEL with SILT, fine to coarse with COBBLES, reddish yellow and brown, wet, no plasticity, no cohesion	GW	
	70	0.1				
		0.0		(8-9') BRICK COBBLES and SILTY SAND, medium, dark brown and yellow, wet, no plasticity, no cohesion	GP/SM	
		0.0	B24-026-SB-10	(9-11.6') CLAY with SAND and BRICK COBBLES, firm, light olive brown, wet, no plasticity, no cohesion	CL/GP	
10		-				
	78	0.1		(11.6-13.3') SLAG BRICK COBBLES and GRAVEL with trace SAND, dense, red, yellow, and brown, wet, no plasticity, no cohesion	GP	
		0.0		(13.3-15') CLAY with SAND, firm, light olive brown, wet, low plasticity, cohesive with a lense of SLAG BRICK COBBLES and GRAVEL with trace SAND, red, yellow, and brown from 13.6-14.3' bgs	CL	
		0.2				
15		0.0	B24-026-SB-16	(15-16') SLAG BRICK GRAVEL, fine to coarse, dark brown, gray, and yellow, wet, no plasticity, no cohesion	GW	
	100	0.0		(16-16.5') CONCRETE, white and very pale brown	NA	
		0.0		End of Boring		
20						

Total Borehole Depth: 16.5' bgs due to refusal.



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Engineers and Scientists

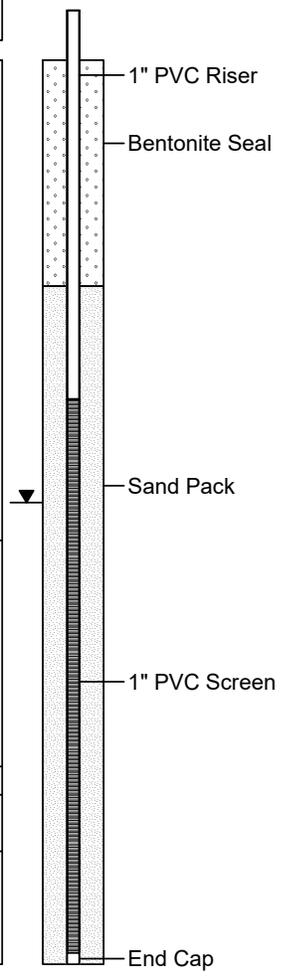
Client : ~~Via~~ [redacted]
 ARM Project No. : 20010224
 Project Description : Sparrows Point - Parcel B24
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : GSI
 Driller : D. Marchese
 Drilling Equipment : Geoprobe 7822DT

Soil Boring Installation Date : 04/16/2020
 Piezometer Installation Date : 04/16/2020
 Casing/Riser/Screen Type : PVC
 Borehole Diameter : 2.25"
 Riser/Screen Diameter : 1"
 Northing (US ft) : 569148.59
 Easting (US ft) : 1456802.77
 48-Hr DTW : 10.61' TOC
 No LNAPL or DNAPL detected at 0 or 48 hours

Boring ID: B24-027-SB/PZ

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	USCS	REMARKS
0		-	B24-027-SB-1	(0-8.5') NON-NATIVE SAND (very fine to medium) and BRICK SLAG GRAVEL (fine to coarse) with trace COBBLES, medium, dark brown, yellow, and gray, dry, no plasticity, no cohesion	SW/GW	Wet at 8.5' bgs
	74	1.3				
		0.9				
		0.0				
		0.0	B24-027-SB-5			
5		0.0		(8.5-12.5') SLAG GRAVEL, fine to coarse, medium to dense, gray and brown, wet, no plasticity, no cohesion	GW	
	92	0.0				
		0.0				
10		0.1		(12.5-13') CLAY with SAND, firm, gray, moist, low plasticity, cohesive	CL	
	100	0.2				
		-		(13-14') SLAG with CLAY, SAND and GRAVEL-sized, gray, wet, no plasticity, no cohesion	SW/GW	
15		-		(14-16') SLAG GRAVEL, fine, grayish brown, wet, no plasticity, no cohesion	GP	
	100	-		End of Boring		
20						



Boring terminated at 16' bgs due to water and piezometer installation
 TOC: Top of PVC casing
 DTW: Depth to water
 bgs: Below ground surface

Riser Stickup: 2.78'
 Riser: 0 - 6' bgs
 Screen: 6 - 16' bgs [Slot Size: 0.010"]
 Sand Pack: 4 - 16' bgs [Grain Size: WG #2]
 Bentonite Seal: 0 - 4' bgs [Grain Size: bentonite chips]



ARM Group LLC
Engineers and Scientists

Client : Viasat [a] [c] [c] [c]
 ARM Project No. : 20010224
 Project Description : Sparrows Point - Parcel B24
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : GSI
 Driller : K. Pumphrey
 Drilling Equipment : Geoprobe 7822DT

Date : 04/21/2020

Northing (US ft) : 569286.19
 Easting (US ft) : 1457246.31

Boring ID: B24-028-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	USCS	REMARKS
0		0.0	B24-028-SB-1	(0-10') NON-NATIVE SAND and SLAG BRICK GRAVEL with trace METALLIC-LIKE SLAG GRAVEL, medium to dense, brown to dark brown with some gray and trace yellow, dry then wet at 8' bgs, no plasticity, no cohesion	SW/GW	Wet at 8' bgs
		0.0				
82		0.0				
		0.2				
		0.0	B24-028-SB-5			
5		-				
		0.0				
82		0.0				
		0.0				
		0.0				
10				End of Boring		

Total Borehole Depth: 10' bgs due to water.



Client : Viasat [a] [c] [c] [c]
 ARM Project No. : 20010224
 Project Description : Sparrows Point - Parcel B24
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : GSI
 Driller : K. Pumphrey
 Drilling Equipment : Geoprobe 7822DT

Date : 04/20/2020

Northing (US ft) : 569528.12
 Easting (US ft) : 1456799.44

Boring ID: B24-029-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	USCS	REMARKS
0		-	B24-029-SB-1	(0-0.5') SILT with SAND, fine, very firm to hard, dark brown, dry, no plasticity, no cohesion	ML	
				(0.5-1.5') SLAG COBBLES, dense, dry gray, no plasticity, no cohesion	GP	
	80	3.8		(1.5-3.6') NON-NATIVE SAND with trace BRICK COBLES at depth and a CLAY lens from 2.6-2.8' bgs, medium, dark brown, dry, no plasticity, no cohesion	SW	
		1.9				
		1.2				
		0.0		(3.6-5') SLAG BRICK GRAVEL with some NON-NATIVE SAND, fine to coarse, dense, very dark brown, dark gray, red, and yellow, dry, no plasticity, no cohesion	GW	
5		-		(5-7.1') NON-NATIVE SAND with trace GRAVEL, medium, dark brown, dry, no plasticity, no cohesion	SW	
	76	4.3		(7.1-8.8') BRICK GRAVEL with COBBLES, dense, yellow, dry, no plasticity, no cohesion	GW	
		35.1	B24-029-SB-9			
		22.9		(8.8-10') NON-NATIVE SAND with SLAG GRAVEL, medium, dark brown and gray, dry then wet at 9.8' bgs, no plasticity, no cohesion	SW/GW	
10				End of Boring		Wet at 9.8' bgs

Total Borehole Depth: 10' bgs due to water.



Client : Viasat [30] [30] [30]
 ARM Project No. : 20010224
 Project Description : Sparrows Point - Parcel B24
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : GSI
 Driller : D. Marchese
 Drilling Equipment : Geoprobe 7822DT

Date : 04/17/2020

Northing (US ft) : 568830.13
 Easting (US ft) : 1457493.39

Boring ID: B24-030-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	USCS	REMARKS
0				(0-0.25') SILT with some SAND and CLAY, soft, dark brown, dry, no plasticity, no cohesion	ML	Organics at the surface
			B24-030-SB-1	(0.25-4.5') SLAG BRICK with NON-NATIVE SAND with some CONCRETE from 2.5 to 3.5' bgs, SAND and GRAVEL-sized, medium, brown, red, gray and yellow, dry, no plasticity, no cohesion	GW/SW	
	86	0.2				
		0.9				
		0.4				
5		0.0		(4.5-6') CLAY with trace GRAVEL, firm, light brown with trace reddish yellow, dry to moist, low plasticity, cohesive	CL	
	48	23.0		(6-8.5') SLAG BRICK with NON-NATIVE SAND, SAND and GRAVEL-sized, medium, brown, red, gray, and yellow, dry, no plasticity, no cohesion	GW/SW	
		77.5	B24-030-SB-9	(8.5-9.6') CLAY with SLAG GRAVEL, coarse, firm, light brown, moist, low plasticity, cohesive	CL/GP	
		0.4		(9.6-10') GRAVEL with CLAY and SAND, medium, very dark brown and light brown, wet, no plasticity, no cohesion	GW-GC	Wet at 9.6' bgs
10				End of Boring		

Total Borehole Depth: 10' bgs due to water.



Client : Viasat [a] [c] [c] [c]
 ARM Project No. : 20010224
 Project Description : Sparrows Point - Parcel B24
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : GSI
 Driller : D. Marchese
 Drilling Equipment : Geoprobe 7822DT

Date : 04/17/2020

Northing (US ft) : 568827.65
 Easting (US ft) : 1457466.69

Boring ID: B24-031-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	USCS	REMARKS
0				(0-0.25') CLAYEY SAND with trace ORGANICS, loose, brown, dry, no plasticity, no cohesion	SC	
		0.5		(0.25-0.5') ASPHALT	NA	
			B24-031-SB-1.5	(0.5-6.7') NON-NATIVE SAND and SLAG BRICK GRAVEL, fine to coarse, medium, dark brown, gray, yellow, and red, dry, no plasticity, no cohesion		
		2.4				
	86	19.7				
		1.2			SW/GW	
		0.1	B24-031-SB-5			Trace purple SLAG at 4.8' bgs
5		-				
		0.3				
	82	0.5		(6.7-7.1') SAND with trace BRICK GRAVEL, very fine to medium, medium, reddish yellow, moist, no plasticity, no cohesion	SW	
				(7.1-7.5') CLAY with some SLAG GRAVEL, very firm, light brown, dry, low plasticity, cohesion	CL	
				(7.5-8.2') CONCRETE, white, dry	NA	
		0.3		(8.2-8.3') SAND, very fine to fine, very dark brown, dry, no plasticity, no cohesion	SW	
				(8.3-9.5') CLAY, hard, light brown with reddish yellow, dry, low plasticity, cohesive	CL	
		0.1		(9.5-10') CLAY, firm, light brown with reddish yellow, moist, medium plasticity, cohesive; with yellow SAND and trace GRAVEL at depth	CL	Wet at 9.9' bgs
10				End of Boring		

Total Borehole Depth: 10' bgs due to water.



Client : Viasat [30] [30] [30]
 ARM Project No. : 20010224
 Project Description : Sparrows Point - Parcel B24
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : GSI
 Driller : D. Marchese
 Drilling Equipment : Geoprobe 7822DT

Date : 04/15/2020

Northing (US ft) : 569009.27
 Easting (US ft) : 1456645.27

Boring ID: B24-032-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	USCS	REMARKS
0		-	B24-032-SB-1	(0-0.25') ORGANIC SILT, loose, very dark brown, dry, no plasticity, no cohesion	OL	
	82	0.0		(0.25-2.5') NON-NATIVE SAND and SLAG GRAVEL with trace ORGANICS, fine to coarse, medium, very dark brown and light gray, dry, no plasticity, no cohesion	SW/GW	
		0.0		(2.5-3.7') SLAG GRAVEL, fine to coarse, dense, gray with brown, dry, no plasticity, no cohesion	GW	
		0.2				
		0.0	B24-032-SB-5	(3.7-6') BRICK and SLAG GRAVEL, medium, very brown with yellow, dry, no plasticity, no cohesion	GW	
5		-				
		0.0		(6-11') SLAG GRAVEL with some SAND, medium to dense, pale brow, light gray, and white, moist, no plasticity, no cohesion	GW	
	70	0.0				
		0.0				
		0.0	B24-032-SB-10			
10		-				
		-		(11-15') SLAG GRAVEL, SAND-sized, medium to dense, very dark brown and gray, wet, no plasticity, no cohesion		
	60	0.1			GW	Wet at 12.8' bgs
		0.3				
		0.0				
15				End of Boring		

Total Borehole Depth: 15' bgs due to water.



Client : ~~Via~~ [redacted]
 ARM Project No. : 20010224
 Project Description : Sparrows Point - Parcel B24
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : GSI
 Driller : K. Pumphrey
 Drilling Equipment : Geoprobe 7822DT

Soil Boring Installation Date : 04/21/2020
 Piezometer Installation Date : 04/21/2020
 Casing/Riser/Screen Type : PVC
 Borehole Diameter : 2.25"
 Riser/Screen Diameter : 1"
 Northing (US ft) : 569458.42
 Easting (US ft) : 1457177.41
 48-Hr DTW : 9.95' TOC
 No LNAPL or DNAPL detected at 0 or 48 hours

Boring ID: B24-034-SB/PZ

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	USCS	REMARKS
0		-	B24-034-SB-1	(0-0.5') SAND with SILT, very fine to fine, loose, brown, dry, no plasticity, no cohesion	SW-SM	<p>1" PVC Riser Bentonite Seal Sand Pack 1" PVC Screen End Cap</p>
0.3	92	0.3		(0.5-1.5') NON-NATIVE SAND with SLAG BRICK, SAND and GRAVEL-sized, medium, brown to dark brown and gray with yellowish red, dry, no plasticity, no cohesion	SW/GW	
0.2		0.2		(1.5-2') CONCRETE, SAND and GRAVEL-sized, medium, white, dry, no plasticity, no cohesion	NA	
0.5		0.5		(2-7.3') NON-NATIVE SAND and SLAG, SAND and GRAVEL-sized, medium to dense, brown to dark brown and gray, dry, no plasticity, no cohesion	SW/GW	
0.0		0.0	B24-034-SB-5		SW/GW	
5		-				
0.1		0.1				
0.4	78	0.4		(7.3-7.5') METALLIC SLAG, coarse GRAVEL to COBBLE-sized, dense, gray and red, dry, no plasticity, no cohesion	GP	
0.1		0.1		(7.5-12') SLAG GRAVEL, SAND and GRAVEL-sized, medium to dense, dark brown, wet, no plasticity, no cohesion	GW/SW	
0.3		0.3			GW/SW	
10		-				
70		-		(12-14') SILT with intermittent very coarse SAND layers, soft, black with trace gray, wet, low plasticity, cohesive	ML	Wet at 7.5' bgs
15		-		(14-15') SAND with trace fine GRAVEL, medium to coarse, loose to medium, black and brown, wet, no plasticity, no cohesion	SW	Heavy sludge-like odor and trace sheen present. No visible product.
				End of Boring		

Boring terminated at 15' bgs due to water and piezometer installation
 TOC: Top of PVC casing
 DTW: Depth to water
 bgs: Below ground surface

Riser Stickup: 2.70'
 Riser: 0 - 5' bgs
 Screen: 5 - 15' bgs [Slot Size: 0.010"]
 Sand Pack: 3 - 15' bgs [Grain Size: WG #2]
 Bentonite Seal: 0 - 3' bgs [Grain Size: bentonite chips]



ARM Group LLC
Engineers and Scientists

Client : ~~Via^ [a c c e s s]~~
 ARM Project No. : 20010224
 Project Description : Sparrows Point - Parcel B24
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : GSI
 Driller : D. Marchese
 Drilling Equipment : Geoprobe 7822DT

Soil Boring Installation Date : 04/15/2020
 Piezometer Installation Date : 04/15/2020
 Casing/Riser/Screen Type : PVC
 Borehole Diameter : 2.25"
 Riser/Screen Diameter : 1"
 Northing (US ft) : 569328.63
 Easting (US ft) : 1456515.86
 48-Hr DTW : 12.50' TOC
 No LNAPL or DNAPL detected at 0 or 48 hours

Boring ID: B24-035-SB/PZ

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	USCS	REMARKS
0		0.2	B24-035-SB-1	(0-1') ORGANIC SILT with SAND, loose to medium, dark brown, dry, no plasticity, no cohesion	OL	<p>Wet at 9.5' bgs</p>
	90	1.1		(1-5.5') NON-NATIVE SAND with SLAG GRAVEL, medium to dense, dark brown with gray, dry, no plasticity, no cohesion	SW/GW	
		2.3				
		17.6	B24-035-SB-4			
5		0.1				
	80	-		(5.5-15') SLAG GRAVEL with some SAND-sized SLAG with trace COBBLES, medium, brown and gray, dry then moist at 7.5' bgs then wet at 9.5' bgs, no plasticity, no cohesion	GW	
		1.1				
		1.2				
		1.4				
10		0.1				
	40	-				
		-				
		0.1				
		0.1				
15	0	-		(15-17') No recovery	NA	
		-				
				End of Boring		
20						

Boring terminated at 17' bgs due to water and piezometer installation
 TOC: Top of PVC casing
 DTW: Depth to water
 bgs: Below ground surface

Riser Stickup: 2.74'
 Riser: 0 - 7' bgs
 Screen: 7 - 17' bgs [Slot Size: 0.010"]
 Sand Pack: 5 - 17' bgs [Grain Size: WG #2]
 Bentonite Seal: 0 - 5' bgs [Grain Size: bentonite chips]



ARM Group LLC
Engineers and Scientists

Client : ~~Via^] [a c] a~~
 ARM Project No. : 20010224
 Project Description : Sparrows Point - Parcel B24
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : GSI
 Driller : D. Marchese
 Drilling Equipment : Geoprobe 7822DT

Soil Boring Installation Date : 04/15/2020
 Piezometer Installation Date : 04/15/2020
 Casing/Riser/Screen Type : PVC
 Borehole Diameter : 2.25"
 Riser/Screen Diameter : 1"
 Northing (US ft) : 569051.64
 Easting (US ft) : 1456637.07
 48-Hr DTW : 13.83' TOC
 No LNAPL or DNAPL detected at 0 or 48 hours

Boring ID: B24-036-SB/PZ

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	USCS	REMARKS
0		-	B24-036-SB-1	(0-0.3') SILTY SAND, medium, dark brown, dry, no plasticity, no cohesion	SM	<p>Large amount of organics</p>
0.1	76			(0.3-20') SLAG, SAND and GRAVEL-sized, medium to dense, light gray, gray, dark gray, brown, and white with trace green, dry then wet at 13' bgs, no plasticity, no cohesion		
0.1						
0.1						
0.4						
5						
5		19.4				
7.5	78		B24-036-SB-8			
10		37.8				
10		7.5				
10		4.1	B24-036-SB-10		GW/SW	
10		-				
10		3.7				
15		1.4				
15		1.0				
15		0.3				
15		-				
15		-				
20	60	0.1				
20		0.1				
20		0.1				
20		0.1				
20				End of Boring		Wet at 13' bgs

Boring terminated at 20' bgs due to water and piezometer installation
 TOC: Top of PVC casing
 DTW: Depth to water
 bgs: Below ground surface

Riser Stickup: 2.72'
 Riser: 0 - 10' bgs
 Screen: 10 - 20' bgs [Slot Size: 0.010"]
 Sand Pack: 8 - 20' bgs [Grain Size: WG #2]
 Bentonite Seal: 0 - 8' bgs [Grain Size: bentonite chips]



Client : Viasat [30] [30] [30]
 ARM Project No. : 20010224
 Project Description : Sparrows Point - Parcel B24
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : GSI
 Driller : D. Marchese
 Drilling Equipment : Geoprobe 7822DT

Date : 04/16/2020

Northing (US ft) : 569075.17
 Easting (US ft) : 1456866.03

Boring ID: B24-037-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	USCS	REMARKS
0		-	B24-037-SB-1	(0-2.8') BRICK GRAVEL and SLAG with some metallic GRAVEL and SAND with trace ORGANICS at the surface, SAND and GRAVEL-sized, loose, red, gray, and brown, dry, no plasticity, no cohesion	GW/SW	Wet at 8' bgs
	70	1.7				
		0.0		(2.8-8.2') SLAG and NON-NATIVE SAND, SAND and GRAVEL-sized with trace COBBLES, medium, brown and gray, dry, no plasticity, no cohesion		
		0.0				
5		-			SW/GW	
		17.9				
	84	40.0	B24-037-SB-8			
		7.1		(8.2-8.6') CONCRETE, white	NA	
		0.5	B24-037-SB-10	(8.6-10') SLAG GRAVEL and NON-NATIVE SAND, SAND and GRAVEL-sized, medium to dense, brown and gray, wet, no plasticity, no cohesion, CLAY lense at 9' bgs	SW/GW	
10		0.4		(10-12') FILL GRAVEL, fine to coarse, dense, red, brown, and gray gray, wet, no plasticity, no cohesion	GW	
	100	0.7	B24-037-SB-12			
End of Boring						
15						

Total Borehole Depth: 12' bgs due to multiple refusals.

APPENDIX C

May 8, 2020

Mr. Stewart Kabis
 ARM Group, Inc.
 9175 Guilford Road, Suite 310
 Columbia, MD 21046

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

Mr. Kabis:

Below are the specified surveyed wells, date of last field work completed on May 4th, 2020. 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 with NAVD88 (AMSL) elevations.

<i>DESCRIPTION</i>	<i>NORTHING</i>	<i>EASTING</i>	<i>TOP ELEVATION (CASING UNLESS NOTED)</i>	<i>GROUND (NAIL SET) AT WELL/ PIEZOMETER</i>	<i>NOTES</i>
B24-001-PZ	568717.228	1457146.262	12.96	9.81	GROUND (NAIL SET) **
B24-003-PZ	568561.389	1456819.389	13.93	10.61	GROUND (NAIL SET) **
B24-027-PZ	569148.585	1456802.770	11.60	8.73	GROUND (NAIL SET) **
B24-034-PZ	569458.422	1457177.413	11.51	8.71	GROUND (NAIL SET) **
B24-035-PZ	569328.630	1456515.856	12.80	9.96	GROUND (NAIL SET) **
B24-036-PZ	569051.640	1456637.066	14.05	11.25	GROUND (NAIL SET) **

APPENDIX D

PID CALIBRATION LOG

PROJECT NAME: Area B: Parcel B24 Phase II

SAMPLER NAME: L. Perrin

PROJECT NUMBER: 20010224

PAGE 1 of 1

DATE/TIME	SAMPLER INITIALS	PID SERIAL #	FRESH AIR CAL	STANDARD	STANDARD CONCENTRATION	METER READING	COMMENTS
4/14/2020 9:20	LLP	592-913262	0.0	Isobutylene	100 ppm	100.0	
4/15/2020 8:07	LLP	592-913262	0.0	Isobutylene	100 ppm	100.0	
4/16/2020 8:28	LLP	592-913262	0.0	Isobutylene	100 ppm	100.0	
4/17/2020 8:10	LLP	592-913262	0.0	Isobutylene	100 ppm	100.0	
4/20/2020 8:20	LLP	592-913262	0.0	Isobutylene	100 ppm	100.0	
4/21/2020 8:20	LLP	592-913262	0.0	Isobutylene	100 ppm	100.0	
4/22/2020 8:40	LLP	592-913262	0.0	Isobutylene	100 ppm	100.0	
5/12/2020 8:50	LLP	592-913262	0.0	Isobutylene	100 ppm	100.0	

APPENDIX E

Low Flow Sampling Permanent Wells



ARM Group Inc.
Earth Resource Engineers and Consultants

Project Name: <u>B24 P2</u>	Project Number: <u>20010224</u>
Well Number: <u>B24-001-P2</u>	Date: <u>5/1/2020</u>
Well Diameter (in): <u>1</u>	One Well Volume (gal):
Depth to Product (ft): <u>none</u>	QED Controller Settings:
Depth to Water (ft): <u>11.70</u>	Flow Rate (mL/min) <u>300</u>
Product Thickness (ft): <u>-</u>	Length of time Purged (min)
Depth to Bottom (ft): <u>19.15</u>	Condition of Pad/Cover: <u>✓</u>

PURGING RECORD

Time	Volume Purged (gallons)	DTW (feet)	Temp (°C)	pH (s.u.) ± 0.1	Specific Conductance (ms/cm) ± 3%	Dissolved Oxygen (mg/L) ± 0.3	ORP (mV) ± 10	Turbidity (NTU) ± 10% or < 5	Comments
0900	1.25	11.70	14.2	11.90	1.346	7.78	124.9	17.3	
0905	1.5	↓	14.1	11.84	1.297	5.33	92.0	16	
0910	1.75	↓	14.1	11.82	1.277	4.92	72.0	78.2	
0915	2	↓	14.2	11.81	1.265	4.33	57.8	31.8	
0920	2.25	↓	14.2	11.81	1.252	4.02	33.3	33.6	
0925	2.5	↓	14.2	11.81	1.251	3.81	12.5	26.2	
0930	2.75	↓	14.2	11.80	1.248	3.67	3.5	19.8	
0935	3	↓	14.2	11.80	1.247	3.49	-1.7	21.4	

MONITORING SAMPLE RECORD

Sample ID	Time Collected	Parameter/Order	Container	Perservative	Collected?
B24-001-P2	0940	TCL-VOCs	3 - 40 mL VOA	HCl	✓
		TPH-GRO	3 - 40 mL VOA	HCl	✓
		TPH-DRO	2 - 1 L Amber	none	✓
		TCL-SVOCs	2 - 1 L Amber	none	✓
		Oil & Grease	2 - 1 L Amber	HCl	✓
		TAL-Metals & Mercury (total)	1 - 250 mL Plastic	HNO3	N
		Hexavalent Chromium (total)	1 - 250 mL Plastic	none	N
		qva Total Cyanide	1 - 250 mL Plastic	NaOH	✓
		TAL-Metals & Mercury (Dissolved) Field Filtered	1 - 250 mL Plastic	HNO3	✓
		Hexavalent Chromium (Dissolved) Field Filtered	1 - 250 mL Plastic	none	✓
PCB	2 - 1 L Amber	None	N		

Matrix Spike

Duplicate

Sampled By: LMG

Comments:

Casing Volume: 1" I.D. = 0.041 gal/ft - 2" I.D. = 0.163 gal/ft - 4" I.D. = 0.653 gal/ft - 6" I.D. = 1.47 gal/ft
ft x gal/ft = (gal)

Low Flow Sampling Permanent Wells



ARM Group Inc.
Earth Resource Engineers and Consultants

Project Name: <u>B24 P2</u>	Project Number: <u>2010774</u>
Well Number: <u>B24-027-P2</u>	Date: <u>4/29/2020</u>
Well Diameter (in): <u>1</u>	One Well Volume (gal):
Depth to Product (ft): <u>mm</u>	QED Controller Settings:
Depth to Water (ft): <u>10.81</u>	Flow Rate (mL/min) <u>400</u>
Product Thickness (ft): <u>-</u>	Length of time Purged (min)
Depth to Bottom (ft): <u>17.08</u>	Condition of Pad/Cover: <u>—————</u>

PURGING RECORD

Time	Volume Purged (gallons)	DTW (feet)	Temp (°C)	pH (s.u.) ± 0.1	Specific Conductance (ms/cm) ± 3%	Dissolved Oxygen (mg/L) ± 0.3	ORP (mV) ± 10	Turbidity (NTU) ± 10% or < 5	Comments
1215	1.5	10.81	13.7	12.42	3.186	7.14	-119.3	127	
1220	1.9	10.81	13.7	12.41	3.196	6.02	-124.0	161	
1225	2.3	↓	13.7	12.40	3.191	5.53	-124.6	26.8	
1230	2.7		13.9	12.39	3.202	5.15	-117.7	17.2	
1235	3.1		13.8	12.39	3.211	4.94	-114.6	6.72	
1240	3.5		13.9	12.39	3.209	4.74	-111.2	4.66	

MONITORING SAMPLE RECORD

Sample ID	Time Collected	Parameter/Order	Container	Perservative	Collected?
B24-027-P2	1245	TCL-VOCs	3 - 40 mL VOA	HCl	y
		TPH-GRO	3 - 40 mL VOA	HCl	
		TPH-DRO	2 - 1 L Amber	none	
		TCL-SVOCs	2- 1 L Amber	none	
		Oil & Grease	2- 1 L Amber	HCl	
		TAL-Metals & Mercury (total)	1 - 250 mL Plastic	HNO3	
		Hexavalent Chromium (total)	1 - 250 mL Plastic	none	
		Total Cyanide	1 - 250 mL Plastic	NaOH	
		TAL-Metals & Mercury (Dissolved) Field Filtered	1 - 250 mL Plastic	HNO3	
		Hexavalent Chromium (Dissolved) Field Filtered	1 - 250 mL Plastic	none	
PCB	2 - 1 L Amber	None	N		

Matrix Spike
Duplicate

Sampled By: LMG

Comments:

Casing Volume: 1" I.D. = 0.041 gal/ft - 2" I.D. = 0.163 gal/ft - 4" I.D. = 0.653 gal/ft - 6" I.D. = 1.47 gal/ft
ft x _____ gal/ft = _____ (gal)

Low Flow Sampling Permanent Wells



ARM Group Inc.
Earth Resource Engineers and Consultants

Project Name: B24 P2	Project Number: 20010224
Well Number: B24-035-P2	Date: 4/29/2010
Well Diameter (in): 1	One Well Volume (gal):
Depth to Product (ft): none	QED Controller Settings:
Depth to Water (ft): 11.79	Flow Rate (mL/min) 360
Product Thickness (ft): -	Length of time Purged (min)
Depth to Bottom (ft): 19.81	Condition of Pad/Cover: none / none

PURGING RECORD

Time	Volume Purged (gallons)	DTW (feet)	Temp (°C)	pH (s.u.) ± 0.1	Specific Conductance (ms/cm) ± 3%	Dissolved Oxygen (mg/L) ± 0.3	ORP (mV) ± 10	Turbidity (NTU) ± 10% or < 5	Comments
1030	1.5	11.79	15.9	9.13	6.859	6.65	188.9	12.1	clear
1035	1.9	11.79	16.0	9.10	7.112	5.44	170.3	10.65	
1040	2.3		15.8	9.09	7.027	4.71	101.3	7.62	
1045	2.7		15.6	9.08	10.971	4.21	46.9	8.41	
1050	3.1		16.0	9.07	6.971	3.83	16.5	5.11	
1055	3.5		15.8	9.06	6.973	3.56	-15.9	3.49	
1100	3.9		16.0	9.05	6.897	3.35	-21.2	1.75	
1105	4.3	11.79	16.1	9.04	6.875	3.20	-20.4	1.21	

MONITORING SAMPLE RECORD

Sample ID	Time Collected	Parameter/Order	Container	Perservative	Collected?
B24-035-P2	1110	TCL-VOCs	3 - 40 mL VOA	HCl	Y
		TPH-GRO	3 - 40 mL VOA	HCl	Y
		TPH-DRO	2 - 1 L Amber	none	
		TCL-SVOCs	2 - 1 L Amber	none	
		Oil & Grease	2 - 1 L Amber	HCl	
		TAL-Metals & Mercury (total)	1 - 250 mL Plastic	HNO3	
		Hexavalent Chromium (total)	1 - 250 mL Plastic	none	
		Total Cyanide	1 - 250 mL Plastic	NaOH	
		TAL-Metals & Mercury (Dissolved) Field Filtered	1 - 250 mL Plastic	HNO3	
		Hexavalent Chromium (Dissolved) Field Filtered	1 - 250 mL Plastic	none	
PCB	2 - 1 L Amber	None	N		

Matrix Spike

Duplicate

Sampled By: **img**

Comments:

Casing Volume: 1" I.D. = 0.041 gal/ft - 2" I.D. = 0.163 gal/ft - 4" I.D. = 0.653 gal/ft - 6" I.D. = 1.47 gal/ft
ft x _____ gal/ft = _____ (gal)

Low Flow Sampling Permanent Wells



ARM Group Inc.
Earth Resource Engineers and Consultants

Project Name: B24 P2
Well Number: B24-036-P2
Well Diameter (in): 1
Depth to Product (ft): none
Depth to Water (ft): 12.48
Product Thickness (ft): 2
Depth to Bottom (ft): 22.42

Project Number: 20010024
Date: 5/1/20
One Well Volume (gal):
QED Controller Settings:
Flow Rate (mL/min) 300
Length of time Purged (min)
Condition of Pad/Cover: 1

PURGING RECORD

Time	Volume Purged (gallons)	DTW (feet)	Temp (°C)	pH (s.u.) ± 0.1	Specific Conductance (ms/cm) ± 3%	Dissolved Oxygen (mg/L) ± 0.3	ORP (mV) ± 10	Turbidity (NTU) ± 10% or < 5	Comments
1235	1.5	12.48	17.2	11.62	2.854	6.00	-204.8	89.2	
1240	1.8		18.5	11.59	2.796	4.38	-232.6	68.2	
1245	2.1		18.5	11.59	3.388	3.52	-253.3	32.4	
1250	2.4		18.6	11.59	3.452	3.00	-273.0	27.6	
1255	2.7		18.1	11.61	3.524	2.65	-300.8	18.9	
1300	3		18.0	11.61	3.536	2.50	-310.7	9.34	
1305	3.3		18.8	11.59	3.620	2.31	-320.4	4.03	

MONITORING SAMPLE RECORD

Sample ID	Time Collected	Parameter/Order	Container	Perservative	Collected?
B24-036-P2	1310	TCL-VOCs	3 - 40 mL VOA	HCl	Y
		TPH-GRO	3 - 40 mL VOA	HCl	Y
		TPH-DRO	2 - 1 L Amber	none	Y
		TCL-SVOCs	2 - 1 L Amber	none	Y
		Oil & Grease	2 - 1 L Amber	HCl	Y
		TAL-Metals & Mercury (total)	1 - 250 mL Plastic	HNO3	N
		Hexavalent Chromium (total)	1 - 250 mL Plastic	none	N
		Total Cyanide	1 - 250 mL Plastic	NaOH	Y
		TAL-Metals & Mercury (Dissolved) Field Filtered	1 - 250 mL Plastic	HNO3	Y
		Hexavalent Chromium (Dissolved) Field Filtered	1 - 250 mL Plastic	none	Y
PCB	2 - 1 L Amber	None	N		

Matrix Spike
Duplicate

Sampled By: Lmf

Comments:

**Low Flow Sampling
Permanent Wells**



ARM Group Inc.

Earth Resource Engineers and Consultants

Project Name: SW Groundwater
 Well Number: TMO2-P2M009
 Well Diameter (in): 2
 Depth to Product (ft): NA
 Depth to Water (ft): 10.24
 Product Thickness (ft): NA
 Depth to Bottom (ft): 19.52

Project Number: 20010304
 Date: 9/17/20
 One Well Volume (gal): —
 QED Controller Settings: —
 Flow Rate (mL/min): —
 Length of time Purged (min): 20
 Condition of Pad/Cover: None OK

PURGING RECORD

Time	Volume Purged (gallons)	DTW (feet)	Temp (°C)	pH (s.u.) ± 0.1	Specific Conductance (ms/cm) ± 3%	Dissolved Oxygen (mg/L) ± 0.3	ORP (mV) ± 10	Turbidity (NTU) ± 10% or < 5	Comments
829	0.0	10.24	18.27	11.54	1.542	14.12	-41.0	4.88	
834	0.4	10.24	18.48	11.79	1.664	11.79	-163.6	2.73	
839	0.8	10.24	18.61	11.87	1.683	11.87	-180.4	2.12	
844	1.2	10.24	18.73	11.90	1.686	11.90	-183.7	1.64	
849	1.6	10.24	18.79	11.91	1.693	11.91	-191.2	1.41	

MONITORING SAMPLE RECORD

Sample ID	Time Collected	Parameter/Order	Container	Perservative	Collected?
TMO2-P2M009	855	TCL-VOCs	3 - 40 mL VOA	HCl	Y
		TPH-GRO	3 - 40 mL VOA	HCl	Y
		TPH-DRO	2 - 1 L Amber	none	Y
		PRM SVM TCL-SVOCs	2 - 1 L Amber	none	Y
		Oil & Grease	2 - 1 L Amber	HCl	X
		TAL-Metals & Mercury (total)	1 - 250 mL Plastic	HNO3	Y
		Hexavalent Chromium (total)	1 - 250 mL Plastic	none	Y
		Total Cyanide	1 - 250 mL Plastic	NaOH	Y
		TAL-Metals & Mercury (Dissolved) Field Filtered	1 - 250 mL Plastic	HNO3	Y
		Hexavalent Chromium (Dissolved) Field Filtered	1 - 250 mL Plastic	none	Y
		PCB	2 - 1 L Amber	None	N
		Matrix Spike			N
		Duplicate			N

Sampled By: CLP

Comments: also amenable cyanide

Low Flow Sampling Permanent Wells



ARM Group Inc.

Earth Resource Engineers and Consultants

Project Name: <u>SW Cyanide GW</u>	Project Number: <u>20010304</u>
Well Number: <u>TM03-P2M004</u>	Date: <u>8/6/20</u>
Well Diameter (in): <u>2</u>	One Well Volume (gal): <u> </u>
Depth to Product (ft): <u>NA</u>	QED Controller Settings: <u> </u>
Depth to Water (ft): <u>8.37</u>	Flow Rate (mL/min) <u>303</u>
Product Thickness (ft): <u>NA</u>	Length of time Purged (min) <u>30</u>
Depth to Bottom (ft): <u>13.70</u>	Condition of Pad/Cover: <u>poor/poor</u>

PURGING RECORD

Time	Volume Purged (gallons)	DTW (feet)	Temp (°C)	pH (s.u.) ± 0.1	Specific Conductance (ms/cm) ± 3%	Dissolved Oxygen (mg/L) ± 0.3	ORP (mV) ± 10	Turbidity (NTU) ± 10% or < 5	Comments
849	2.6	8.37	21.96	10.96	0.597	5.12	-256	39.9	
854	3.0	8.37	22.12	11.13	0.599	1.10	-268	28.5	
859	3.4	8.37	22.23	11.20	0.597	0.81	-289	22.7	
904	3.8	8.37	22.31	11.23	0.593	0.69	-301	16.9	
909	4.2	8.37	22.38	11.27	0.591	0.64	-292	6.41	
914	4.6	8.37	22.48	11.27	0.582	0.59	-301	4.97	
919	5.0	8.37	22.54	11.28	0.576	0.57	-293	3.55	

MONITORING SAMPLE RECORD

Sample ID	Time Collected	Parameter/Order	Container	Perservative	Collected?
TM03-P2M004	920	TCL-VOCs	3 - 40 mL VOA	HCl	X
		TPH-GRO	3 - 40 mL VOA	HCl	Y
		TPH-DRO	2 - 1 L Amber	none	X
		TCL-SVOCs	2 - 1 L Amber	none	X
		Oil & Grease	2 - 1 L Amber	HCl	Y
		TAL-Metals & Mercury (total)	1 - 250 mL Plastic	HNO3	Y
		Hexavalent Chromium (total)	1 - 250 mL Plastic	none	Y
		Total Cyanide	1 - 250 mL Plastic	NaOH	Y
		TAL-Metals & Mercury (Dissolved) Field Filtered	1 - 250 mL Plastic	HNO3	Y
		Hexavalent Chromium (Dissolved) Field Filtered	1 - 250 mL Plastic	none	Y
		PCB	2 - 1 L Amber	None	N
Matrix Spike					N
Duplicate					N

Sampled By: LLP

Comments:

Avail cyanide also

Casing Volume: 1" I.D. = 0.041 gal/ft - 2" I.D. = 0.163 gal/ft - 4" I.D. = 0.653 gal/ft - 6" I.D. = 1.47 gal/ft
ft x _____ gal/ft = _____ (gal)

TABLE 1
MULTIPARAMETER CALIBRATION LOG

Project Name Area B Parcel B24 Phase II Date 04-29-20
 Weather 40s, Sunny
 Calibrated by L. Glumac Instrument (Serial Number) YSI Pro DSS (17t101940)
Lamotte 2020t (1223-1319)

Parameters	Morning Calibration	Morning Temperature	End of Day Calibration Check	End of Day Temperature
Specific Conductance Standard 1.413 mS/cm	1.413	43 F [‡]	1.874	65 F [‡]
Specific Conductance Standard #2	-		-	
pH (7)	7.00		6.93	
pH (4)	4.00		-	
pH(10)	10.00		-	
ORP Zobel Solution (240 mV)	240		232.7	
Dissolved Oxygen 100% water saturated air mg/L	-		-	
Dissolved Oxygen Zero Dissolved Oxygen Solution mg/L	11.04 [‡]		10.44 [‡]	
Barometric Pressure in. Hg	761.4		-	
Turbidity #1 (0 NTU)	0.0		-	
Turbidity #2 (1 NTU)	1.0 [‡]		1.33 [‡]	
Turbidity #3 (10 NTU)	10		-	

‡Turbidity and Dissolved Oxygen were outside of the calibration acceptance criteria. Temperature is an estimate. Values displayed on field purge logs may be inaccurate.

TABLE 1
MULTIPARAMETER CALIBRATION LOG

Project Name Area B Parcel B24 Phase II Date 05-01-20
 Weather 50s, Sunny
 Calibrated by L. Glumac Instrument (Serial Number) YSI Pro DSS (17t101940)
Lamotte 2020t (1223-1319)

Parameters	Morning Calibration	Morning Temperature	End of Day Calibration Check	End of Day Temperature
Specific Conductance Standard 1.413 mS/cm	1.413		1.642	
Specific Conductance Standard #2	-		-	
pH (7)	7.00		-	
pH (4)	4.00		4.08	
pH(10)	10.00		-	
ORP Zobel Solution (240 mV)	240		233.1	
Dissolved Oxygen 100% water saturated air mg/L	-		-	
Dissolved Oxygen Zero Dissolved Oxygen Solution mg/L	10.52		-	
Barometric Pressure in. Hg	766.5		-	
Turbidity #1 (0 NTU)	0.0		-	
Turbidity #2 (1 NTU)	1.0 [¥]		1.12 [¥]	
Turbidity #3 (10 NTU)	10		-	

[¥]Turbidity was outside of the calibration acceptance criteria. Values displayed on field purge logs may be inaccurate.

APPENDIX F

Parcel B24 - IDW Drum Log

Drum Identification Number	Designation	Activity/Phase	Contents	Open Date
1388-Liners-4/14/20-B24	Non-Haz	Parcel B24 Phase II Investigation	Liners	4/14/2020
1389-Soil-4/14/20-B24	Non-Haz	Parcel B24 Phase II Investigation	Soil	4/14/2020
1390-PPE-4/14/20-B24	Non-Haz	Parcel B24 Phase II Investigation	PPE	4/14/2020
1391-Decon water-4/14/20-B24/A14/A18/A17/B20/B22/B19	Non-Haz	Parcel B24 Phase II Investigation	Water	4/14/2020
1397-Nitric Acid-4/20/20-A14/B24/A18/A17/B20	Non-Haz	Parcel B24 Phase II Investigation	Nitric Acid	4/20/2020
1402-Purge water-4/29/20-B24,CPLF	Non-Haz	Parcel B24 Phase II Investigation	Water	4/29/2020

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QA/QC Tracking Log

<u>Trip</u> Blank:	<u>Date:</u>	<u>Sample IDs:</u>	
TB1	4/14/2020	1) B24-001-SB-1	
		2) B24-001-SB-5	
		3) B24-013-SB-1.5	
		4) B24-013-SB-5	
		5) B24-014-SB-1	
		6) B24-014-SB-5	
TB2		7) B24-025-SB-1	Duplicate: B24-032-SB-5
		8) B24-025-SB-5	Date: 4/15/2020
		9) B24-025-SB-10	MS/MSD: B24-025-SB-15
		10) B24-026-SB-1	Date: 4/15/2020
		11) B24-026-SB-5	Field Blank:
		12) B24-026-SB-10	Date: 4/15/2020
TB3		13) B24-026-SB-16	Eq. Blank:
TB1	4/15/2020	14) B24-025-SB-15	Date: 4/15/2020
		15) B24-032-SB-1	
		16) B24-032-SB-5	
		17) B24-032-SB-10	
TB2		18) B24-033-SB-1	
		19) B24-033-SB-5	
		20) B24-033-SB-10	

<u>Trip</u> Blank:	<u>Date:</u>	<u>Sample IDs:</u>	
	4/17/2020	1) B24-005-SB-1	
		2) B24-005-SB-4	
		3) B24-006-SB-1	
		4) B24-006-SB-4	
		5) B24-020-SB-1	
		6) B24-020-SB-8	
		7) B24-018-SB-1	Duplicate: B24-030-SB-4
		8) B24-018-SB-5	Date: 4/17/2020
		9) B24-030-SB-1	MS/MSD: B24-020-SB-8
		10) B24-030-SB-9	Date: 4/17/2020
		11) B24-031-SB-1	Field Blank:
		12) B24-031-SB-5	Date: 4/17/2020
	4/20/2020	13) B24-010-SB-1	Eq. Blank:
		14) B24-010-SB-5	Date: 4/17/2020
TB1		15) B24-009-SB-1.5	
TB2		16) B24-009-SB-5	
		17) B24-017-SB-1	
		18) B24-017-SB-5	
		19) B24-019-SB-1	
		20) B24-019-SB-5	

TB4	4/15/2020	1) B24-036-SB-1	
		2) B24-036-SB-8	
		3) B24-036-SB-10	
		4) B24-035-SB-1	
		5) B24-035-SB-4	
	4/16/2020	6) B24-003-SB-1	
		7) B24-003-SB-4	Duplicate: B24-004-SB-4
TB1		8) B24-004-SB-1	Date: 4/16/2020
TB2		9) B24-004-SB-5	MS/MSD: B24-035-SB-4
		10) B24-016-SB-1	Date: 4/15/2020
		11) B24-016-SB-5	Field Blank:
		12) B24-015-SB-1	Date: 4/16/2020
		13) B24-037-SB-1	Eq. Blank:
		14) B24-037-SB-8	Date: 4/16/2020
		15) B24-037-SB-10	
		16) B24-037-SB-12	
		17) B24-027-SB-1	
		18) B24-027-SB-5	
TB1	4/17/2020	19) B24-002-SB-1	
TB2		20) B24-002-SB-4	

	4/20/2020	1) B24-029-SB-1	
		2) B24-029-SB-9	
		3) B24-011-SB-1	
		4) B24-011-SB-4	
		5) B24-012-SB-1	
		6) B24-012-SB-8	
	4/21/2020	7) B24-012-SB-10	Duplicate: B24-029-SB-1
		8) B24-008-SB-1	Date: 4/20/2020
		9) B24-008-SB-5	MS/MSD: B24-012-SB-8
TB1		10) B24-007-SB-1	Date: 4/20/2020
		11) B24-007-SB-5	Field Blank:
		12) B24-021-SB-1	Date: 4/20/2020
		13) B24-021-SB-5	Eq. Blank:
		14) B24-022-SB-1	Date: 4/20/2020
	4/21/2020	15) B24-022-SB-5	
		16) B24-023-SB-1	
		17) B24-023-SB-5	
		18) B24-024-SB-1	
		19) B24-024-SB-5	
		20) B24-034-SB-1	

Soil samples with a sustained PID reading of 10 ppm or greater were collected for VOCs. VOC samples were placed in a cooler with a trip blank.

QA/QC Tracking Log

<u>Trip</u>	<u>Date:</u>	<u>Sample IDs:</u>	
TB1	4/21/2020	1) B24-034-SB-5	
		2) B24-028-SB-1	
		3) B24-028-SB-5	
		4)	
		5)	
		6)	
		7)	Duplicate: B24-028-SB-1
		8)	Date: 4/21/2020
		9)	MS/MSD: B24-028-SB-5
		10)	Date: 4/21/2020
		11)	Field Blank:
		12)	Date: 4/21/2020
		13)	Eq. Blank:
		14)	Date: 4/21/2020
		15)	
		16)	
		17)	
		18)	
		19)	
		20)	

<u>Trip</u>	<u>Date:</u>	<u>Sample IDs:</u>	
TB1	4/29/2020	1) B24-035-PZ	
		2) B24-027-PZ	
		3) B24-034-PZ	
TB1	5/1/2020	4) B24-001-PZ	
		5) B24-003-PZ	
		6) B24-036-PZ	
TB1	8/6/2020	7) TM03-PZM004	Duplicate: B24-034-PZ
		8) TM02-PZM028	Date: 4/29/2020
TB1	9/17/2020	9) TM02-PZM009	MS/MSD: B24-036-PZ
		10)	Date: 5/1/2020
		11)	Field Blank:
		12)	Date: 5/1/2020
		13)	Eq. Blank:
		14)	Date:
		15)	
		16)	
		17)	
		18)	
19)			
20)			

Soil samples with a sustained PID reading of 10 ppm or greater were collected for VOCs.
 VOC samples were placed in a cooler with a trip blank.

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APPENDIX H

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EVALUATION OF DATA COMPLETENESS
Percentage of Non-Rejected Results vs Total Results
(Only data which underwent validation are included)

Parameter	Parameter Group	Matrix	Unit	Number of Validated Results	Detections	Number of Rejected Results	Number of Non-rejected Results	Completeness
Cyanide	CN	Soil	mg/kg	30	29	0	30	100.00%
Aluminum	Metal	Soil	mg/kg	30	30	0	30	100.00%
Antimony	Metal	Soil	mg/kg	30	2	0	30	100.00%
Arsenic	Metal	Soil	mg/kg	30	19	0	30	100.00%
Barium	Metal	Soil	mg/kg	30	30	0	30	100.00%
Beryllium	Metal	Soil	mg/kg	30	28	0	30	100.00%
Cadmium	Metal	Soil	mg/kg	30	28	0	30	100.00%
Chromium	Metal	Soil	mg/kg	30	30	0	30	100.00%
Chromium VI	Metal	Soil	mg/kg	30	13	8	22	73.33%
Cobalt	Metal	Soil	mg/kg	30	30	0	30	100.00%
Copper	Metal	Soil	mg/kg	30	30	0	30	100.00%
Iron	Metal	Soil	mg/kg	30	30	0	30	100.00%
Lead	Metal	Soil	mg/kg	30	30	0	30	100.00%
Manganese	Metal	Soil	mg/kg	30	30	0	30	100.00%
Mercury	Metal	Soil	mg/kg	30	27	0	30	100.00%
Nickel	Metal	Soil	mg/kg	30	30	0	30	100.00%
Selenium	Metal	Soil	mg/kg	30	0	0	30	100.00%
Silver	Metal	Soil	mg/kg	30	0	0	30	100.00%
Thallium	Metal	Soil	mg/kg	30	4	0	30	100.00%
Vanadium	Metal	Soil	mg/kg	30	30	0	30	100.00%
Zinc	Metal	Soil	mg/kg	30	30	0	30	100.00%
Aroclor 1016	PCB	Soil	mg/kg	16	0	0	16	100.00%
Aroclor 1221	PCB	Soil	mg/kg	16	0	0	16	100.00%
Aroclor 1232	PCB	Soil	mg/kg	16	0	0	16	100.00%
Aroclor 1242	PCB	Soil	mg/kg	16	0	0	16	100.00%
Aroclor 1248	PCB	Soil	mg/kg	16	0	0	16	100.00%
Aroclor 1254	PCB	Soil	mg/kg	16	10	0	16	100.00%
Aroclor 1260	PCB	Soil	mg/kg	16	12	0	16	100.00%
Aroclor 1262	PCB	Soil	mg/kg	16	0	0	16	100.00%
Aroclor 1268	PCB	Soil	mg/kg	16	0	0	16	100.00%
PCBs (total)	PCB	Soil	mg/kg	16	9	0	16	100.00%
1,1-Biphenyl	SVOC	Soil	mg/kg	30	3	0	30	100.00%
1,2,4,5-Tetrachlorobenzene	SVOC	Soil	mg/kg	30	0	0	30	100.00%
2,3,4,6-Tetrachlorophenol	SVOC	Soil	mg/kg	30	0	4	26	86.67%
2,4,5-Trichlorophenol	SVOC	Soil	mg/kg	30	0	4	26	86.67%
2,4,6-Trichlorophenol	SVOC	Soil	mg/kg	30	0	4	26	86.67%
2,4-Dichlorophenol	SVOC	Soil	mg/kg	30	0	4	26	86.67%
2,4-Dimethylphenol	SVOC	Soil	mg/kg	30	0	4	26	86.67%
2,4-Dinitrophenol	SVOC	Soil	mg/kg	30	0	4	26	86.67%
2,4-Dinitrotoluene	SVOC	Soil	mg/kg	30	0	0	30	100.00%
2,6-Dinitrotoluene	SVOC	Soil	mg/kg	30	0	0	30	100.00%
2-Chloronaphthalene	SVOC	Soil	mg/kg	30	0	0	30	100.00%
2-Chlorophenol	SVOC	Soil	mg/kg	30	0	4	26	86.67%
2-Methylnaphthalene	SVOC	Soil	mg/kg	28	25	0	28	100.00%
2-Methylphenol	SVOC	Soil	mg/kg	30	0	4	26	86.67%
2-Nitroaniline	SVOC	Soil	mg/kg	30	0	0	30	100.00%
3&4-Methylphenol(m&p Cresol)	SVOC	Soil	mg/kg	30	0	4	26	86.67%

EVALUATION OF DATA COMPLETENESS
Percentage of Non-Rejected Results vs Total Results
(Only data which underwent validation are included)

Parameter	Parameter Group	Matrix	Unit	Number of Validated Results	Detections	Number of Rejected Results	Number of Non-rejected Results	Completeness
3,3'-Dichlorobenzidine	SVOC	Soil	mg/kg	30	0	0	30	100.00%
4-Chloroaniline	SVOC	Soil	mg/kg	30	0	0	30	100.00%
4-Nitroaniline	SVOC	Soil	mg/kg	30	0	0	30	100.00%
Acenaphthene	SVOC	Soil	mg/kg	28	25	0	28	100.00%
Acenaphthylene	SVOC	Soil	mg/kg	28	26	0	28	100.00%
Acetophenone	SVOC	Soil	mg/kg	30	0	0	30	100.00%
Anthracene	SVOC	Soil	mg/kg	28	27	0	28	100.00%
Benz[a]anthracene	SVOC	Soil	mg/kg	28	27	0	28	100.00%
Benzaldehyde	SVOC	Soil	mg/kg	30	0	0	30	100.00%
Benzo[a]pyrene	SVOC	Soil	mg/kg	28	26	0	28	100.00%
Benzo[b]fluoranthene	SVOC	Soil	mg/kg	28	27	0	28	100.00%
Benzo[g,h,i]perylene	SVOC	Soil	mg/kg	28	28	0	28	100.00%
Benzo[k]fluoranthene	SVOC	Soil	mg/kg	28	26	0	28	100.00%
bis(2-chloroethoxy)methane	SVOC	Soil	mg/kg	30	0	0	30	100.00%
bis(2-Chloroethyl)ether	SVOC	Soil	mg/kg	30	0	0	30	100.00%
bis(2-Chloroisopropyl)ether	SVOC	Soil	mg/kg	30	0	0	30	100.00%
bis(2-Ethylhexyl)phthalate	SVOC	Soil	mg/kg	30	2	0	30	100.00%
Caprolactam	SVOC	Soil	mg/kg	30	0	0	30	100.00%
Carbazole	SVOC	Soil	mg/kg	30	8	0	30	100.00%
Chrysene	SVOC	Soil	mg/kg	28	27	0	28	100.00%
Dibenz[a,h]anthracene	SVOC	Soil	mg/kg	28	27	0	28	100.00%
Diethylphthalate	SVOC	Soil	mg/kg	30	1	0	30	100.00%
Di-n-butylphthalate	SVOC	Soil	mg/kg	30	3	0	30	100.00%
Di-n-octylphthalate	SVOC	Soil	mg/kg	30	1	0	30	100.00%
Fluoranthene	SVOC	Soil	mg/kg	28	28	0	28	100.00%
Fluorene	SVOC	Soil	mg/kg	28	25	0	28	100.00%
Hexachlorobenzene	SVOC	Soil	mg/kg	30	0	0	30	100.00%
Hexachlorobutadiene	SVOC	Soil	mg/kg	30	0	0	30	100.00%
Hexachlorocyclopentadiene	SVOC	Soil	mg/kg	30	0	0	30	100.00%
Hexachloroethane	SVOC	Soil	mg/kg	30	0	0	30	100.00%
Indeno[1,2,3-c,d]pyrene	SVOC	Soil	mg/kg	28	28	0	28	100.00%
Isophorone	SVOC	Soil	mg/kg	30	0	0	30	100.00%
Naphthalene	SVOC	Soil	mg/kg	28	27	0	28	100.00%
Nitrobenzene	SVOC	Soil	mg/kg	30	0	0	30	100.00%
N-Nitroso-di-n-propylamine	SVOC	Soil	mg/kg	30	0	0	30	100.00%
N-Nitrosodiphenylamine	SVOC	Soil	mg/kg	30	0	0	30	100.00%
Pentachlorophenol	SVOC	Soil	mg/kg	30	0	4	26	86.67%
Phenanthrene	SVOC	Soil	mg/kg	28	27	0	28	100.00%
Phenol	SVOC	Soil	mg/kg	30	0	4	26	86.67%
Pyrene	SVOC	Soil	mg/kg	28	28	0	28	100.00%
Diesel Range Organics	TPH	Soil	mg/kg	30	30	0	30	100.00%
Gasoline Range Organics	TPH	Soil	mg/kg	30	0	0	30	100.00%
Oil & Grease	TPH	Soil	mg/kg	31	29	0	31	100.00%
1,1,1-Trichloroethane	VOC	Soil	mg/kg	6	0	0	6	100.00%
1,1,2,2-Tetrachloroethane	VOC	Soil	mg/kg	6	0	1	5	83.33%
1,1,2-Trichloro-1,2,2-Trifluoroethane	VOC	Soil	mg/kg	6	0	0	6	100.00%
1,1,2-Trichloroethane	VOC	Soil	mg/kg	6	0	0	6	100.00%

EVALUATION OF DATA COMPLETENESS
Percentage of Non-Rejected Results vs Total Results
(Only data which underwent validation are included)

Parameter	Parameter Group	Matrix	Unit	Number of Validated Results	Detections	Number of Rejected Results	Number of Non-rejected Results	Completeness
1,1-Dichloroethane	VOC	Soil	mg/kg	6	0	0	6	100.00%
1,1-Dichloroethene	VOC	Soil	mg/kg	6	0	0	6	100.00%
1,2,3-Trichlorobenzene	VOC	Soil	mg/kg	6	0	0	6	100.00%
1,2,4-Trichlorobenzene	VOC	Soil	mg/kg	6	0	0	6	100.00%
1,2-Dibromo-3-chloropropane	VOC	Soil	mg/kg	6	0	0	6	100.00%
1,2-Dibromoethane	VOC	Soil	mg/kg	6	0	0	6	100.00%
1,2-Dichlorobenzene	VOC	Soil	mg/kg	6	0	0	6	100.00%
1,2-Dichloroethane	VOC	Soil	mg/kg	6	0	0	6	100.00%
1,2-Dichloroethene (Total)	VOC	Soil	mg/kg	6	0	0	6	100.00%
1,2-Dichloropropane	VOC	Soil	mg/kg	6	0	0	6	100.00%
1,3-Dichlorobenzene	VOC	Soil	mg/kg	6	0	0	6	100.00%
1,4-Dichlorobenzene	VOC	Soil	mg/kg	6	0	0	6	100.00%
2-Butanone (MEK)	VOC	Soil	mg/kg	6	1	0	6	100.00%
2-Hexanone	VOC	Soil	mg/kg	6	0	0	6	100.00%
4-Methyl-2-pentanone (MIBK)	VOC	Soil	mg/kg	6	0	0	6	100.00%
Acetone	VOC	Soil	mg/kg	6	0	0	6	100.00%
Benzene	VOC	Soil	mg/kg	6	1	0	6	100.00%
Bromodichloromethane	VOC	Soil	mg/kg	6	0	0	6	100.00%
Bromoform	VOC	Soil	mg/kg	6	0	0	6	100.00%
Bromomethane	VOC	Soil	mg/kg	6	0	0	6	100.00%
Carbon disulfide	VOC	Soil	mg/kg	6	2	0	6	100.00%
Carbon tetrachloride	VOC	Soil	mg/kg	6	0	0	6	100.00%
Chlorobenzene	VOC	Soil	mg/kg	6	0	0	6	100.00%
Chloroethane	VOC	Soil	mg/kg	6	0	0	6	100.00%
Chloroform	VOC	Soil	mg/kg	6	0	0	6	100.00%
Chloromethane	VOC	Soil	mg/kg	6	0	0	6	100.00%
cis-1,2-Dichloroethene	VOC	Soil	mg/kg	6	0	0	6	100.00%
cis-1,3-Dichloropropene	VOC	Soil	mg/kg	6	0	0	6	100.00%
Cyclohexane	VOC	Soil	mg/kg	6	1	0	6	100.00%
Dibromochloromethane	VOC	Soil	mg/kg	6	0	0	6	100.00%
Dichlorodifluoromethane	VOC	Soil	mg/kg	6	0	0	6	100.00%
Ethylbenzene	VOC	Soil	mg/kg	6	0	0	6	100.00%
Isopropylbenzene	VOC	Soil	mg/kg	6	0	0	6	100.00%
Methyl Acetate	VOC	Soil	mg/kg	6	0	0	6	100.00%
Methyl tert-butyl ether (MTBE)	VOC	Soil	mg/kg	6	0	0	6	100.00%
Methylene Chloride	VOC	Soil	mg/kg	6	0	0	6	100.00%
Styrene	VOC	Soil	mg/kg	6	0	0	6	100.00%
Tetrachloroethene	VOC	Soil	mg/kg	6	0	0	6	100.00%
Toluene	VOC	Soil	mg/kg	6	1	0	6	100.00%
trans-1,2-Dichloroethene	VOC	Soil	mg/kg	6	0	0	6	100.00%
trans-1,3-Dichloropropene	VOC	Soil	mg/kg	6	0	0	6	100.00%
Trichloroethene	VOC	Soil	mg/kg	6	0	0	6	100.00%
Trichlorofluoromethane	VOC	Soil	mg/kg	6	0	0	6	100.00%
Vinyl chloride	VOC	Soil	mg/kg	6	0	0	6	100.00%
Xylenes	VOC	Soil	mg/kg	6	0	0	6	100.00%
1,4-Dioxane	VOC/SVOC	Soil	mg/kg	6	0	6	0	0.00%
Available Cyanide	CN	Water	ug/L	3	3	0	3	100.00%

EVALUATION OF DATA COMPLETENESS
Percentage of Non-Rejected Results vs Total Results
(Only data which underwent validation are included)

Parameter	Parameter Group	Matrix	Unit	Number of Validated Results	Detections	Number of Rejected Results	Number of Non-rejected Results	Completeness
Total Cyanide	CN	Water	ug/L	3	3	0	3	100.00%
Aluminum	Metal	Water	ug/L	3	3	0	3	100.00%
Antimony	Metal	Water	ug/L	3	0	0	3	100.00%
Arsenic	Metal	Water	ug/L	3	1	0	3	100.00%
Barium	Metal	Water	ug/L	3	3	0	3	100.00%
Beryllium	Metal	Water	ug/L	3	0	0	3	100.00%
Cadmium	Metal	Water	ug/L	3	1	0	3	100.00%
Chromium	Metal	Water	ug/L	3	3	0	3	100.00%
Chromium VI	Metal	Water	ug/L	3	2	0	3	100.00%
Cobalt	Metal	Water	ug/L	3	1	0	3	100.00%
Copper	Metal	Water	ug/L	3	0	0	3	100.00%
Iron	Metal	Water	ug/L	3	1	0	3	100.00%
Lead	Metal	Water	ug/L	3	0	0	3	100.00%
Manganese	Metal	Water	ug/L	3	1	0	3	100.00%
Mercury	Metal	Water	ug/L	3	0	0	3	100.00%
Nickel	Metal	Water	ug/L	3	1	0	3	100.00%
Selenium	Metal	Water	ug/L	3	0	0	3	100.00%
Silver	Metal	Water	ug/L	3	0	0	3	100.00%
Thallium	Metal	Water	ug/L	3	0	0	3	100.00%
Vanadium	Metal	Water	ug/L	3	3	0	3	100.00%
Zinc	Metal	Water	ug/L	3	1	0	3	100.00%
1,1-Biphenyl	SVOC	Water	ug/L	3	0	0	3	100.00%
1,2,4,5-Tetrachlorobenzene	SVOC	Water	ug/L	3	0	0	3	100.00%
2,3,4,6-Tetrachlorophenol	SVOC	Water	ug/L	3	1	0	3	100.00%
2,4,5-Trichlorophenol	SVOC	Water	ug/L	3	0	0	3	100.00%
2,4,6-Trichlorophenol	SVOC	Water	ug/L	3	0	0	3	100.00%
2,4-Dichlorophenol	SVOC	Water	ug/L	3	0	0	3	100.00%
2,4-Dimethylphenol	SVOC	Water	ug/L	3	1	0	3	100.00%
2,4-Dinitrophenol	SVOC	Water	ug/L	3	0	0	3	100.00%
2,4-Dinitrotoluene	SVOC	Water	ug/L	3	0	0	3	100.00%
2,6-Dinitrotoluene	SVOC	Water	ug/L	3	0	0	3	100.00%
2-Chloronaphthalene	SVOC	Water	ug/L	3	1	0	3	100.00%
2-Chlorophenol	SVOC	Water	ug/L	3	0	0	3	100.00%
2-Methylnaphthalene	SVOC	Water	ug/L	3	1	0	3	100.00%
2-Methylphenol	SVOC	Water	ug/L	3	0	0	3	100.00%
2-Nitroaniline	SVOC	Water	ug/L	3	0	0	3	100.00%
3&4-Methylphenol(m&p Cresol)	SVOC	Water	ug/L	3	1	0	3	100.00%
3,3'-Dichlorobenzidine	SVOC	Water	ug/L	3	0	0	3	100.00%
4-Chloroaniline	SVOC	Water	ug/L	3	0	0	3	100.00%
4-Nitroaniline	SVOC	Water	ug/L	3	0	0	3	100.00%
Acenaphthene	SVOC	Water	ug/L	3	1	0	3	100.00%
Acenaphthylene	SVOC	Water	ug/L	3	1	0	3	100.00%
Acetophenone	SVOC	Water	ug/L	3	0	0	3	100.00%
Anthracene	SVOC	Water	ug/L	3	1	0	3	100.00%
Benz[a]anthracene	SVOC	Water	ug/L	3	0	0	3	100.00%
Benzaldehyde	SVOC	Water	ug/L	3	0	0	3	100.00%
Benzo[a]pyrene	SVOC	Water	ug/L	3	1	0	3	100.00%

EVALUATION OF DATA COMPLETENESS
Percentage of Non-Rejected Results vs Total Results
(Only data which underwent validation are included)

Parameter	Parameter Group	Matrix	Unit	Number of Validated Results	Detections	Number of Rejected Results	Number of Non-rejected Results	Completeness
Benzo[b]fluoranthene	SVOC	Water	ug/L	3	1	0	3	100.00%
Benzo[g,h,i]perylene	SVOC	Water	ug/L	3	0	0	3	100.00%
Benzo[k]fluoranthene	SVOC	Water	ug/L	3	1	0	3	100.00%
bis(2-chloroethoxy)methane	SVOC	Water	ug/L	3	0	0	3	100.00%
bis(2-Chloroethyl)ether	SVOC	Water	ug/L	3	0	0	3	100.00%
bis(2-Chloroisopropyl)ether	SVOC	Water	ug/L	3	0	0	3	100.00%
bis(2-Ethylhexyl)phthalate	SVOC	Water	ug/L	3	1	0	3	100.00%
Caprolactam	SVOC	Water	ug/L	3	0	0	3	100.00%
Carbazole	SVOC	Water	ug/L	3	1	0	3	100.00%
Chrysene	SVOC	Water	ug/L	3	0	0	3	100.00%
Dibenz[a,h]anthracene	SVOC	Water	ug/L	3	0	0	3	100.00%
Diethylphthalate	SVOC	Water	ug/L	3	0	0	3	100.00%
Di-n-butylphthalate	SVOC	Water	ug/L	3	1	0	3	100.00%
Di-n-ocetylphthalate	SVOC	Water	ug/L	3	0	0	3	100.00%
Fluoranthene	SVOC	Water	ug/L	3	1	0	3	100.00%
Fluorene	SVOC	Water	ug/L	3	1	0	3	100.00%
Hexachlorobenzene	SVOC	Water	ug/L	3	0	0	3	100.00%
Hexachlorobutadiene	SVOC	Water	ug/L	3	0	0	3	100.00%
Hexachlorocyclopentadiene	SVOC	Water	ug/L	3	0	0	3	100.00%
Hexachloroethane	SVOC	Water	ug/L	3	0	0	3	100.00%
Indeno[1,2,3-c,d]pyrene	SVOC	Water	ug/L	3	0	0	3	100.00%
Isophorone	SVOC	Water	ug/L	3	0	0	3	100.00%
Naphthalene	SVOC	Water	ug/L	3	1	0	3	100.00%
Nitrobenzene	SVOC	Water	ug/L	3	0	0	3	100.00%
N-Nitroso-di-n-propylamine	SVOC	Water	ug/L	3	0	0	3	100.00%
N-Nitrosodiphenylamine	SVOC	Water	ug/L	3	0	0	3	100.00%
Pentachlorophenol	SVOC	Water	ug/L	3	0	0	3	100.00%
Phenanthrene	SVOC	Water	ug/L	3	0	0	3	100.00%
Phenol	SVOC	Water	ug/L	3	1	0	3	100.00%
Pyrene	SVOC	Water	ug/L	3	1	0	3	100.00%
Diesel Range Organics	TPH	Water	ug/L	3	2	0	3	100.00%
Gasoline Range Organics	TPH	Water	ug/L	3	0	0	3	100.00%
Oil & Grease	TPH	Water	ug/L	3	1	0	3	100.00%
1,1,1-Trichloroethane	VOC	Water	ug/L	3	0	0	3	100.00%
1,1,2,2-Tetrachloroethane	VOC	Water	ug/L	3	0	0	3	100.00%
1,1,2-Trichloro-1,2,2-Trifluoroethane	VOC	Water	ug/L	3	0	0	3	100.00%
1,1,2-Trichloroethane	VOC	Water	ug/L	3	0	0	3	100.00%
1,1-Dichloroethane	VOC	Water	ug/L	3	0	0	3	100.00%
1,1-Dichloroethene	VOC	Water	ug/L	3	0	0	3	100.00%
1,2,3-Trichlorobenzene	VOC	Water	ug/L	3	0	0	3	100.00%
1,2,4-Trichlorobenzene	VOC	Water	ug/L	3	0	0	3	100.00%
1,2-Dibromo-3-chloropropane	VOC	Water	ug/L	3	0	0	3	100.00%
1,2-Dibromoethane	VOC	Water	ug/L	3	0	0	3	100.00%
1,2-Dichlorobenzene	VOC	Water	ug/L	3	0	0	3	100.00%
1,2-Dichloroethane	VOC	Water	ug/L	3	0	0	3	100.00%
1,2-Dichloroethene (Total)	VOC	Water	ug/L	3	0	0	3	100.00%
1,2-Dichloropropane	VOC	Water	ug/L	3	0	0	3	100.00%

EVALUATION OF DATA COMPLETENESS
Percentage of Non-Rejected Results vs Total Results
(Only data which underwent validation are included)

Parameter	Parameter Group	Matrix	Unit	Number of Validated Results	Detections	Number of Rejected Results	Number of Non-rejected Results	Completeness
1,3-Dichlorobenzene	VOC	Water	ug/L	3	0	0	3	100.00%
1,4-Dichlorobenzene	VOC	Water	ug/L	3	0	0	3	100.00%
2-Butanone (MEK)	VOC	Water	ug/L	3	1	0	3	100.00%
2-Hexanone	VOC	Water	ug/L	3	1	0	3	100.00%
4-Methyl-2-pentanone (MIBK)	VOC	Water	ug/L	3	1	0	3	100.00%
Acetone	VOC	Water	ug/L	3	1	0	3	100.00%
Benzene	VOC	Water	ug/L	3	0	0	3	100.00%
Bromodichloromethane	VOC	Water	ug/L	3	0	0	3	100.00%
Bromoform	VOC	Water	ug/L	3	0	0	3	100.00%
Bromomethane	VOC	Water	ug/L	3	0	0	3	100.00%
Carbon disulfide	VOC	Water	ug/L	3	0	0	3	100.00%
Carbon tetrachloride	VOC	Water	ug/L	3	0	0	3	100.00%
Chlorobenzene	VOC	Water	ug/L	3	0	0	3	100.00%
Chloroethane	VOC	Water	ug/L	3	0	0	3	100.00%
Chloroform	VOC	Water	ug/L	3	0	0	3	100.00%
Chloromethane	VOC	Water	ug/L	3	0	0	3	100.00%
cis-1,2-Dichloroethene	VOC	Water	ug/L	3	0	0	3	100.00%
cis-1,3-Dichloropropene	VOC	Water	ug/L	3	0	0	3	100.00%
Cyclohexane	VOC	Water	ug/L	3	0	0	3	100.00%
Dibromochloromethane	VOC	Water	ug/L	3	0	0	3	100.00%
Dichlorodifluoromethane	VOC	Water	ug/L	3	0	0	3	100.00%
Ethylbenzene	VOC	Water	ug/L	3	0	0	3	100.00%
Isopropylbenzene	VOC	Water	ug/L	3	0	0	3	100.00%
Methyl Acetate	VOC	Water	ug/L	3	1	0	3	100.00%
Methyl tert-butyl ether (MTBE)	VOC	Water	ug/L	3	0	0	3	100.00%
Methylene Chloride	VOC	Water	ug/L	3	0	0	3	100.00%
Styrene	VOC	Water	ug/L	3	0	0	3	100.00%
Tetrachloroethene	VOC	Water	ug/L	3	0	0	3	100.00%
Toluene	VOC	Water	ug/L	3	1	0	3	100.00%
trans-1,2-Dichloroethene	VOC	Water	ug/L	3	0	0	3	100.00%
trans-1,3-Dichloropropene	VOC	Water	ug/L	3	0	0	3	100.00%
Trichloroethene	VOC	Water	ug/L	3	0	0	3	100.00%
Trichlorofluoromethane	VOC	Water	ug/L	3	0	0	3	100.00%
Vinyl chloride	VOC	Water	ug/L	3	0	0	3	100.00%
Xylenes	VOC	Water	ug/L	3	0	0	3	100.00%
1,4-Dioxane	VOC/SVOC	Water	ug/L	3	0	0	3	100.00%

Data validation has been completed for a representative 30% of all samples

APPENDIX I

Well/Piezometer Abandonment Form

Well/Piezometer ID: B24-001-PZ

General Project Information:

Client: VRC

Site Location: Sparrows Point, MD

Parcel ID: B24

Abandonment Date: 7/1/20

Abandonment Contractor: GSI

Abandonment Method (circle appropriate):

1. PVC → Pulled Split / Perforated / Left-In-Place / Overdrilled, 4.25" hollow stem
2. Abandoned → Grout / Bentonite Chips

Field Equipment: Geoprobe/Grout machine (95% Portland/5% Bentonite)/oil-water interface probe

ARM Representative(s): J. Barna

Well Diameter: 1"

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 16'	Depth to Water (TOC): 12.02'
Measured: 19.15'	Depth to NAPL (TOC): No LNAPL/DNAPL

Please note if this abandonment is for a known NAPL delineation/monitoring area or individual NAPL screening piezometer and identify the name of the delineation area (e.g., B6-066 NAPL Area or B5-144 Screening Piezometer): **B24 Phase II**

Please Note: If NAPL is identified in a piezometer, the Project Manager should be notified and the piezometer may not be abandoned unless the presence of NAPL is already known and a decision has been made to abandon the NAPL monitoring network.

Additional Comments (if any):



ARM Group LLC
Engineers and Scientists
9175 Guilford Road - Suite 310
Columbia, Maryland 21046
(410) 290-7775 FAX: (410) 290-7775

Well/Piezometer Abandonment Form

Well/Piezometer ID: B24-003-PZ

General Project Information:

Client: VRC

Site Location: Sparrows Point, MD

Parcel ID: B24

Abandonment Date: 7/1/20

Abandonment Contractor: GSI

Abandonment Method (circle appropriate):

1. PVC → Pulled Split / Perforated / Left-In-Place / Overdrilled, 4.25" hollow stem
2. Abandoned → Grout / Bentonite Chips

Field Equipment: Geoprobe/Grout machine (95% Portland/5% Bentonite)/oil-water interface probe

ARM Representative(s): J. Barna

Well Diameter: 1"

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 15'	Depth to Water (TOC): 12.17'
Measured: 18.05'	Depth to NAPL (TOC): No LNAPL/DNAPL

Please note if this abandonment is for a known NAPL delineation/monitoring area or individual NAPL screening piezometer and identify the name of the delineation area (e.g., B6-066 NAPL Area or B5-144 Screening Piezometer): **B24-003**

Please Note: If NAPL is identified in a piezometer, the Project Manager should be notified and the piezometer may not be abandoned unless the presence of NAPL is already known and a decision has been made to abandon the NAPL monitoring network.

Additional Comments (if any):



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Well/Piezometer Abandonment Form

Well/Piezometer ID: B24-027-PZ

General Project Information:

Client: VRC

Site Location: Sparrows Point, MD

Parcel ID: B24

Abandonment Date: 7/1/20

Abandonment Contractor: GSI

Abandonment Method (circle appropriate):

1. PVC → Pulled / Split / Perforated / Left-In-Place / Overdrilled, 4.25" hollow stem
2. Abandoned → Grout / Bentonite Chips

Field Equipment: Geoprobe/Grout machine (95% Portland/5% Bentonite)/oil-water interface probe

ARM Representative(s): J. Barna

Well Diameter: 1"

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 16'	Depth to Water (TOC): 10.83'
Measured: 18.51'	Depth to NAPL (TOC): No LNAPL/DNAPL

Please note if this abandonment is for a known NAPL delineation/monitoring area or individual NAPL screening piezometer and identify the name of the delineation area (e.g., B6-066 NAPL Area or B5-144 Screening Piezometer): **B24 Phase II**

Please Note: If NAPL is identified in a piezometer, the Project Manager should be notified and the piezometer may not be abandoned unless the presence of NAPL is already known and a decision has been made to abandon the NAPL monitoring network.

Additional Comments (if any):



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Well/Piezometer Abandonment Form

Well/Piezometer ID: B24-034-PZ

General Project Information:

Client: VRC

Site Location: Sparrows Point, MD

Parcel ID: B24

Abandonment Date: 7/1/20

Abandonment Contractor: GSI

Abandonment Method (circle appropriate):

1. PVC → Pulled Split / Perforated / Left-In-Place / Overdrilled, 4.25" hollow stem
2. Abandoned → Grout / Bentonite Chips

Field Equipment: Geoprobe/Grout machine (95% Portland/5% Bentonite)/oil-water interface probe

ARM Representative(s): J. Barna

Well Diameter: 1"

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 15'	Depth to Water (TOC): 10.72'
Measured: 17.36'	Depth to NAPL (TOC): No LNAPL/DNAPL

Please note if this abandonment is for a known NAPL delineation/monitoring area or individual NAPL screening piezometer and identify the name of the delineation area (e.g., B6-066 NAPL Area or B5-144 Screening Piezometer): **B24 Phase II**

Please Note: If NAPL is identified in a piezometer, the Project Manager should be notified and the piezometer may not be abandoned unless the presence of NAPL is already known and a decision has been made to abandon the NAPL monitoring network.

Additional Comments (if any):



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Well/Piezometer Abandonment Form

Well/Piezometer ID: B24-035-PZ

General Project Information:

Client: VRC

Site Location: Sparrows Point, MD

Parcel ID: B24

Abandonment Date: 7/1/20

Abandonment Contractor: GSI

Abandonment Method (circle appropriate):

1. PVC → Pulled Split / Perforated / Left-In-Place / Overdrilled, 4.25" hollow stem
2. Abandoned → Grout / Bentonite Chips

Field Equipment: Geoprobe/Grout machine (95% Portland/5% Bentonite)/oil-water interface probe

ARM Representative(s): J. Barna

Well Diameter: 1 "

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 17'	Depth to Water (TOC): 11.91'
Measured: 19.82'	Depth to NAPL (TOC): No LNAPL/DNAPL

Please note if this abandonment is for a known NAPL delineation/monitoring area or individual NAPL screening piezometer and identify the name of the delineation area (e.g., B6-066 NAPL Area or B5-144 Screening Piezometer): **B24 Phase II**

Please Note: If NAPL is identified in a piezometer, the Project Manager should be notified and the piezometer may not be abandoned unless the presence of NAPL is already known and a decision has been made to abandon the NAPL monitoring network.

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Well/Piezometer Abandonment Form

Well/Piezometer ID: B24-036-PZ

General Project Information:

Client: VRC

Site Location: Sparrows Point, MD

Parcel ID: B24

Abandonment Date: 7/1/20

Abandonment Contractor: GSI

Abandonment Method (circle appropriate):

1. PVC → Pulled Split / Perforated / Left-In-Place / Overdrilled, 4.25" hollow stem
2. Abandoned → Grout / Bentonite Chips

Field Equipment: Geoprobe/Grout machine (95% Portland/5% Bentonite)/oil-water interface probe

ARM Representative(s): J. Barna

Well Diameter: 1"

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 20'	Depth to Water (TOC): 13.64'
Measured: 22.50'	Depth to NAPL (TOC): No LNAPL/DNAPL

Please note if this abandonment is for a known NAPL delineation/monitoring area or individual NAPL screening piezometer and identify the name of the delineation area (e.g., B6-066 NAPL Area or B5-144 Screening Piezometer): **B24 Phase II**

Please Note: If NAPL is identified in a piezometer, the Project Manager should be notified and the piezometer may not be abandoned unless the presence of NAPL is already known and a decision has been made to abandon the NAPL monitoring network.

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