

## ARM Group LLC

**Engineers and Scientists** 

January 6, 2020

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

> Re: No. 10 Tank Area Investigation Report Area B: Parcel B18 Tradepoint Atlantic Sparrows Point, MD 21219

Dear Ms. Brown,

The No. 10 Fuel Oil Storage Tank was a former aboveground storage tank (AST) located along the western perimeter of Parcel B18 (the Site) of the Tradepoint Atlantic property located in Sparrows Point, Maryland. According to the Phase I Environmental Site Assessment (ESA) prepared by Weaver Boos Consultants dated May 19, 2014, the No. 10 Fuel Oil Storage Tank was used for storing No. 6 fuel oil and was therefore identified as a potential source of petroleum impacts to soil and groundwater. The No. 10 Fuel Oil Storage Tank was identified as a Recognized Environmental Condition (REC 8B, Finding 202). The No. 11 Fuel Oil Storage Tank that was located to the southeast of the No. 10 Fuel Oil Storage Tank was not classified by Weaver Boos as a REC, but soil and groundwater conditions in its vicinity have also been observed to be impacted during the field investigations completed to date. The AST locations are shown on **Figure 1**. Each AST is estimated to have had a capacity of 2.3 million gallons.

Following the initiation of Phase II Investigation work in Parcel B18 in the vicinity of the two former ASTs (collectively referred to as the No. 10 Tank Area), two supplemental Work Plans were submitted to the Maryland Department of the Environment (MDE) and the United States Environmental Protection Agency (USEPA) to complete further characterization of soil and groundwater. These were the No. 10 Tank Investigation Work Plan Addendum (Revision 0 dated November 29, 2016) and the No. 10 Tank Investigation Work Plan Addendum *Expansion: Groundwater Investigation* (Revision 1 dated June 18, 2018).

This report summarizes the findings of the characterization activities in the No. 10 Tank Area. All investigation protocols were conducted in accordance with the Standard Operating Procedures (SOPs) provided in the property-wide Quality Assurance Project Plan (QAPP). The field activities were conducted under the property-wide Health and Safety Plan (HASP).

## **Objectives**

The objective of the original No. 10 Tank Investigation Work Plan Addendum (dated November 29, 2016) was to determine the presence or absence of non-aqueous phase liquid (NAPL) in soils within the No. 10 Tank Area. The Groundwater Investigation Work Plan Addendum (dated June 18, 2018) was intended to supplement the soil investigation completed under the original Work Plan Addendum, with the primary objective to characterize the dissolved-phase petroleum hydrocarbons associated with previously identified NAPL in the No. 10 Tank Area. The groundwater investigation was specifically requested by the MDE due to the confirmed presence of NAPL in groundwater in close proximity to nearby surface water.

## **Project Background**

During the Parcel B18 Phase II Investigation, NAPL was encountered in soil borings B18-044-SB, B18-045-SB, and B18-046-SB; which targeted the former No. 10 and No. 11 Fuel Oil Tanks. Two of the soil borings (B18-044-SB and B18-045-SB) were located within the footprint of the former No. 10 Fuel Oil Tank. The third boring (B18-046-SB) was located to the southeast within the footprint of the former No. 11 Fuel Oil Tank. The locations of these three soil borings are indicated on **Figure 1**, which incorporates the 5500 Set of historical steel plant drawings. Based on a review of historical drawings, including the 5500 Set shown on the figure, the ASTs appear to have been historically surrounded by a single containment berm. Hand-drawn annotations on the 5500 Set indicate that the berm surrounding the No. 10 and No. 11 Fuel Oil Tanks may have been reconstructed in the past to enclose only the No. 11 Fuel Oil Tank. It is likely that the relocation and associated remedial actions completed from 1987 through 1989, described below.

The No. 10 Fuel Oil Tank was taken out of service in 1977. In 1987, visible oil surfaced in the nearby coal dock slip which led to the involvement of the Marine Safety Office of the U.S. Coast Guard through cleanup actions and investigations. It was found that 161,000 gallons of rainwater laden with fuel oil had accumulated in the AST in the 10 years since it was taken out of service in 1977. In August 1987, following clean-up activities inside the AST and in the surrounding soils, the AST was demolished, and oil-saturated soils were identified below the foundation. An effort was made to inoculate the surrounding soil with bacteria to accelerate biodegradation of residual oil materials. However, this remediation plan was unsuccessful due to high salinity in the soil from tidal influence. An additional remediation plan was proposed to contain the fuel oil contamination by installing a flexible membrane cap and providing hydraulic containment; however, it is unclear if the plan was fully implemented. It is believed that some form of a containment remedy was implemented (c. 1989) to the west of the former No. 10 Fuel Oil Tank foundation, as indicated by the presence of an existing cut-off wall.



Tradepoint Atlantic has provided an historical drawing which indicates that a cut-off wall may have been previously installed in 1989 in the vicinity of the NAPL-impacted area. The drawing of the cut-off wall is included as **Attachment 1**. According to the plan drawing, the cut-off wall was proposed to be completed with steel sheet piling, a polyethylene geomembrane, geotextile fabric, and slag and clay backfill to mitigate the potential for NAPL to discharge into the surface water to the west of the impacted area. Portions of the cut-off wall were successfully located by ARM in the field. Soil was removed using excavation equipment to expose the top of the sheet piling across the length of the cut-off wall (approximately 125 feet). A photograph log of the uncovered sheet piling is included as **Attachment 2**. The sheet piling alignment was recorded by ARM personnel using a hand-held GPS unit, and the extent of the cut-off wall is indicated on relevant figures included with this report.

As reported in the Phase I ESA and described in the No. 10 Tank Investigation Work Plan Addenda, six monitoring wells were installed in the vicinity of the No. 10 Fuel Oil Tank in March 1988 following the discovery of oil-saturated soils in the area. On October 20, 2016 an effort was made to find the six historical wells, but due to the dense vegetation in the No. 10 Tank Area, only four of the six wells were located. After the area was cleared of vegetation, the remaining two existing wells were found in the northern portion of the No. 10 Tank Area. **Figure 2** displays the location of these six wells in proximity to the No. 10 Tank Area. The permit numbers displayed on the well tags were used as the well IDs. During the initial well inspections, NAPL was observed to have accumulated in four of the six historical wells. These six monitoring wells have been gauged periodically along with numerous other groundwater monitoring points to document the distribution and thickness of accumulated NAPL, which is described in trailing sections of this report.

### Soil Characterization Activities - Work Plan Addendum dated November 29, 2016

In accordance with the No. 10 Tank Investigation Work Plan Addendum (dated November 29, 2016), NAPL characterization activities were performed in the vicinity of the No. 10 and No. 11 Fuel Oil Tanks. In addition to the 12 soil borings that had been previously installed in close proximity to the No. 10 Tank Area during the Parcel B18 Phase II Investigation, a large number of supplemental soil borings (78) were installed between November 21 and December 19, 2016 to determine the presence or absence and extent of NAPL in soil and groundwater. The targeted depth of each supplemental boring was 20 feet below ground surface (bgs), although some borings were terminated following equipment refusal prior to reaching the target depth. Each soil boring relevant for the No. 10 Tank Investigation is shown on **Figure 3**. At each boring location, the continuous soil cores were screened with a hand-held photoionization detector (PID) and were inspected for evidence of visible NAPL. The soil boring logs from this first phase of the investigation (including the soil boring logs completed in the No. 10 Tank Area during the preceding Phase II Investigation) have been included as **Attachment 3**.



Figure 4 shows an overview of NAPL distribution in the unsaturated soils within the delineation area. In total, NAPL was observed in the unsaturated soils of 25 soil borings; an additional eight borings were deemed inconclusive for potential NAPL impacts in the unsaturated zone (due to shallow refusal). Figure 5 indicates the distribution of observed NAPL in groundwater. In all, NAPL was observed below the groundwater table in 49 soil borings; an additional 36 borings were deemed inconclusive with respect to NAPL being present in the groundwater (due to refusal prior to the target depth of 20 feet bgs being reached). Boring and piezometer locations displayed as "inconclusive" are described in greater detail in the following section. The total depth of each completed soil boring is provided on Figure 6. The original Phase II Investigation borings within the delineation area have also been included on these figures. Table 1 provides a summary of the soil core observations recorded for each of the delineation borings.

**Figure 7a** through **Figure 7e** show the presence or absence of NAPL in the soil cores within 4-foot discrete depth intervals (i.e., from 0 to 4 feet, 4 to 8 feet, 8 to 12 feet, 12 to 16 feet, and 16 to 20 feet) based on the field screening and logging. Collectively, these figures show the vertical and horizontal distribution of NAPL in the No. 10 Tank Area. NAPL in the shallow soil appears to be limited to the area immediately below and adjacent to the two former ASTs, but it appears to become more widespread deeper in the subsurface.

## Inconclusive NAPL Observations

Based on the soil core observations, it appears that from approximately 15 to 19 feet bgs, there is a dense fine-grained sand unit directly on top of a clay unit (encountered at depths from approximately 19 to 20 feet bgs). As indicated on **Table 1**, groundwater was encountered between approximately 3 and 14.5 feet bgs across the delineation area, with an average groundwater depth of roughly 8 feet bgs. Therefore, the shallow hydrogeologic zone appears to span from approximately 8 to 19 feet bgs. If a boring was terminated or encountered equipment refusal prior to reaching groundwater, it was deemed inconclusive with regard to the potential presence of NAPL in the unsaturated soils. If a boring reached groundwater but was terminated or encountered equipment refusal prior to reaching a depth of 20 feet bgs, it was generally considered to be inconclusive with respect to the presence of NAPL in groundwater.

## Historical Well NAPL Sample Activities (Fingerprint Analysis)

On December 22, 2016, NAPL samples were extracted from historical wells BA-81-7941, BA-81-7942, and BA-81-7944, as well as from piezometer B18-045-PZ. A photograph log of the NAPL samples is included as **Attachment 4**. The photographs and field observations indicate that both light (LNAPL) and dense (DNAPL) fractions appear to be present at the Site. The NAPL samples were submitted to Pace Analytical Services, Inc. (PACE) for Whole Oil (ASTM D3328) and Full Scan (ASTM D5739) analytical testing to establish the "fingerprint" of the hydrocarbons and to determine the petroleum constituents that were present. All four samples of



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the NAPL were determined to be 100% aromatic hydrocarbons, and were comprised of naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene, which are constituents of multiple fuel oils including No. 6 fuel oil. The NAPL fingerprint laboratory report is provided as an electronic attachment.

5

### Groundwater Characterization Activities – Work Plan Addendum dated June 18, 2018

Six temporary groundwater sample collection points and three permanent groundwater monitoring wells were installed and sampled in the vicinity of the No. 10 Tank Area to better characterize the impacts of NAPL on the shallow groundwater aquifer. In addition, three existing piezometers installed during the Phase II Investigation of Parcel B18 (B18-044-PZ, B18-046-PZ, and B18-077-PZ), and two of the existing historical groundwater monitoring wells installed in March 1988 (BA-81-7945 and BA-81-7946) were also sampled. These two historical wells were selected among the six available historical wells based on a lack of NAPL accumulation at these locations. The groundwater sampling points are shown in relation to the historical ASTs in **Figure 8**.

Between October 22 and 25, 2018, three 2-inch diameter permanent groundwater monitoring wells (SW-084-MWS, SW-085-MWS, and SW-086-MWS) were installed to the west of the former location of the No. 10 Fuel Oil Tank and adjacent to the nearby surface water. One of these permanent groundwater monitoring wells, SW-085-MWS, was placed on the downgradient side of the sheet piling cut-off wall. The combination soil boring and well construction logs for the three permanent wells installed during this investigation are provided as **Attachment 5**.

Between July 11 and 16, 2018, six supplemental piezometers (B18-078-PZ, B18-079-PZ, B18-080-PZ, B18-081-PZ, B18-082-PZ, and B18-083-PZ) were installed to facilitate sample collection targeting the No. 10 Tank Area to the east of the cut-off wall. The boring logs and construction logs for the six supplemental piezometers installed during this investigation are provided in **Attachment 6**. The combination soil boring and piezometer construction logs from the older Phase II Investigation piezometers that were also sampled (B18-044-PZ, B18-046-PZ, and B18-077-PZ) are also included in **Attachment 6**.

As outlined in the Work Plan Addendum, several additional piezometers were solely utilized for groundwater and NAPL gauging measurements; therefore, no groundwater samples were collected from B18-017-PZ, B18-045-PZ, B18-047-PZ, B18-059-PZ, or B18-061-PZ. In addition, a supplemental piezometer was installed as a replacement for damaged site-wide monitoring well SW-029-MWS, which was previously installed in January 2016 during the separate Area B Groundwater Investigation to the north of the No. 10 Tank Area. No groundwater samples were designated to be collected from SW-029-MWS. The combination soil boring and piezometer construction logs from the supplemental gauging locations (including the piezometer reinstallation of SW-029-MWS) are also included in Attachment 6.

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Between November 28 and November 30, 2018, groundwater samples were collected for laboratory analysis from nine temporary groundwater sample collection points (B18-044-PZ, B18-046-PZ, B18-077-PZ, B18-078-PZ, B18-079-PZ, B18-080-PZ, B18-081-PZ, B18-082-PZ, and B18-083-PZ), three permanent groundwater monitoring wells (SW-084-MWS, SW-085-MWS, and SW-086-MWS), and two historical permanent wells (BA-81-7945 and BA-81-7946) using combination of hand bailing techniques and a peristaltic pump. Before purging, each groundwater sample collection point was checked for the presence of NAPL using an oil-water interface probe in accordance with standard methods. If NAPL had accumulated in any sample collection point, additional material was purged to remove the bulk of the NAPL mass prior to collecting the sample.

Groundwater samples were collected using disposable sampling equipment; however, as specified in the Work Plan Addendum, low-flow sampling techniques (specifically the use of a flow-through cell and multiparameter meter) were not employed during this investigation based on the likely presence of NAPL. Groundwater purge logs were not completed during this investigation as the methodology specified in the Work Plan did not include low-flow techniques and relied on field observations to ensure the sample points were free of NAPL prior to collection. All groundwater samples were collected as grab samples and submitted to PACE for analysis of volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs). Analytical methods, sample containers, preservatives, and holding times for the sample analyses are listed in the QAPP Worksheet 19 & 30 – Sample Containers, Preservation, and Holding Times. The analytical laboratory reports for the groundwater samples are included as electronic attachments.

The analytical results for the VOCs and SVOCs detected in groundwater in the No. 10 Tank Area are summarized in **Table 2** and compared against the Project Action Limits (PALs) established in the property-wide QAPP. The table includes the analytical results for each VOC and SVOC with at least one detection among the groundwater dataset, with exceedances of the PALs highlighted. The PALs for relevant polynuclear aromatic hydrocarbons (PAHs) have been adjusted upward based on revised toxicity data published in the USEPA Regional Screening Level (RSL) Resident Tapwater Table.

A total of four VOCs were detected in groundwater above their respective PALs: benzene, chloroform, styrene, and toluene. The VOC PAL exceedance locations and results are provided on **Figure 9**. Benzene was the most common VOC exceedance with a total of 10 PAL exceedances which were widespread in the investigation area. The maximum detected concentration of benzene was 2,440 ug/L in B18-082-PZ, which is located at the southeastern corner of the sampling network away from the surface water. The remaining VOCs with PAL exceedances were only detected above their respective PALs at single isolated locations, two of which (styrene and toluene) also exceeded their PALs in B18-082-PZ.

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A total of 20 SVOCs were detected in groundwater above their respective PALs: 1,1-biphenyl, 1,4-dioxane, 2,4-dinitrotoluene, 2,6-dinitrotoluene, 2-methylnaphthalene, 3,3'-dichlorobenzidine, 4-chloroaniline, chrysene, hexachloroethane. benz[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, benzo[k]fluoranthene, dibenz[a,h]anthracene, indeno[1,2,3-c,d]pyrene, naphthalene, nitrobenzene, N-nitrosodiphenylamine, pyrene, and pentachlorophenol. The SVOC PAL exceedance locations and results are provided on Figure 10. SVOC PAL exceedances were widespread in the investigation area. The most common SVOC PAL exceedances (each with at least 10 PAL exceedances) included naphthalene, 2-methylnaphthalene, 1,1-biphenyl, and benz[a]anthracene. The prevalence of elevated naphthalene and 2-methylnaphthalene in groundwater is consistent with the NAPL fingerprinting analysis completed during the initial soil investigation. Naphthalene was the most common aqueous PAL exceedance, with a total of 12 PAL exceedances and a maximum detected concentration of 15,300 ug/L in B18-082-PZ. SVOC PAL exceedances were most numerous in the groundwater sample collected from B18-044-PZ, which was positioned in the center of the footprint of the former No. 10 Fuel Oil Tank. The detected concentrations of naphthalene (and benzene) were notably lower in B18-044-PZ than at the far southeastern location of B18-082-PZ.

As noted above, sample location B18-082-PZ exhibited the maximum detected concentrations of both benzene and naphthalene. The detections of these constituents were significantly higher than at other locations within the investigation area, including those at the shoreline and within the former AST footprints. Further, LNAPL accumulation of approximately 1.7 feet was observed at this sample point prior to purging and sample collection; whereas, DNAPL was principally observed further to the west in the vicinity of the former ASTs. The source of the LNAPL impacts at B18-082-PZ appears to be independent from the DNAPL (and associated dissolved phase constituents) in the No. 10 Tank Area.

## Potentiometric Surface Map and NAPL Gauging

The groundwater sample collection points (both temporary and permanent) were surveyed by a Maryland-licensed surveyor to obtain top of casing (TOC) elevation data. A synoptic round of groundwater level measurements and NAPL gauging measurements was collected from each location on November 6, 2019. Surveyed TOC and ground surface elevations for all applicable locations can be found in **Table 3**, along with the depth to water (DTW) measurements from this date. In addition to the sample collection points, the synoptic round of gauging also included other distal groundwater locations (e.g., SW13-PZM003, SW-029-MWS, and B18-061-PZ) which were utilized to provide additional groundwater elevation data to further define the potentiometric surface. Any piezometers which were observed to have been destroyed or damaged are noted on **Table 3**.

Figure 11 shows each of the gauging locations and the localized groundwater elevation contour map. If measurable LNAPL was present in a given monitoring point, the corresponding



groundwater elevation was not incorporated into the groundwater contour map because the presence of accumulated LNAPL would bias the groundwater elevation measurements and resulting contours. However, groundwater locations with observations of only trace LNAPL were included in the contour map. As specified in the Work Plan Addendum, the existing historical monitoring wells with known long-term NAPL impacts (BA-81-7941, BA-81-7942, BA-81-7943, and BA-81-7944) were also gauged, but the results are not included in the groundwater contour map. As seen on the contour map, shallow groundwater appears to flow radially from a mounded location in the vicinity of B18-017-PZ and B18-077-PZ. Across the majority of the No. 10 Tank Area, groundwater flows from east to west toward the presumed discharge point at the adjoining surface water.

Each piezometer and monitoring well in the vicinity of the No. 10 Tank Area has been periodically monitored to document the presence and quantity of accumulated NAPL. The dates of monitoring activities, as well as NAPL thickness measurements and water level measurements, have been included in **Table 4**. This table also includes the installation date of each monitoring point, as well as relevant construction details (depths, screen intervals, etc.). The presence of NAPL (primarily DNAPL) is apparent in the vicinity of the former ASTs.

## Supplemental NAPL Sample Activities (PCBs Analysis)

On November 30, 2018, a sample of NAPL was collected from the existing historical monitoring well BA-81-7941 for analysis of polychlorinated biphenyls (PCBs). Samples of NAPL were previously collected from several locations for the fingerprinting analysis described in a preceding section of this document; however, the MDE requested that an additional sample of NAPL be collected to determine whether PCBs are present in the free product. PCBs were not detected in the sample (either as individual aroclors or total PCBs), although it should be acknowledged that the reporting limits were elevated for this analysis due to laboratory dilution (which the laboratory determined to be necessary due to the physical characteristics of the extract). The laboratory report is provided as an electronic attachment.

### **Investigation Derived Waste (IDW) Management**

After the soil boring was completed at each location, all down-hole equipment was decontaminated using a mobile decontamination platform and a high-pressure steam cleaner. All IDW generated during this investigation was containerized in 55-gallon (DOT-UN1A2) drums. The types of IDW that were generated included the following:

• soil cuttings generated from soil borings and well/piezometer installation;

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• purged groundwater;

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- decontamination fluids; and
- used personal protective equipment

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Following the completion of each phase of field activities, composite samples were gathered with aliquots from each of the Parcel B18 IDW soil drums for waste characterization. Following the analysis of each sample, the waste soil was characterized as non-hazardous. A list of all results from the soil waste characterization can be found in **Table 5**. IDW drums containing aqueous materials were characterized by preparing composite samples from randomly selected drums. Each composite sample included aliquots from several individual drums that were chosen as a subset of the aqueous drums being staged on-site at the date of collection. Following the analysis of each sample, the aqueous waste was characterized as non-hazardous. A list of all results from the aqueous waste characterization can be found in **Table 6**.

### **Summary and Recommendations**

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The investigations of soil and groundwater in the No. 10 Tank Area were designed to characterize the horizontal and vertical extent of NAPL surrounding the former ASTs, as well as the dissolved-phase petroleum hydrocarbons associated with the NAPL impacts. Sufficient investigation data has been collected in order to prepare and present this evaluation of the nature and extent of contamination in the No. 10 Tank Area. The impacts to soil and groundwater in the No. 10 Tank Area have been adequately characterized to meet the objectives of the Work Plan Addenda.

The identified NAPL impacts in soil and groundwater (and the associated dissolved-phase contamination) were caused by historical releases from the former No. 10 and No. 11 Fuel Oil Tanks. NAPL appears to be most prevalent in the shallow soil in the immediate vicinity of the former AST footprints, and appears to become more widespread deeper in the subsurface, which is consistent with releases from the former ASTs. Physical observations of NAPL have been extensive, and the alignments and proximity of any proposed utilities must be considered in any future development plans for this area. If utilities are proposed in this area, appropriate protocols for the mitigation of potential NAPL mobility should be specified in the Response and Development Work Plan (RADWP).

The aqueous PALs specified in the QAPP are based upon drinking water use, which is not a potential exposure pathway for groundwater at the Site. The use of groundwater is prohibited at the Tradepoint Atlantic property. The primary exposure pathway of potential concern at the Site, outside of construction activities, is the vapor intrusion to indoor air risk pathway. Although a vapor intrusion evaluation was not performed during this investigation, numerous groundwater samples exhibited concentrations of VOCs/SVOCs, in particular benzene and naphthalene, which would present a potential vapor intrusion risk if a structure were to be proposed in the No. 10 Tank Area. Potential vapor intrusion risks associated with the impacts in this area will be evaluated in a RADWP for any such development work proposed in this area.



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There appears to be a limited risk of off-site migration of VOC/SVOC contamination given the apparent direction of groundwater flow. Based on the accumulation of NAPL in the shoreline wells (SW-084-MWS, SW-085-MWS, and SW-086-MWS) and associated dissolved-phase contamination near the property line and the adjoining surface water, mitigative measures may be required. Additional evaluation may be required in the vicinity of B18-082-PZ based on the possibility of an alternative contaminant source. Any future actions will be coordinated with the MDE and USEPA under separate cover.

10

The historical monitoring wells and newly constructed monitoring wells are proposed to remain in place at this time to facilitate additional monitoring that may be performed. The existing temporary piezometers in the No. 10 Tank Area are proposed to be abandoned (in accordance with Maryland abandonment standards as stated in COMAR 26.04.04.34 through 36).

If you have any questions, or if we can provide any additional information at this time, please do not hesitate to contact ARM Group LLC at 410-290-7775.

Respectfully Submitted, ARM Group LLC

Taylor R. Smith, P.E. Project Engineer

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Eric S. Magdar, P.G. Vice President



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### List of Attachments:

- Figure 1 Phase II Soil Borings 5500 Set
- Figure 2 Historical Monitoring Wells
- Figure 3 Soil Boring Investigation Locations
- Figure 4 NAPL Observations in Soil
- Figure 5 NAPL Observations in Groundwater
- Figure 6 Total Depths of Soil Borings
- Figure 7a/b/c/d/e Presence of NAPL at Discrete Soil Depths (4-foot intervals)

11

- Figure 8 Groundwater Investigation Sample Collection Points
- Figure 9 Groundwater VOC PAL Exceedances
- Figure 10 Groundwater SVOC PAL Exceedances
- Figure 11 Groundwater Contour Map
- Table 1 Summary of Soil Core Observations
- Table 2 Summary of VOCs and SVOCs Detected in Groundwater
- Table 3 Groundwater Survey and Elevation Data
- Table 4 NAPL Gauging Activities
- Table 5 Characterization Results for Solid IDW
- Table 6 Characterization Results for Liquid IDW
- Attachment 1 Cut-Off Wall Historical Plan Drawing
- Attachment 2 Cut-Off Wall Field Verification Photograph Log
- Attachment 3 Soil Boring Logs (soil investigation)
- Attachment 4 NAPL Sampling Photograph Log
- Attachment 5 Monitoring Well Logs (groundwater investigation)
- Attachment 6 Piezometer Logs (groundwater investigation)

Electronic Attachments - Groundwater (and NAPL) Laboratory Reports



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## FIGURES



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SW-084-MWS ,1-Biphenyl: 5.5 2,6-Dinitrotoluene: 0.32 J 2-Methylnaphthalene: 87.4 Benz[a]anthracene: 1.5 Benzo[a]pyrene: 1.1 Benzo[b]fluoranthene: 1.5 Dibenz[a,h]anthracene: 0.13 ndeno[1,2,3-c,d]pyrene: 0.32

### SW-085-MWS

Naphthalene: 191

2-Methylnaphthalene: 92.4 Benz[a]anthracene: 6 Benzo[a]pyrene: 5.2 Benzo[b]fluoranthene: 7.5 Benzo[k]fluoranthene: 6 Dibenz[a,h]anthracene: 0.52 Indeno[1,2,3-c,d]pyrene: 1.2 Naphthalene: 90.4

### SW-086-MWS

,1-Biphenyl: 0.83 J 2-Methylnaphthalene: 281 Benz[a]anthracene: 0.59 Benzo[a]pyrene: 0.32 Benzo[b]fluoranthene: 0.54 Dibenz[a,h]anthracene: 0.028 J Naphthalene: 625

B18-080-PZ 1,1-Biphenyl: 7.1 2-Methylnaphthalene: 85.9 Benz[a]anthracene: 1.6 Benzo[a]pyrene: 1.2 Benzo[b]fluoranthene: 1.8 Dibenz[a,h]anthracene: 0.25 Indeno[1,2,3-c,d]pyrene: 0.52 Naphthalene: 587

# BA-81-7945 1,4-Dioxane: 1.2

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2,4-Dinitrotoluene: 23.4 2-Methylnaphthalene: 582 3,3'-Dichlorobenzidine: 2.9 J 4-Chloroaniline: 6.9 J Benz[a]anthracene: 41.8 Benzo[a]pyrene: 24.2 Benzo[b]fluoranthene: 15.1 Benzo[k]fluoranthene: 12.2 Chrysene: 55.6 Dibenz[a,h]anthracene: 2.9 J Indeno[1,2,3-c,d]pyrene: 3.7 J Naphthalene: 159 N-Nitrosodiphenylamine: 35.7 Pyrene: 266

B18-044-PZ

1,1-Biphenyl: 30.3

.4-Dioxane: 1.1

BA-81-7946 1,1-Biphenyl: 12.1 J .4-Dioxane: 4.1 2-Methylnaphthalene: 228

Naphthalene: 3,860

Benz[a]anthracene: 0.28

B18-079-PZ 1,1-Biphenyl: 7.3 1,4-Dioxane: 0.6 2-Methylnaphthalene: 138 4-Chloroaniline: 3.3 Benz[a]anthracene: 0.11 Hexachloroethane: 0.72 J Naphthalene: 1,310 Pentachlorophenol: 1.5 J

B18-083-PZ 1,4-Dioxane: 0.63 Naphthalene: 0.63

B18-077-PZ 1,4-Dioxane: 3.6

Parcel B18

B18-078-PZ 1,1-Biphenyl: 3.1 ,4-Dioxane: 0.95 Benz[a]anthracene: 0.095 Naphthalene: 127 Nitrobenzene: 0.24 J Pentachlorophenol: 1.1 J

B18-046-PZ 1,1-Biphenyl: 3.4 ,4-Dioxane: 0.55 2,6-Dinitrotoluene: 0.4 J 2-Methylnaphthalene: 66.3 -Chloroaniline: 1.9 Naphthalene: 314

B18-082-PZ 1,1-Biphenyl: 44.4 J 1,4-Dioxane: 0.79 2-Methylnaphthalene: 508 4-Chloroaniline: 46.9 J Benz[a]anthracene: 0.28 Benzo[b]fluoranthene: 0.48 Naphthalene: 15,300



1,1-Biphenyl: 10.6 2-Methylnaphthalene: 206 Benz[a]anthracene: 1.6 Benzo[a]pyrene: 1.2 Benzo[b]fluoranthene: 1.7 Dibenz[a,h]anthracene: 0.2 ndeno[1,2,3-c,d]pyrene: 0.5 Naphthalene: 2,520 Pentachlorophenol: 1.1 J

B18-081-PZ

Parcel B10



## **TABLES**

## Table 1 - Parcel B18 No. 10 Tank Area InvestigationSummary of Soil Core Observations

Boring ID	DTW (ft bgs)	DTB (ft bgs)	Interval of Product (ft bgs)	Product Thickness (ft)	Trace/sheen (ft bgs)	Light Product Interval (ft bgs)	Mod Product Interval (ft bgs)	Heavy Product Interval (ft bgs)
				NAPL Deline	eation Borings			
B18-A-SB	10.5	15.0	10.5-15	4.5	NS	NS	10.5-15	NS
B18-B-SB	9.8	10.0	NA	NA	NA	NA	NA	NA
B18-C-SB	9.5	10.0	7-8	1	NS	7-8	NS	NS
B18-D-SB	9.2	10.0	4.7-5;9.2-10	1.1	NS	9.2-10	4.7-5	NS
B18-E-SB	9.0	10.0	NA	NA	NA	NA	NA	NA
B18-F-SB	9.5	10.0	NA	NA	NA	NA	NA	NA
B18-G-SB	7.5	9.0	NA	NA	NA	NA	NA	NA
B18-H-SB	NA	7.0	2.8-3.7;4.6-7	3.3	2.8-3.7;5-6	4.6-5	6-7	NS
B18-I-SB	10.0	10.0	NA	NA	NA	NA	NA	NA
B18-J-SB	9.0	9.5	NA	NA	NA	NA	NA	NA
B18-K-SB	8.8	9.0	NA	NA	NA	NA	NA	NA
B18-L-SB	9.0	10.0	9-10	1	NS	NS	9-10	NS
B18-M-SB	13.5	14.0	NA	NA	NA	NA	NA	NA
B18-N-SB	7.0	9.0	5-9	4	NS	5-9	7.5-8;8.5-9	NS
B18-O-SB	4.2	10.0	NA	NA	NA	NA	NA	NA
B18-P-SB	7.0	10.0	NA	NA	NA	NA	NA	NA
B18-Q-SB	8.5	10.0	NA	NA	NA	NA	NA	NA
B18-R-SB	9.2	10.0	NA	NA	NA	NA	NA	NA
B18-S-SB	4.5	10.0	2.6-10	7.4	NS	2.6-10	7-8;8.5-8.8;9-9.7	NS
B18-T-SB	9.9	10.0	NA	NA	NA	NA	NA	NA
B18-U-SB	5.5	6.0	NA	NA	NA	NA	NA	NA
B18-V-SB	4.8	20.0	8-19.8	11.8	15-17.8;18.8-19.8	8-10.5;18.8-19.8	NS	10.5-15;17.8-18.8
B18-W-SB	9.5	20.0	9.5-15	5.5	NS	9.5-11;12.5-15	11-12.5	NS
B18-X-SB	9.8	20.0	12.5-19.1	6.6	18.8-19.1	16.5-18	12.5-16.5	18-18.8
B18-Y-SB	3.5	20.0	3.5-19.5	16	18-19.5	3.5-18	3.5-18	NS
B18-Z-SB	9.0	20.0	9-17.5	8.5	NS	NS	9-17.5	NS
B18-AA-SB	14.5	20.0	9-9.2	0.2	9-9.2	NS	NS	NS
B18-BB-SB	8.0	20.0	8-15	7	NS	8-15	NS	NS
B18-CC-SB	13.0	20.0	13.6-14	0.4	NS	NS	13.6-14	NS
B18-DD-SB	4.0	20.0	4-18	14	15.5-18	NS	4-15.5	NS

Boring ID	DTW (ft bgs)	DTB (ft bgs)	Interval of Product (ft bgs)	Product Thickness (ft)	Trace/sheen (ft bgs)	Light Product Interval (ft bgs)	Mod Product Interval (ft bgs)	Heavy Product Interval (ft bgs)
B18-EE-SB	9.0	15.0	NA	NA	NA	NA	NA	NA
B18-FF-SB	8.1	15.0	NA	NA	NA	NA	NA	NA
B18-GG-SB	7.0	20.0	0-5;7-19.2	17.2	16-19.2	16-19.2	7-10	10-15
B18-HH-SB	10.0	15.0	NA	NA	NA	NA	NA	NA
B18-II-SB	9.5	15.0	NA	NA	NA	NA	NA	NA
B18-JJ-SB	11.2	20.0	9.1-9.5;11.2-19.7	8.9	9.5;18.1-19.7	18.1-19.7	11.2-18.1	11.2-18.1
B18-KK-SB	9.0	20.0	8.5-10;11.5-20	10	17.5-20	8.5-10	NS	11.5-17.5
B18-LL-SB	5.0	20.0	5-15	10	5-7;17-20	7-10	7-10	10-15
B18-MM-SB	3.0	15.0	3-14	11	3-7.5;12.5-14	7.5-12.5	NS	7.5-12.5
B18-NN-SB	4.0	20.0	7-15	8	7-8	8-10	8-10;13.8-15	13.8-15
B18-OO-SB	3.9	15.0	8-14	6	NS	8-14	8-14	NS
B18-PP-SB	9.0	20.0	12.1-20	7.9	19.7-20	19.7-20	12.1-19.7	NS
B18-QQ-SB	4.0	20.0	0-18	18	14.4-18	0-2.5	NS	2.5-14.4
B18-RR-SB	4.5	20.0	2.1-19.6	17.5	15-19.6	2.1-4.5	NS	4.5-15
B18-SS-SB	NS	20.0	0-18.9	18.9	14.8-18.9	NS	0-9	9-14.8
B18-TT-SB	6.2	20.0	2.6-18.6	16	14.8-18.6	NS	2.6-8.9	8.9-14.8
B18-UU-SB	9.0	20.0	9.4-16.5	7.1	16.9-20	15.5-16.5	9.4-9.7	11.5-15.5
B18-VV-SB	9.0	20.0	2.4-15;16.5-18.8	16.4	2.4-5;16.5-18.8	2.4-5;5-10	5-10	10-15
B18-WW-SB	4.7	20.0	1.2-18	16.8	1.2-4.7;15-18	1.2-4.7	4.7-8.7	8.7-15
B18-XX-SB	8.5	20.0	13.7-18	4.3	NS	13.7-15	NS	15-18
B18-YY-SB	9.0	20.0	2-18	16	2-3.9;5-9	3.9-9;10-15	NS	15-18
B18-ZZ-SB	NA	7.5	2.1-6	3.9	2.1-5	2.1-5;5-6	NS	NS
B18-AAA-SB	7.5	8.0	1.5-2.6;4-8	4.9	NS	1.5-2.6	4-8	NS
B18-BBB-SB	7.5	20.0	3.5-4.5;7.5-8.5;13.5-18	6.5	7.5-8.5	3.5-4.5;13.5-18	13.5-18	NS
B18-CCC-SB	5.0	9.0	NA	NA	NA	NA	NA	NA
B18-DDD-SB	8.2	8.5	8.2-8.5	0.3	NS	NS	8.2-8.5	NS
B18-EEE-SB	5.0	7.0	2.5-2.8;4.8-5	0.5	2.5-2.8	NS	4.8-5	NS
B18-FFF-SB	7.8	20.0	11-15	4	11-15	NS	NS	NS
B18-GGG-SB	8.0	20.0	9.7-18	8.3	9.7-18	12.5-14.5;15-17	10-12.5	10-12.5
B18-HHH-SB	7.0	20.0	11.5-13.5	2	NS	11.5-13.5	NS	NS

## Table 1 - Parcel B18 No. 10 Tank Area InvestigationSummary of Soil Core Observations

Boring ID	DTW (ft bgs)	DTB (ft bgs)	Interval of Product (ft bgs)	Product Thickness (ft)	Trace/sheen (ft bgs)	Light Product Interval (ft bgs)	Mod Product Interval (ft bgs)	Heavy Product Interval (ft bgs)
B18-III-SB	NA	4.0	NA	NA	NA	NA	NA	NA
B18-JJJ-SB	7.5	20.0	9.3-14.3	5	NS	9.3-14.3	NS	NS
B18-KKK-SB	7.5	20.0	9.3-13.8	4.5	NS	NS	9.3-10	11.13.8
B18-LLL-SB	8.2	20.0	13-18.1	5.1	13-18.1	13-15	15-18	15-18
B18-MMM-SB	6.2	20.0	9.6-18.5	8.9	14.2-16.5	NS	9.6-10;16.5-18.5	10-14.2;16.5-18.5
B18-NNN-SB	NA	5.0	NA	NA	NA	NA	NA	NA
B18-OOO-SB	7.5	10.0	NA	NA	NA	NA	NA	NA
B18-PPP-SB	NA	6.0	NA	NA	NA	NA	NA	NA
B18-QQQ-SB	8.0	20.0	11.5-15;17.5-19.6	5.6	17.5-19.6	11.5-15	NS	NS
B18-RRR-SB	8.0	20.0	10.8-15	4.2	NS	NS	10.8-15	10.8-15
B18-SSS-SB	8.6	20.0	NA	NA	NA	NA	NA	NA
B18-TTT-SB	8.2	20.0	NA	NA	NA	NA	NA	NA
B18-UUU-SB	8.5	9.5	5-9.5	4.5	5-8.9	8.9-9.5	NS	NS
B18-VVV-SB	9.0	20.0	7.5-15	7.5	NS	7.5-10;10.5-15	10.5-15	NS
B18-WWW-SB	9.0	20.0	NA	NA	NA	NA	NA	NA
B18-XXX-SB	7.8	20.0	9.7-10;11.5-15	3.8	9.7-10	11.5-15	NS	NS
B18-YYY-SB	8.0	20.0	11.5-13.5	2	NS	11.5-13.5	NS	NS
B18-ZZZ-SB	8.0	20.0	13.9-15;19.5-20	1.6	19.5	13.9-15	NS	NS
			Original Phase II Invest	igation Borings (t	argetting former No.	. 10 and No. 11 Tan	ks)	
B18-044-SB	5.5	12.5	0-10	10	NS	NS	NS	NS
B18-045-SB	5.0	12.0	0-10	10	NS	NS	NS	NS
B18-046-SB*	9.8	17.0	1.8-5;7-7.5	3.7	NS	1.8-3.5;7-7.5	3.5-5	NS

## Table 1 - Parcel B18 No. 10 Tank Area InvestigationSummary of Soil Core Observations

Blue highlight indicates NAPL in groundwater

Yellow highlight indicates NAPL in soil

Red highlight indicates NAPL in both soil and groundwater

NA: Not Applicable

NS: Not Specified

DTW: Depth to Water

DTB: Depth to Bottom

\*Trace NAPL was detected in B18-046-PZ during 0-hour and 48-hour gauging. Therefore, impacts were classified as both soil and groundwater.

## Table 2 - Parcel B18 No. 10 Tank Area Investigation Summary of VOCs and SVOCs Detected in Groundwater

Parameter	Units	PAL	B18-044-PZ	B18-046-PZ	B18-077-PZ	B18-078-PZ	B18-079-PZ	B18-080-PZ	B18-081-PZ	B18-082-PZ	B18-083-PZ	BA-81-7945	BA-81-7946	SW-084-MWS	SW-085-MWS	SW-086-MWS
Volatile Organic Compounds		u														•
1,1,1-Trichloroethane	μg/L	200	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 U	5.3	1 U	5 U	1 U	1 U	1 U
1,2,3-Trichlorobenzene	µg/L	7	2 U	2 U	2 U	2 U	2 U	0.59 J	2 U	10 U	2 U	2 U	10 U	2 U	2 U	2 U
1,2,4-Trichlorobenzene	µg/L	70	1 U	1 U	1 U	1 U	1 U	0.51 J	1 U	5 U	1 U	1 U	5 U	1 U	1 U	1 U
2-Butanone	μg/L	5,600	24.5	10 U	10 U	50 U	10 U	10 U	50 U	10 U	10 U	10 U				
2-Hexanone	μg/L	38	7.9 J	10 U	10 U	50 U	10 U	10 U	50 U	10 U	10 U	10 U				
4-Methyl-2-pentanone	μg/L	1,200	6.3 J	10 U	10 U	50 U	10 U	10 U	50 U	10 U	10 U	10 U				
Acetone	μg/L	14,000	116	6.9 B	3.5 B	3.7 B	4.3 B	4.4 B	4.1 B	48.7 B	3.5 B	3.7 B	44.9 B	5.4 B	4 B	23.3 B
Benzene	μg/L	5	6.6	6.4	1 U	2.9	22	41.4	55.9	2,440	1 U	1 U	91.5	56.7	8.2	25.3
Carbon disulfide	μg/L	810	1.4	1 U	1 U	0.45 J	1 U	1 U	1 U	5 U	1 U	1 U	5 U	1 U	0.64 J	1.3
Chloroform	μg/L	0.22	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 U	1.1	1 U	5 U	1 U	1 U	1 U
Cyclohexane	μg/L	13,000	1.1 J	10 U	10 U	50 U	10 U	10 U	50 U	3.4 J	3.8 J	3.5 J				
Ethylbenzene	μg/L	700	4.6	1.2	1 U	0.64 J	1.6	2	5.8	149	1 U	1 U	7.9	9.4	2.2	3.5
Isopropylbenzene	μg/L	450	0.7 J	1 U	1 U	1 U	0.28 J	0.34 J	0.67 J	4.7 J	1 U	1 U	5 U	1.2	1.1	1.7
Methyl Acetate	μg/L	20,000	5.6	5 U	5 U	5 U	5 U	5 U	5 U	25 U	5 U	5 U	25 U	5 U	5 U	5 U
Styrene	μg/L	100	1 U	2.1	1 U	2	5.2	6.2	24.6	805	1 U	1 U	18.5	2	1 U	1 U
Toluene	μg/L	1,000	3.6	9.2	1 U	3.9	21.1	28.3	52.1	1,520	1 U	1 U	69.8	37.7	1.5	2.1
Xylenes	µg/L	10,000	16.8	23.6	3 U	10.1	33.8	41	102	2,010	3 U	3 U	97.2	48.5	6.6	10.1
Semi-Volatile Organic Compounds^	1	1													Ĩ	I
1,1-Biphenyl	μg/L	0.83	30.3	3.4	0.98 U	3.1	7.3	7.1	10.6	44.4 J	1 U	0.98 U	12.1 J	5.5	0.99 U	0.83 J
1,4-Dioxane	μg/L	0.46	1.1	0.55	3.6	0.95	0.6	0.18	0.098 U	0.79	0.63	1.2	4.1	0.18	0.099 U	0.098 U
2,4-Dimethylphenol	μg/L	360	11.9	0.44 J	0.98 U	0.98 U	4.9	3.4	5.6	277	1 U	0.98 U	13.4 J	7.8	0.62 J	2.8
2,4-Dinitrotoluene	μg/L	0.24	23.4	0.98 U	0.98 U	0.98 U	0.99 U	0.98 U	0.98 U	49 U	10	0.98 U	48.8 U	0.98 U	0.99 U	0.98 U
2,6-Dinitrotoluene	µg/L	0.048	9.8 U	0.4 J	0.98 U	0.98 U	0.99 U	0.98 U	0.98 U	49 U	10	0.98 U	48.8 U	0.32 J	0.99 U	0.98 U
2-Chloronaphthalene	µg/L	750	3.5 J	0.98 U	0.98 U	0.98 U	0.99 U	0.98 U	0.98 U	49 U	10	0.98 U	48.8 U	0.98 U	0.99 U	3.9
2-Chlorophenol	µg/L	91	9.8 0	0.98 U	0.98 U	0.98 U	0.99 U	0.98 0	0.98 0	49 0	10	0.98 U	48.8 U	1.3	0.99 0	2
2-Methylnaphtnalene	µg/L	30	582	00.3	0.098 U	16.5	138	85.9	206	508	0.15	0.098 U	228	87.4	92.4	281
2 rd Mathylphenol(m fra Crasal)	µg/L	930	7.4 J 7 2 J	0.47 J	0.98 U	0.15 J	5.0	1.5	10.5	584	1 U	0.98 U	20.7 J	4.0	0.25 J	2.2
3 3' Dichlorobenzidine	µg/L	930	7.2 J 2 0 J	0.07 J	0.98 U	0.25 J	0.00 U	12 0.98 U	24.8 0.98 U	020 40 U	1 U	0.98 U	24.4 J 48 8 U	0.0	0.00 U	4 0.98 U
4 Chloroaniline	µg/L	0.12	2.9 J 6 0 I	10	0.98 U	0.98 U	0.99 0	0.98 U	0.98 U	490	1 U	0.98 U	48.8 U	0.98 U	0.99 U	0.98 U
Acenaphthene	μg/L μσ/Ι	530	37.4	13	0.098 U	0.98 0	3.1	37	45	3.5	011	0.098 U	52	43	73	15.2
Acenaphthylene	μ <u>σ</u> /L	530	10.3	4.2	0.098 U	3.8	9.9	15.2	70.7 J	133	0.092 J	0.063 J	14	2.1	3.1	1.9
Acetophenone	<u>µg/L</u> µg/L	1.900	6 J	0.98 U	0.98 U	0.98 U	0.99 U	0.8.1	0.98 U	68.1	1 U	0.98 U	48.8 U	0.73 J	0.8.1	0.98 U
Anthracene	ug/L	1,800	60.9	0.72	0.081 J	1.1	1.4	4.1	4.3	1.1	0.057 J	0.098 U	3.8	3.9	8.6	4.5
Benz[a]anthracene	ug/L	0.03	41.8	0.098 U	0.098 U	0.095 J	0.11	1.6	1.6	0.28	0.1 U	0.098 U	0.28	1.5	6	0.59
Benzaldehvde	ug/L	1.900	9.8 U	1.2	0.98 U	0.53 J	0.7 J	0.52 J	1.6	22.9 J	1 U	0.98 U	48.8 U	1.3	0.43 J	0.98 U
Benzo[a]pyrene	μg/L	0.2	24.2	0.098 U	0.098 U	0.029 J	0.014 J	1.2	1.2	0.16	0.1 U	0.015 J	0.098	1.1	5.2	0.32
Benzo[b]fluoranthene	μg/L	0.25	15.1	0.098 U	0.098 U	0.058 J	0.099 U	1.8	1.7	0.48	0.1 U	0.098 U	0.17	1.5	7.5	0.54
Benzo[g,h,i]perylene	µg/L		13	0.098 U	0.098 U	0.098 U	0.099 U	0.56	0.52	0.074 J	0.1 U	0.098 U	0.098 U	0.41	1.9	0.12
Benzo[k]fluoranthene	μg/L	2.5	12.2	0.098 U	0.098 U	0.047 J	0.099 U	0.61	0.53	0.39	0.1 U	0.098 U	0.14	1.2	6	0.44
bis(2-chloroethoxy)methane	μg/L	59	9.8 U	0.98 U	0.98 U	0.98 U	0.99 U	0.98 U	0.98 U	49 U	1 U	0.98 U	48.8 U	0.3 J	0.99 U	0.98 U
bis(2-Ethylhexyl)phthalate	μg/L	6	9.8 U	0.98 U	0.3 J	0.98 U	0.16 B	0.25 J	0.32 J	49 U	0.2 J	0.98 U	48.8 U	0.35 J	0.39 J	0.98 U
Caprolactam	μg/L	9,900	21 J	2.5 U	2.5 U	123 U	2.6 U	2.5 U	122 U	2.5 U	2.5 U	2.5 U				
Carbazole	μg/L		9.8 U	0.49 J	0.98 U	0.53 J	25	27.8	56.6	49 U	1 U	0.98 U	103	38	32.2	130
Chrysene	μg/L	25	55.6	0.051 J	0.098 U	0.076 J	0.099 U	1.4	1.3	0.3	0.1 U	0.098 U	0.19	1.3	4.6	0.46
Dibenz[a,h]anthracene	μg/L	0.025	<b>2.9 J</b>	0.098 U	0.098 U	0.098 U	0.099 U	0.25	0.2	0.098 U	0.1 U	0.098 U	0.098 U	0.13	0.52	0.028 J
Fluoranthene	μg/L	800	39	0.17	0.098 U	0.71	1.1	5.6	8.5	1.3	0.1 U	0.033 J	2.8	3.6	13.1	4.3
Fluorene	μg/L	290	71.1	1.6	0.098 U	2.9	12	17.5	17	7.6	0.067 J	0.098 U	101	8.3	14.7	18.7
Hexachloroethane	μg/L	0.33	9.8 U	0.98 U	0.98 U	0.98 U	0.72 J	0.98 U	0.98 U	49 U	1 U	0.98 U	48.8 U	0.98 U	0.99 U	0.98 U
Indeno[1,2,3-c,d]pyrene	μg/L	0.25	3.7 J	0.098 U	0.098 U	0.098 U	0.099 U	0.52	0.5	0.075 J	0.1 U	0.098 U	0.098 U	0.32	1.2	0.13
Isophorone	μg/L	78	3.2 J	0.98 U	0.98 U	0.98 U	0.99 U	0.98 U	0.98 U	49 U	1 U	0.98 U	48.8 U	0.98 U	0.99 U	0.98 U
Naphthalene	μg/L	0.17	159	314	0.043 J	127	1,310	587	2,520	15,300	0.63	0.067 B	3,860	191	90.4	625
Nitrobenzene	μg/L	0.14	9.8 U	0.98 U	0.98 U	0.24 J	0.99 U	0.98 U	0.98 U	49 U	1 U	0.98 U	48.8 U	0.98 U	0.99 U	0.98 U
N-Nitrosodiphenylamine	μg/L	12	35.7	0.22 J	0.98 U	0.22 J	0.99 U	0.98 U	0.98 U	49 U	1 U	0.98 U	48.8 U	0.72 J	0.86 J	0.98 U
Pentachlorophenol	μg/L ~	1	24.5 U	2.5 U	2.5 U	1.1 J	1.5 J	0.98 J	1.1 J	123 U	2.6 U	2.5 U	122 U	2.5 U	2.5 U	2.5 U
Phenanthrene	μg/L	<b>F</b> 007	390	3.8	0.098 U	5.5	18.1	39.2	98 U	8.2	0.1 U	0.098 U	97.6 U	21.1	16.4	44.7
Phenol	μg/L	5,800	17.8	2.2	0.98 U	2.1	8.6	0.6 J	12.8	398	1 U	0.98 U	48.8 U	1.1	0.21 J	3.9
Pyrene	μg/L	120	266	0.6	0.098 U	0.44	0.6	3.5	5.9	1.1	0.1 U	0.098 U	2.2	6	18.2	3.6

### Detections in bold

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

^PAH compounds were analyzed via SIM

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

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

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

ARM Project No. 180648M

Location ID	TOC Elevation (ft. AMSL)	Ground Elevation (ft. AMSL)	Measured DTW (ft.)	Groundwater Elevation (ft. AMSL)	Depth to LNAPL (ft.)	Depth to DNAPL (ft.)	Depth to Bottom (ft.)
B18-017-PZ*	14.50	13.52	7.36	7.14	none	none	14.92
B18-044-PZ^	11.88	8.82	5.28	6.60	none	trace	6.03
B18-045-PZ	11.41	8.65	7.65	3.76	trace	7.90	14.25
B18-046-PZ	17.00	13.81	12.04	4.96	none	none	19.79
B18-047-PZ	17.27	14.03	12.40	4.87	none	none	14.97
B18-059-PZ^				Destroyed			
B18-061-PZ	16.63	13.57	11.24	5.39	none	none	14.89
B18-077-PZ	16.16	13.03	9.36	6.80	none	none	15.55
B18-078-PZ	15.49	12.90	10.56	4.93	none	none	21.43
B18-079-PZ <sup>¥</sup>	14.08	10.63	11.95	2.13	10.40	none	17.70
B18-080-PZ	12.80	8.84	10.41	2.39	none	none	23.78
B18-081-PZ	12.42	9.99	10.50	1.92	none	none	18.42
B18-082-PZ	15.34	12.83	10.69	4.65	trace	none	14.21
B18-083-PZ^	14.23	12.44			Destroyed		
BA-81-7941 <sup>+</sup>	10.38	8.61	7.58	2.80	none	19.20	19.97
BA-81-7942 <sup>+</sup>	11.88	9.88	9.15	2.73	trace	17.60	22.62
BA-81-7943 <sup>+</sup>	11.46	9.23	9.95	1.51	trace	20.65	21.20
BA-81-7944 <sup>+</sup>	10.59	8.93	7.60	2.99	trace	18.22	19.50
BA-81-7945	11.53	10.95	7.86	3.67	none	none	19.79
BA-81-7946	12.19	10.56	9.14	3.05	none	none	10.18
SW-029-MWS	15.70	13.16	11.12	4.58	none	none	13.00
SW-084-MWS	11.51	9.06	10.15	1.36	trace	20.68	20.94
SW-085-MWS	7.04	4.57	5.40	1.64	trace	9.39	16.88
SW-086-MWS	6.96	4.39	4.56	2.40	trace	10.92	19.14
SW13-PZM003	17.82	14.01	12.89	4.93	none	none	18.94

## Table 3 - Parcel B18 No. 10 Tank Area InvestigationGroundwater Survey and Elevation Data

DTW = Depth to water

TOC = Top of casing

AMSL = Above mean sea level

^B18-044-PZ, B18-059-PZ, and B18-083-PZ were excluded from the groundwater contour map due to damage.

Values highlighted in orange are suspect based on the shallow depth to bottom measurement.

<sup>+</sup>BA-81-7941 through BA-81-7944 were excluded from the groundwater contour map in accordance with the Work Plan.

<sup>¥</sup>SW-079-PZ was excluded from the groundwater contour map due to the presence of measureable LNAPL.

\*B18-017-PZ stickup was observed to be damaged. TOC elevation reported by surveyor has been adjusted.

## Table 4 - Parcel B18 No. 10 Tank Area InvestigationNAPL Gauging Activities

			Wall Total	Conson	Disor		10/18/2016			10/20/2016			10/21/2016	ĵ		10/24/2016	j	10/26/2016		
Sample ID	Installation	Abandonment	Denth	Screen Interval	Riser Stick-Up	Depth to	Depth to	NAPL	Depth to	Depth to	NAPL									
Sumple ib	Date	Date	(ft. bgs)	(ft. bgs)	(ft.)	NAPL	Water	Thickness	NAPL	Water	Thickness									
			(10.055)	(10.055)	(11.)	(ft. TOC)	(ft. TOC)	(ft.)	(ft. TOC)	(ft. TOC)	(ft.)									
B18-017-PZ (reinstallation)	1/17/2019	NA	14	4-14	2.96	NA	NA	NA	NA	NA	NA									
B18-044-PZ	10/20/2016	NA	12.5	2.5-12.5	3.08	NA	NA	NA	-	4.72	-	NM	NM	NM	-	9.14	-	-	9.46	-
B18-045-PZ	10/20/2016	NA	12	2-12	2.95	NA	NA	NA	-	7.81	-	NM	NM	NM	7.62	8.90	1.28	8.92	10.58	1.66
B18-046-PZ	10/26/2016	NA	17	7-17	3.18	NA	NA	NA	trace	12.60	trace									
B18-047-PZ	10/18/2016	NA	12.5	2.5-12.5	3.22	-	12.63	-	-	12.74	-	NM	NM	NM	NM	NM	NM	NM	NM	NM
B18-059-PZ	10/18/2016	11/6/2019*	9	4-9	3.30	-	-	-	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
B18-061-PZ (reinstallation)	2/12/2019	NA	12	2-12	3.10	NA	NA	NA	NA	NA	NA									
B18-077-PZ	6/28/2017	NA	13	3-13	3.10	NA	NA	NA	NA	NA	NA									
B18-078-PZ	7/12/2018	NA	20	3-20	2.58	NA	NA	NA	NA	NA	NA									
B18-079-PZ	7/13/2018	NA	20	3-20	3.26	NA	NA	NA	NA	NA	NA									
B18-080-PZ	7/16/2018	NA	20	3-20	4.00	NA	NA	NA	NA	NA	NA									
B18-081-PZ	7/12/2018	NA	20	3-20	2.36	NA	NA	NA	NA	NA	NA									
B18-082-PZ	7/11/2018	NA	20	3-20	2.38	NA	NA	NA	NA	NA	NA									
B18-083-PZ	7/12/2018	11/6/2019*	20	3-20	2.31	NA	NA	NA	NA	NA	NA									
BA-81-7941	Mar-88	NA	18.26	unknown	1.74	NM	NM	NM	10.29	7.31	9.71	NM	NM	NM	NM	NM	NM	15.09	9.10	4.91
BA-81-7942	Mar-88	NA	20.59	unknown	2.03	NM	NM	NM	NM	NM	NM	13.10	9.39	9.52	NM	NM	NM	15.74	9.04	6.88
BA-81-7943	Mar-88	NA	19.71	unknown	2.15	NM	NM	NM	NM	NM	NM									
BA-81-7944	Mar-88	NA	17.91	unknown	1.59	NM	NM	NM	NM	NM	NM	10.73	7.70	8.77	NM	NM	NM	18.40	8.19	1.10
BA-81-7945	Mar-88	NA	19.08	unknown	0.71	NM	NM	NM	NM	NM	NM									
BA-81-7946	Mar-88	NA	8.73	unknown	1.52	NM	NM	NM	NM	NM	NM	-	9.31	-	NM	NM	NM	-	9.62	-
SW-084-MWS	10/25/2018	NA	19.4	2.4-19.4	2.47	NA	NA	NA	NA	NA	NA									
SW-085-MWS	10/24/2018	NA	16.3	3.3-16.3	2.50	NA	NA	NA	NA	NA	NA									
SW-086-MWS	10/23/2018	NA	17.6	4.6-17.6	2.94	NA	NA	NA	NA	NA	NA									

NA = Not Applicable

NM = Not Measured

TOC = Top of Casing

bgs = below ground surface

\* Piezometer observed to have been destroyed

**Pink** = LNAPL Detection

**Blue** = DNAPL Detection

**Purple** = LNAPL & DNAPL Detection

## Table 4 - Parcel B18 No. 10 Tank Area InvestigationNAPL Gauging Activities

			Wall Total	Company	Disan		10/28/2016			11/2/2016			11/11/2016	ő		11/18/2016	5		11/21/2016	
Sample ID	Installation	Abandonment	Depth	Interval	Stick Up	Depth to	Depth to	NAPL	Depth to	Depth to	NAPL	Depth to	Depth to	NAPL	Depth to	Depth to	NAPL	Depth to	Depth to	NAPL
Sample ID	Date	Date	(ft_bgs)	(ft bos)	(ft)	NAPL	Water	Thickness	NAPL	Water	Thickness	NAPL	Water	Thickness	NAPL	Water	Thickness	NAPL	Water	Thickness
			(11. 053)	(11. 055)	(11.)	(ft. TOC)	(ft. TOC)	(ft.)	(ft. TOC)	(ft. TOC)	(ft.)	(ft. TOC)	(ft. TOC)	(ft.)	(ft. TOC)	(ft. TOC)	(ft.)	(ft. TOC)	(ft. TOC)	(ft.)
B18-017-PZ (reinstallation)	1/17/2019	NA	14	4-14	2.96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B18-044-PZ	10/20/2016	NA	12.5	2.5-12.5	3.08	NM	NM	NM	-	9.43	-	-	9.45	-	NM	NM	NM	-	3.03	-
B18-045-PZ	10/20/2016	NA	12	2-12	2.95	NM	NM	NM	9.00	13.87	4.87	9.20	8.25	5.75	NM	NM	NM	9.10	-	5.85
B18-046-PZ	10/26/2016	NA	17	7-17	3.18	trace	13.67	trace	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
B18-047-PZ	10/18/2016	NA	12.5	2.5-12.5	3.22	NM	NM	NM	NM	NM	NM	NM	NM	NM	-	13.23	-	NM	NM	NM
B18-059-PZ	10/18/2016	11/6/2019*	9	4-9	3.30	NM	NM	NM	NM	NM	NM	NM	NM	NM	-	dry	-	NM	NM	NM
B18-061-PZ (reinstallation)	2/12/2019	NA	12	2-12	3.10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B18-077-PZ	6/28/2017	NA	13	3-13	3.10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B18-078-PZ	7/12/2018	NA	20	3-20	2.58	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B18-079-PZ	7/13/2018	NA	20	3-20	3.26	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B18-080-PZ	7/16/2018	NA	20	3-20	4.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B18-081-PZ	7/12/2018	NA	20	3-20	2.36	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B18-082-PZ	7/11/2018	NA	20	3-20	2.38	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B18-083-PZ	7/12/2018	11/6/2019*	20	3-20	2.31	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BA-81-7941	Mar-88	NA	18.26	unknown	1.74	NM	NM	NM	18.20	8.12	1.80	19.15	8.20	0.85	NM	NM	NM	NM	NM	NM
BA-81-7942	Mar-88	NA	20.59	unknown	2.03	NM	NM	NM	18.46	9.66	4.16	NM	NM	NM	NM	NM	NM	NM	NM	NM
BA-81-7943	Mar-88	NA	19.71	unknown	2.15	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
BA-81-7944	Mar-88	NA	17.91	unknown	1.59	NM	NM	NM	18.26	8.15	1.24	18.41	9.20	1.09	NM	NM	NM	NM	NM	NM
BA-81-7945	Mar-88	NA	19.08	unknown	0.71	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
BA-81-7946	Mar-88	NA	8.73	unknown	1.52	NM	NM	NM	-	9.65	-	-	9.72	-	NM	NM	NM	NM	NM	NM
SW-084-MWS	10/25/2018	NA	19.4	2.4-19.4	2.47	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SW-085-MWS	10/24/2018	NA	16.3	3.3-16.3	2.50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SW-086-MWS	10/23/2018	NA	17.6	4.6-17.6	2.94	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA = Not Applicable

NM = Not Measured

TOC = Top of Casing

bgs = below ground surface

\* Piezometer observed to have been destroyed

**Pink** = LNAPL Detection

**Blue** = DNAPL Detection

**Purple** = LNAPL & DNAPL Detection

## Table 4 - Parcel B18 No. 10 Tank Area InvestigationNAPL Gauging Activities

			W-11 T-4-1	C	D:		11/28/2016			12/16/2016			12/22/2016	ĵ		12/29/2016	5	1/20/2017		
Sample ID	Installation Date	Abandonment Date	Depth (ft bgs)	Screen Interval	Riser Stick-Up	Depth to NAPL	Depth to Water	NAPL Thickness												
			(10.055)	(10.055)	(11.)	(ft. TOC)	(ft. TOC)	(ft.)												
B18-017-PZ (reinstallation)	1/17/2019	NA	14	4-14	2.96	NA	NA	NA												
B18-044-PZ	10/20/2016	NA	12.5	2.5-12.5	3.08	NM	NM	NM	NM	NM	NM	NM	NM	NM	-	5.62	-	-	4.99	-
B18-045-PZ	10/20/2016	NA	12	2-12	2.95	NM	NM	NM	11.90	7.85	3.05	12.90	6.75	2.05	9.65	6.43	5.30	10.80	6.15	4.15
B18-046-PZ	10/26/2016	NA	17	7-17	3.18	-	8.12	-	NM	NM	NM									
B18-047-PZ	10/18/2016	NA	12.5	2.5-12.5	3.22	NM	NM	NM												
B18-059-PZ	10/18/2016	11/6/2019*	9	4-9	3.30	NM	NM	NM												
B18-061-PZ (reinstallation)	2/12/2019	NA	12	2-12	3.10	NA	NA	NA												
B18-077-PZ	6/28/2017	NA	13	3-13	3.10	NA	NA	NA												
B18-078-PZ	7/12/2018	NA	20	3-20	2.58	NA	NA	NA												
B18-079-PZ	7/13/2018	NA	20	3-20	3.26	NA	NA	NA												
B18-080-PZ	7/16/2018	NA	20	3-20	4.00	NA	NA	NA												
B18-081-PZ	7/12/2018	NA	20	3-20	2.36	NA	NA	NA												
B18-082-PZ	7/11/2018	NA	20	3-20	2.38	NA	NA	NA												
B18-083-PZ	7/12/2018	11/6/2019*	20	3-20	2.31	NA	NA	NA												
BA-81-7941	Mar-88	NA	18.26	unknown	1.74	NM	NM	NM	6.08	7.30	1.22	trace	7.30	trace	18.95	5.62	1.05	19.30	5.25	0.70
BA-81-7942	Mar-88	NA	20.59	unknown	2.03	NM	NM	NM	20.00	11.75	2.62	19.54	11.75	3.08	20.45	7.47	2.17	19.85	7.22	2.77
BA-81-7943	Mar-88	NA	19.71	unknown	2.15	NM	NM	NM												
BA-81-7944	Mar-88	NA	17.91	unknown	1.59	NM	NM	NM	13.80	10.00	5.70	15.40	10.00	4.10	13.75	5.34	5.75	19.36	7.00	0.14
BA-81-7945	Mar-88	NA	19.08	unknown	0.71	NM	NM	NM	-	6.00	-									
BA-81-7946	Mar-88	NA	8.73	unknown	1.52	NM	NM	NM	-	6.66	-	-	6.75	-	-	6.36	-	-	6.14	-
SW-084-MWS	10/25/2018	NA	19.4	2.4-19.4	2.47	NA	NA	NA												
SW-085-MWS	10/24/2018	NA	16.3	3.3-16.3	2.50	NA	NA	NA												
SW-086-MWS	10/23/2018	NA	17.6	4.6-17.6	2.94	NA	NA	NA												

NA = Not Applicable

NM = Not Measured

TOC = Top of Casing

bgs = below ground surface

\* Piezometer observed to have been destroyed

**Pink** = LNAPL Detection

**Blue** = DNAPL Detection

**Purple** = LNAPL & DNAPL Detection
			Wall Total	Conson	Disan		1/27/2017			2/9/2017			2/23/2017			3/29/2017			4/6/2017	
Sample ID	Installation Date	Abandonment Date	Depth (ft. bgs)	Interval (ft. bgs)	Stick-Up (ft.)	Depth to NAPL (ft. TOC)	Depth to Water (ft, TOC)	NAPL Thickness (ft.)	Depth to NAPL (ft. TOC)	Depth to Water (ft. TOC)	NAPL Thickness (ft.)	Depth to NAPL (ft. TOC)	Depth to Water (ft, TOC)	NAPL Thickness (ft.)	Depth to NAPL (ft. TOC)	Depth to Water (ft, TOC)	NAPL Thickness (ft.)	Depth to NAPL (ft. TOC)	Depth to Water (ft, TOC)	NAPL Thickness (ft.)
B18-017-PZ (reinstallation)	1/17/2019	NA	14	4-14	2.96	NA	NA	NA												
B18-044-PZ	10/20/2016	NA	12.5	2.5-12.5	3.08	NM	NM	NM	NM	NM	NM	-	5.73	-	NM	NM	NM	NM	NM	NM
B18-045-PZ	10/20/2016	NA	12	2-12	2.95	5.71	7.40	1.69	12.39	6.78	2.56	trace	6.39	trace	11.55	8.00	3.40	11.41	7.89	3.54
B18-046-PZ	10/26/2016	NA	17	7-17	3.18	NM	NM	NM												
B18-047-PZ	10/18/2016	NA	12.5	2.5-12.5	3.22	NM	NM	NM												
B18-059-PZ	10/18/2016	11/6/2019*	9	4-9	3.30	NM	NM	NM												
B18-061-PZ (reinstallation)	2/12/2019	NA	12	2-12	3.10	NA	NA	NA												
B18-077-PZ	6/28/2017	NA	13	3-13	3.10	NA	NA	NA												
B18-078-PZ	7/12/2018	NA	20	3-20	2.58	NA	NA	NA												
B18-079-PZ	7/13/2018	NA	20	3-20	3.26	NA	NA	NA												
B18-080-PZ	7/16/2018	NA	20	3-20	4.00	NA	NA	NA												
B18-081-PZ	7/12/2018	NA	20	3-20	2.36	NA	NA	NA												
B18-082-PZ	7/11/2018	NA	20	3-20	2.38	NA	NA	NA												
B18-083-PZ	7/12/2018	11/6/2019*	20	3-20	2.31	NA	NA	NA												
BA-81-7941	Mar-88	NA	18.26	unknown	1.74	19.30	5.18	0.70	19.20	5.48	0.80	19.20	5.50	0.80	19.80	5.48	0.20	19.38	5.51	0.62
BA-81-7942	Mar-88	NA	20.59	unknown	2.03	20.05	7.19	2.57	18.90	7.52	3.72	20.30	7.50	2.32	19.82	7.52	2.80	19.66	7.48	2.96
BA-81-7943	Mar-88	NA	19.71	unknown	2.15	NM	NM	NM												
BA-81-7944	Mar-88	NA	17.91	unknown	1.59	17.90	4.81	1.60	18.45	5.23	1.05	18.70	5.28	0.80	18.75	5.23	0.75	18.47	5.30	1.03
BA-81-7945	Mar-88	NA	19.08	unknown	0.71	-	5.97	-	-	5.99	-	-	6.18	-	-	7.71	-	-	7.63	-
BA-81-7946	Mar-88	NA	8.73	unknown	1.52	-	6.16	-	-	6.27	-	-	6.27	-	-	9.14	-	-	9.01	-
SW-084-MWS	10/25/2018	NA	19.4	2.4-19.4	2.47	NA	NA	NA												
SW-085-MWS	10/24/2018	NA	16.3	3.3-16.3	2.50	NA	NA	NA												
SW-086-MWS	10/23/2018	NA	17.6	4.6-17.6	2.94	NA	NA	NA												

NA = Not Applicable

NM = Not Measured

TOC = Top of Casing

bgs = below ground surface

\* Piezometer observed to have been destroyed

**Pink** = LNAPL Detection

**Blue** = DNAPL Detection

			W-11 T-4-1	C	D:		4/13/2017			4/20/2017			4/24/2017			5/4/2017			5/24/2017	
Sample ID	Installation Date	Abandonment Date	Depth (ft. bgs)	Screen Interval (ft. bgs)	Riser Stick-Up (ft.)	Depth to NAPL (ft_TOC)	Depth to Water	NAPL Thickness												
B18-017-P7 (reinstallation)	1/17/2019	NΔ	14	4-14	2.96	NA	NA	NA												
B18-044-PZ	10/20/2016	NA	12.5	2 5-12 5	3.08	NM	NM	NM	142 1	7 10	-									
B18-045-PZ	10/20/2016	NA	12	2-12	2.95	11.73	8.31	3.22	14.10	8.33	0.85	14.08	8.34	0.87	13.80	8.29	1.15	-	9.40	_
B18-046-PZ	10/26/2016	NA	17	7-17	3.18	NM	NM	NM												
B18-047-PZ	10/18/2016	NA	12.5	2.5-12.5	3.22	NM	NM	NM	trace	13.10	trace									
B18-059-PZ	10/18/2016	11/6/2019*	9	4-9	3.30	NM	NM	NM	-	12.20	-									
B18-061-PZ (reinstallation)	2/12/2019	NA	12	2-12	3.10	NA	NA	NA												
B18-077-PZ	6/28/2017	NA	13	3-13	3.10	NA	NA	NA												
B18-078-PZ	7/12/2018	NA	20	3-20	2.58	NA	NA	NA												
B18-079-PZ	7/13/2018	NA	20	3-20	3.26	NA	NA	NA												
B18-080-PZ	7/16/2018	NA	20	3-20	4.00	NA	NA	NA												
B18-081-PZ	7/12/2018	NA	20	3-20	2.36	NA	NA	NA												
B18-082-PZ	7/11/2018	NA	20	3-20	2.38	NA	NA	NA												
B18-083-PZ	7/12/2018	11/6/2019*	20	3-20	2.31	NA	NA	NA												
BA-81-7941	Mar-88	NA	18.26	unknown	1.74	19.25	7.72	0.75	19.47	7.92	0.53	19.50	7.90	0.50	19.45	7.88	0.55	-	8.20	-
BA-81-7942	Mar-88	NA	20.59	unknown	2.03	20.34	9.20	2.28	20.01	9.42	2.61	20.10	9.41	2.52	20.09	9.39	2.53	-	9.35	-
BA-81-7943	Mar-88	NA	19.71	unknown	2.15	NM	NM	NM												
BA-81-7944	Mar-88	NA	17.91	unknown	1.59	18.59	7.70	0.91	18.53	7.78	0.97	18.17	7.83	1.33	18.23	7.80	1.27	-	8.10	-
BA-81-7945	Mar-88	NA	19.08	unknown	0.71	-	7.60	-	-	7.76	-	-	7.78	-	-	7.78	-	-	9.40	-
BA-81-7946	Mar-88	NA	8.73	unknown	1.52	-	9.31	-	-	9.53	-	-	9.52	-	-	9.49	-	-	8.20	-
SW-084-MWS	10/25/2018	NA	19.4	2.4-19.4	2.47	NA	NA	NA												
SW-085-MWS	10/24/2018	NA	16.3	3.3-16.3	2.50	NA	NA	NA												
SW-086-MWS	10/23/2018	NA	17.6	4.6-17.6	2.94	NA	NA	NA												

NA = Not Applicable

NM = Not Measured

TOC = Top of Casing

bgs = below ground surface

\* Piezometer observed to have been destroyed

**Pink** = LNAPL Detection

**Blue** = DNAPL Detection

			Wall Total	Comoon	Disor		5/30/2017			6/8/2017			6/15/2017			6/20/2017			6/21/2017	
Sample ID	Installation Date	Abandonment Date	Depth (ft. bgs)	Interval (ft. bgs)	Stick-Up (ft.)	Depth to NAPL (ft_TOC)	Depth to Water (ft_TOC)	NAPL Thickness (ft)												
B18-017-PZ (reinstallation)	1/17/2019	NA	14	4-14	2.96	NA	NA	NA												
B18-044-PZ	10/20/2016	NA	12.5	2.5-12.5	3.08	_	4.64	-	NM	NM	NM									
B18-045-PZ	10/20/2016	NA	12	2-12	2.95	8.05	8.30	0.25	14.40	8.10	0.55	14.60	8.65	0.35	9.12	8.27	5.83	NM	NM	NM
B18-046-PZ	10/26/2016	NA	17	7-17	3.18	-	12.59	-	NM	NM	NM									
B18-047-PZ	10/18/2016	NA	12.5	2.5-12.5	3.22	NM	NM	NM												
B18-059-PZ	10/18/2016	11/6/2019*	9	4-9	3.30	-	12.74	-	NM	NM	NM									
B18-061-PZ (reinstallation)	2/12/2019	NA	12	2-12	3.10	NA	NA	NA												
B18-077-PZ	6/28/2017	NA	13	3-13	3.10	NA	NA	NA												
B18-078-PZ	7/12/2018	NA	20	3-20	2.58	NA	NA	NA												
B18-079-PZ	7/13/2018	NA	20	3-20	3.26	NA	NA	NA												
B18-080-PZ	7/16/2018	NA	20	3-20	4.00	NA	NA	NA												
B18-081-PZ	7/12/2018	NA	20	3-20	2.36	NA	NA	NA												
B18-082-PZ	7/11/2018	NA	20	3-20	2.38	NA	NA	NA												
B18-083-PZ	7/12/2018	11/6/2019*	20	3-20	2.31	NA	NA	NA												
BA-81-7941	Mar-88	NA	18.26	unknown	1.74	trace	7.96	trace	19.50	7.75	0.50	19.22	7.88	0.78	19.11	8.82	0.89	NM	NM	NM
BA-81-7942	Mar-88	NA	20.59	unknown	2.03	trace	9.50	trace	18.74	9.34	3.88	19.40	9.42	3.22	19.70	9.56	2.92	NM	NM	NM
BA-81-7943	Mar-88	NA	19.71	unknown	2.15	NM	NM	NM	20.35	9.93	1.51									
BA-81-7944	Mar-88	NA	17.91	unknown	1.59	trace	7.95	trace	18.29	7.84	1.21	18.16	8.04	1.34	18.06	8.91	1.44	NM	NM	NM
BA-81-7945	Mar-88	NA	19.08	unknown	0.71	-	9.15	-	-	7.73	-	-	7.87	-	-	7.93	-	-	7.93	-
BA-81-7946	Mar-88	NA	8.73	unknown	1.52	-	7.65	-	-	9.26	-	-	9.50	-	-	9.55	-	NM	NM	NM
SW-084-MWS	10/25/2018	NA	19.4	2.4-19.4	2.47	NA	NA	NA												
SW-085-MWS	10/24/2018	NA	16.3	3.3-16.3	2.50	NA	NA	NA												
SW-086-MWS	10/23/2018	NA	17.6	4.6-17.6	2.94	NA	NA	NA												

NA = Not Applicable

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TOC = Top of Casing

bgs = below ground surface

\* Piezometer observed to have been destroyed

**Pink** = LNAPL Detection

**Blue** = DNAPL Detection

			W-11 T-4-1	C	D:		6/26/2017			6/28/2017			8/10/2017			7/11/2018			7/12/2018	
Sample ID	Installation	Abandonment	Depth	Screen	Kiser Stick-Up	Depth to	Depth to	NAPL												
Sample ID	Date	Date	(ft_bgs)	(ft hos)	(ft)	NAPL	Water	Thickness												
			(11. 053)	(11. 055)	(11.)	(ft. TOC)	(ft. TOC)	(ft.)												
B18-017-PZ (reinstallation)	1/17/2019	NA	14	4-14	2.96	NA														
B18-044-PZ	10/20/2016	NA	12.5	2.5-12.5	3.08	NM														
B18-045-PZ	10/20/2016	NA	12	2-12	2.95	9.18	8.30	5.77	NM											
B18-046-PZ	10/26/2016	NA	17	7-17	3.18	NM														
B18-047-PZ	10/18/2016	NA	12.5	2.5-12.5	3.22	NM														
B18-059-PZ	10/18/2016	11/6/2019*	9	4-9	3.30	NM														
B18-061-PZ (reinstallation)	2/12/2019	NA	12	2-12	3.10	NA														
B18-077-PZ	6/28/2017	NA	13	3-13	3.10	NA	NA	NA	trace	9.16	trace	-	9.32	-	NM	NM	NM	NM	NM	NM
B18-078-PZ	7/12/2018	NA	20	3-20	2.58	NA	-	12.61	-											
B18-079-PZ	7/13/2018	NA	20	3-20	3.26	NA														
B18-080-PZ	7/16/2018	NA	20	3-20	4.00	NA														
B18-081-PZ	7/12/2018	NA	20	3-20	2.36	NA	-	10.27	-											
B18-082-PZ	7/11/2018	NA	20	3-20	2.38	NA	-	12.00	-	NM	NM	NM								
B18-083-PZ	7/12/2018	11/6/2019*	20	3-20	2.31	NA	-	11.61	-											
BA-81-7941	Mar-88	NA	18.26	unknown	1.74	19.12	8.85	0.88	NM											
BA-81-7942	Mar-88	NA	20.59	unknown	2.03	19.12	9.58	3.50	NM											
BA-81-7943	Mar-88	NA	19.71	unknown	2.15	NM														
BA-81-7944	Mar-88	NA	17.91	unknown	1.59	18.04	8.88	1.46	NM											
BA-81-7945	Mar-88	NA	19.08	unknown	0.71	-	7.82	-	NM											
BA-81-7946	Mar-88	NA	8.73	unknown	1.52	-	9.53	-	NM											
SW-084-MWS	10/25/2018	NA	19.4	2.4-19.4	2.47	NA														
SW-085-MWS	10/24/2018	NA	16.3	3.3-16.3	2.50	NA														
SW-086-MWS	10/23/2018	NA	17.6	4.6-17.6	2.94	NA														

NA = Not Applicable

NM = Not Measured

TOC = Top of Casing

bgs = below ground surface

\* Piezometer observed to have been destroyed

**Pink** = LNAPL Detection

**Blue** = DNAPL Detection

			Wall Total	Conson	Dison		7/13/2018			7/16/2018			7/18/2018			10/23/2018			10/24/2018	8
Sample ID	Installation	Abandonment	Depth	Screen	Kiser Stick-Up	Depth to	Depth to	NAPL	Depth to	Depth to	NAPL	Depth to	Depth to	NAPL	Depth to	Depth to	NAPL	Depth to	Depth to	NAPL
Sample ID	Date	Date	(ft_bgs)	(ft bos)	(ft)	NAPL	Water	Thickness	NAPL	Water	Thickness	NAPL	Water	Thickness	NAPL	Water	Thickness	NAPL	Water	Thickness
			(11. 053)	(11. 055)	(11.)	(ft. TOC)	(ft. TOC)	(ft.)	(ft. TOC)	(ft. TOC)	(ft.)	(ft. TOC)	(ft. TOC)	(ft.)	(ft. TOC)	(ft. TOC)	(ft.)	(ft. TOC)	(ft. TOC)	(ft.)
B18-017-PZ (reinstallation)	1/17/2019	NA	14	4-14	2.96	NA	NA	NA	NA	NA										
B18-044-PZ	10/20/2016	NA	12.5	2.5-12.5	3.08	NM	NM	NM	NM	NM										
B18-045-PZ	10/20/2016	NA	12	2-12	2.95	NM	NM	NM	NM	NM										
B18-046-PZ	10/26/2016	NA	17	7-17	3.18	NM	NM	NM	NM	NM										
B18-047-PZ	10/18/2016	NA	12.5	2.5-12.5	3.22	NM	NM	NM	NM	NM										
B18-059-PZ	10/18/2016	11/6/2019*	9	4-9	3.30	NM	NM	NM	NM	NM										
B18-061-PZ (reinstallation)	2/12/2019	NA	12	2-12	3.10	NA	NA	NA	NA	NA										
B18-077-PZ	6/28/2017	NA	13	3-13	3.10	NM	NM	NM	NM	NM										
B18-078-PZ	7/12/2018	NA	20	3-20	2.58	NM	NM	NM	-	12.95	-	NM	NM	NM	NM	NM	NM	NM	NM	NM
B18-079-PZ	7/13/2018	NA	20	3-20	3.26	-	11.43	-	-	11.50	-	NM	NM	NM	NM	NM	NM	NM	NM	NM
B18-080-PZ	7/16/2018	NA	20	3-20	4.00	NA	NA	NA	-	11.4	-	-	10.92	-	NM	NM	NM	NM	NM	NM
B18-081-PZ	7/12/2018	NA	20	3-20	2.36	NM	NM	NM	-	10.37	-	NM	NM	NM	NM	NM	NM	NM	NM	NM
B18-082-PZ	7/11/2018	NA	20	3-20	2.38	NM	NM	NM	12.05	13.35	1.30	NM	NM	NM	NM	NM	NM	NM	NM	NM
B18-083-PZ	7/12/2018	11/6/2019*	20	3-20	2.31	NM	NM	NM	-	11.06	-	NM	NM	NM	NM	NM	NM	NM	NM	NM
BA-81-7941	Mar-88	NA	18.26	unknown	1.74	NM	NM	NM	NM	NM										
BA-81-7942	Mar-88	NA	20.59	unknown	2.03	NM	NM	NM	NM	NM										
BA-81-7943	Mar-88	NA	19.71	unknown	2.15	NM	NM	NM	NM	NM										
BA-81-7944	Mar-88	NA	17.91	unknown	1.59	NM	NM	NM	NM	NM										
BA-81-7945	Mar-88	NA	19.08	unknown	0.71	NM	NM	NM	NM	NM										
BA-81-7946	Mar-88	NA	8.73	unknown	1.52	NM	NM	NM	NM	NM										
SW-084-MWS	10/25/2018	NA	19.4	2.4-19.4	2.47	NA	NA	NA	NA	NA										
SW-085-MWS	10/24/2018	NA	16.3	3.3-16.3	2.50	NA	NA	trace	5.51	trace										
SW-086-MWS	10/23/2018	NA	17.6	4.6-17.6	2.94	NA	trace	5.36	trace	NM	NM	NM								

NA = Not Applicable

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TOC = Top of Casing

bgs = below ground surface

\* Piezometer observed to have been destroyed

**Pink** = LNAPL Detection

**Blue** = DNAPL Detection

			W-11 T-4-1	Comment	D:		10/25/2018			10/26/2018	3		10/29/2018			1/10/2019			1/17/2019	
Sample ID	Installation	Abandonment	Denth	Screen Interval	Kiser Stick-Up	Depth to	Depth to	NAPL	Depth to	Depth to	NAPL	Depth to	Depth to	NAPL	Depth to	Depth to	NAPL	Depth to	Depth to	NAPL
Sample ID	Date	Date	(ft bgs)	(ft bos)	(ft)	NAPL	Water	Thickness	NAPL	Water	Thickness	NAPL	Water	Thickness	NAPL	Water	Thickness	NAPL	Water	Thickness
			(10. 053)	(11. 055)	(11.)	(ft. TOC)	(ft. TOC)	(ft.)	(ft. TOC)	(ft. TOC)	(ft.)	(ft. TOC)	(ft. TOC)	(ft.)	(ft. TOC)	(ft. TOC)	(ft.)	(ft. TOC)	(ft. TOC)	(ft.)
B18-017-PZ (reinstallation)	1/17/2019	NA	14	4-14	2.96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	9.27	-
B18-044-PZ	10/20/2016	NA	12.5	2.5-12.5	3.08	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
B18-045-PZ	10/20/2016	NA	12	2-12	2.95	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
B18-046-PZ	10/26/2016	NA	17	7-17	3.18	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
B18-047-PZ	10/18/2016	NA	12.5	2.5-12.5	3.22	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
B18-059-PZ	10/18/2016	11/6/2019*	9	4-9	3.30	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
B18-061-PZ (reinstallation)	2/12/2019	NA	12	2-12	3.10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B18-077-PZ	6/28/2017	NA	13	3-13	3.10	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
B18-078-PZ	7/12/2018	NA	20	3-20	2.58	NM	NM	NM	NM	NM	NM	NM	NM	NM	trace	10.04	trace	NM	NM	NM
B18-079-PZ	7/13/2018	NA	20	3-20	3.26	NM	NM	NM	NM	NM	NM	NM	NM	NM	-	10.55	-	NM	NM	NM
B18-080-PZ	7/16/2018	NA	20	3-20	4.00	NM	NM	NM	NM	NM	NM	NM	NM	NM	-	10.65	-	NM	NM	NM
B18-081-PZ	7/12/2018	NA	20	3-20	2.36	NM	NM	NM	NM	NM	NM	NM	NM	NM	-	9.21	-	NM	NM	NM
B18-082-PZ	7/11/2018	NA	20	3-20	2.38	NM	NM	NM	NM	NM	NM	NM	NM	NM	10.65	11.94	1.29	NM	NM	NM
B18-083-PZ	7/12/2018	11/6/2019*	20	3-20	2.31	NM	NM	NM	NM	NM	NM	NM	NM	NM	-	9.83	-	NM	NM	NM
BA-81-7941	Mar-88	NA	18.26	unknown	1.74	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
BA-81-7942	Mar-88	NA	20.59	unknown	2.03	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
BA-81-7943	Mar-88	NA	19.71	unknown	2.15	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
BA-81-7944	Mar-88	NA	17.91	unknown	1.59	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
BA-81-7945	Mar-88	NA	19.08	unknown	0.71	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
BA-81-7946	Mar-88	NA	8.73	unknown	1.52	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
SW-084-MWS	10/25/2018	NA	19.4	2.4-19.4	2.47	trace	11.74	trace	NM	NM	NM	trace	10.74	trace	NM	NM	NM	NM	NM	NM
SW-085-MWS	10/24/2018	NA	16.3	3.3-16.3	2.50	NM	NM	NM	trace	5.21	trace	NM	NM	NM	NM	NM	NM	NM	NM	NM
SW-086-MWS	10/23/2018	NA	17.6	4.6-17.6	2.94	NM	NM	NM	trace	4.95	trace	NM	NM	NM	NM	NM	NM	NM	NM	NM

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bgs = below ground surface

\* Piezometer observed to have been destroyed

**Pink** = LNAPL Detection

**Blue** = DNAPL Detection

			Wall Total	Conson	Disar		1/21/2019			2/12/2019			2/14/2019		11/6/2019		
Sample ID	Installation Date	Abandonment Date	Depth (ft. bgs)	Interval (ft. bgs)	Stick-Up (ft.)	Depth to NAPL (ft. TOC)	Depth to Water (ft. TOC)	NAPL Thickness (ft.)	Depth to NAPL (ft. TOC)	Depth to Water (ft. TOC)	NAPL Thickness (ft.)	Depth to NAPL (ft. TOC)	Depth to Water (ft. TOC)	NAPL Thickness (ft.)	Depth to NAPL (ft. TOC)	Depth to Water (ft. TOC)	NAPL Thickness (ft.)
B18-017-PZ (reinstallation)	1/17/2019	NA	14	4-14	2.96	-	8.96	-	NM	NM	NM	NM	NM	NM	-	7.36	-
B18-044-PZ	10/20/2016	NA	12.5	2.5-12.5	3.08	NM	NM	NM	NM	NM	NM	NM	NM	NM	trace	5.28	trace
B18-045-PZ	10/20/2016	NA	12	2-12	2.95	NM	NM	NM	NM	NM	NM	NM	NM	NM	trace LNAPL and 7.90 DNAPL	7.65	7.05
B18-046-PZ	10/26/2016	NA	17	7-17	3.18	NM	NM	NM	NM	NM	NM	NM	NM	NM	-	12.04	-
B18-047-PZ	10/18/2016	NA	12.5	2.5-12.5	3.22	NM	NM	NM	NM	NM	NM	NM	NM	NM	-	12.40	-
B18-059-PZ	10/18/2016	11/6/2019*	9	4-9	3.30	NM	NM	NM	NM	NM	NM	NM	NM	NM	* Destroyed		
B18-061-PZ (reinstallation)	2/12/2019	NA	12	2-12	3.10	NA	NA	NA	-	11.82	-	-	11.59	-	-	11.24	-
B18-077-PZ	6/28/2017	NA	13	3-13	3.10	NM	NM	NM	NM	NM	NM	NM	NM	NM	-	9.36	-
B18-078-PZ	7/12/2018	NA	20	3-20	2.58	NM	NM	NM	NM	NM	NM	NM	NM	NM	-	10.56	-
B18-079-PZ	7/13/2018	NA	20	3-20	3.26	NM	NM	NM	NM	NM	NM	NM	NM	NM	10.40	11.95	1.55
B18-080-PZ	7/16/2018	NA	20	3-20	4.00	NM	NM	NM	NM	NM	NM	NM	NM	NM	-	10.41	-
B18-081-PZ	7/12/2018	NA	20	3-20	2.36	NM	NM	NM	NM	NM	NM	NM	NM	NM	-	10.50	-
B18-082-PZ	7/11/2018	NA	20	3-20	2.38	NM	NM	NM	NM	NM	NM	NM	NM	NM	trace	10.69	trace
B18-083-PZ	7/12/2018	11/6/2019*	20	3-20	2.31	NM	NM	NM	NM	NM	NM	NM	NM	NM	* Destroyed		
BA-81-7941	Mar-88	NA	18.26	unknown	1.74	NM	NM	NM	NM	NM	NM	NM	NM	NM	19.20	7.58	0.80
BA-81-7942	Mar-88	NA	20.59	unknown	2.03	NM	NM	NM	NM	NM	NM	NM	NM	NM	trace LNAPL and 17.60 DNAPL	9.15	5.02
BA-81-7943	Mar-88	NA	19.71	unknown	2.15	NM	NM	NM	NM	NM	NM	NM	NM	NM	trace LNAPL and 20.65 DNAPL	9.95	1.21
BA-81-7944	Mar-88	NA	17.91	unknown	1.59	NM	NM	NM	NM	NM	NM	NM	NM	NM	trace LNAPL and 18.22 DNAPL	7.60	1.28
BA-81-7945	Mar-88	NA	19.08	unknown	0.71	NM	NM	NM	NM	NM	NM	NM	NM	NM	-	7.86	-
BA-81-7946	Mar-88	NA	8.73	unknown	1.52	NM	NM	NM	NM	NM	NM	NM	NM	NM	-	9.14	-
SW-084-MWS	10/25/2018	NA	19.4	2.4-19.4	2.47	NM	NM	NM	NM	NM	NM	NM	NM	NM	trace LNAPL and 20.68 DNAPL	10.15	1.19
SW-085-MWS	10/24/2018	NA	16.3	3.3-16.3	2.50	NM	NM	NM	NM	NM	NM	NM	NM	NM	trace LNAPL and 9.39 DNAPL	5.40	9.41
SW-086-MWS	10/23/2018	NA	17.6	4.6-17.6	2.94	NM	NM	NM	NM	NM	NM	NM	NM	NM	trace LNAPL and 10.92 DNAPL	4.56	9.62

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bgs = below ground surface

\* Piezometer observed to have been destroyed

**Pink** = LNAPL Detection

**Blue** = DNAPL Detection

<u>Sample ID</u>	Parameter	<u>Result</u> (mg/L)	<u>Laboratory</u> <u>Flag</u>	<u>TCLP Limit</u> (mg/L)	<u>TCLP</u> Exceedance	Laboratory LOQ (mg/L)
	1,1-Dichloroethene	0.05	U	0.7	no	0.05
	1,2-Dichloroethane	0.05	U	0.5	no	0.05
	1,4-Dichlorobenzene	0.5	U	7.5	no	0.5
	2,4,5-Trichlorophenol	5	U	400	no	5
	2,4,6-Trichlorophenol	0.1	U	2	no	0.1
	2,4-Dinitrotoluene	0.1	U	0.13	no	0.1
	2-Butanone (MEK)	5	U	200	no	5
	2-Methylphenol	2	U	200	no	2
	3&4-Methylphenol(m&p Cresol)	2	U	200	no	2
	Arsenic	0.05	U	5	no	0.05
	Barium	0.21	J	100	no	1
	Benzene	0.05	U	0.5	no	0.05
B18 Waste	Cadmium	0.00055	J	1	no	0.05
Disposal	Carbon tetrachloride	0.05	U	0.5	no	0.05
(2/2/17)	Chlorobenzene	1	U	100	no	1
(2/2/17)	Chloroform	0.5	U	6	no	0.5
	Chromium	0.0073	В	5	no	0.05
	Hexachlorobenzene	0.1	U	0.13	no	0.1
	Hexachloroethane	0.5	U	3	no	0.5
	Lead	0.1	U	5	no	0.1
	Mercury	0.001	U	0.2	no	0.001
	Nitrobenzene	0.1	U	2	no	0.1
	Pentachlorophenol	5	U	100	no	5
	Selenium	0.011	J	1	no	0.1
	Silver	0.05	U	5	no	0.05
	Tetrachloroethene	0.05	U	0.7	no	0.05
	Trichloroethene	0.05	U	0.5	no	0.05
	Vinyl chloride	0.05	U	0.2	no	0.05

Sample ID	Parameter	<u>Result</u> (mg/L)	<u>Laboratory</u> <u>Flag</u>	<u>TCLP Limit</u> (mg/L)	<u>TCLP</u> Exceedance	Laboratory LOQ (mg/L)
	1,1-Dichloroethene	0.05	U	0.7	no	0.05
	1,2-Dichloroethane	0.05	U	0.5	no	0.05
	1,4-Dichlorobenzene	0.1	U	7.5	no	0.1
	2,4,5-Trichlorophenol	0.25	U	400	no	0.25
	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	0.1	U	200	no	0.1
	3&4-Methylphenol(m&p Cresol)	0.2	U	200	no	0.2
	Arsenic	0.025	U	5	no	0.025
	Barium	0.24		100	no	0.05
	Benzene	0.05	U	0.5	no	0.05
	Cadmium	0.015	U	1	no	0.015
B18 Waste	Carbon tetrachloride	0.05	U	0.5	no	0.05
(8/17/18)	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	0.1	U	3	no	0.1
	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	0.25	U	100	no	0.25
	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

Sample ID	Parameter	<u>Result</u> (mg/L)	<u>Laboratory</u> <u>Flag</u>	<u>TCLP Limit</u> (mg/L)	<u>TCLP</u> Exceedance	Laboratory LOQ (mg/L)
	1,1-Dichloroethene	0.05	U	0.7	no	0.05
	1,2-Dichloroethane	0.05	U	0.5	no	0.05
	1,4-Dichlorobenzene	0.5	U	7.5	no	0.5
	2,4,5-Trichlorophenol	5	U	400	no	5
	2,4,6-Trichlorophenol	0.1	U	2	no	0.1
	2,4-Dinitrotoluene	0.1	U	0.13	no	0.1
	2-Butanone (MEK)	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	0.34		100	no	0.05
	Benzene	0.05	U	0.5	no	0.05
	Cadmium	0.015	U	1	no	0.015
B18 Waste	Carbon tetrachloride	0.05	U	0.5	no	0.05
(10/31/18)	Chlorobenzene	0.05	U	100	no	0.05
	Chloroform	0.05	U	6	no	0.05
	Chromium	0.0045	J	5	no	0.025
	Hexachlorobenzene	0.1	U	0.13	no	0.1
	Hexachloroethane	0.2	U	3	no	0.2
	Lead	0.025	U	5	no	0.025
	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 below the laboratory LOQ.

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

TCLP: Toxicity Characteristic Leaching Procedure

LOQ: Limit of Quantitation

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

Sample ID	Parameter	<u>Result</u> (mg/L)	<u>Laboratory</u> <u>Flag</u>	<u>TCLP Limit</u> (mg/L)	<u>TCLP</u> Exceedance	Laboratory LOQ (mg/L)
	1,1-Dichloroethene	0.005	U	0.7	no	0.005
	1,2-Dichloroethane	0.005	U	0.5	no	0.005
	1,4-Dichlorobenzene	0.005	U	7.5	no	0.005
	2,4,5-Trichlorophenol	0.0025	U	400	no	0.0025
	2,4,6-Trichlorophenol	0.001	U	2	no	0.001
	2,4-Dinitrotoluene	0.001	U	0.13	no	0.001
	2-Butanone (MEK)	0.151		200	no	0.05
	2-Methylphenol	0.00073	J	200	no	0.001
	3&4-Methylphenol(m&p Cresol)	0.00067	J	200	no	0.002
	Arsenic	0.0038	J	5	no	0.005
	Barium	0.101		100	no	0.01
	Benzene	0.0993		0.5	no	0.005
Water	Cadmium	0.0304		1	no	0.003
Disposal	Carbon tetrachloride	0.005	U	0.5	no	0.005
(8/17/18)	Chlorobenzene	0.005	U	100	no	0.005
(0/17/10)	Chloroform	0.005	U	6	no	0.005
	Chromium	0.0066		5	no	0.005
	Hexachlorobenzene	0.001	U	0.13	no	0.001
	Hexachloroethane	0.001	U	3	no	0.001
	Lead	0.0396		5	no	0.005
	Mercury	0.0002	U	0.2	no	0.0002
	Nitrobenzene	0.001	U	2	no	0.001
	Pentachlorophenol	0.0025	U	100	no	0.0025
	Selenium	0.008	U	1	no	0.008
	Silver	0.0013	J	5	no	0.006
	Tetrachloroethene	0.005	U	0.7	no	0.005
	Trichloroethene	0.0028	J	0.5	no	0.005
	Vinyl chloride	0.005	U	0.2	no	0.005

Sample ID	Parameter	<u>Result</u> (mg/L)	<u>Laboratory</u> <u>Flag</u>	<u>TCLP Limit</u> (mg/L)	<u>TCLP</u> Exceedance	Laboratory LOQ (mg/L)
	1,1-Dichloroethene	0.001	U	0.7	no	0.001
	1,2-Dichloroethane	0.0014		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)	0.00023	J	200	no	0.002
	Arsenic	0.005	U	5	no	0.005
	Barium	0.0677		100	no	0.01
	Benzene	0.0663		0.5	no	0.001
Water	Cadmium	0.003	U	1	no	0.003
Waste	Carbon tetrachloride	0.001	U	0.5	no	0.001
(10/31/18)	Chlorobenzene	0.001	U	100	no	0.001
(10/31/10)	Chloroform	0.001	U	6	no	0.001
	Chromium	0.0249		5	no	0.005
	Hexachlorobenzene	0.00099	U	0.13	no	0.00099
	Hexachloroethane	0.00099	U	3	no	0.00099
	Lead	0.0103		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	0.001	U	0.5	no	0.001
	Vinyl chloride	0.001	U	0.2	no	0.001

Sample ID	Parameter	<u>Result</u> (mg/L)	<u>Laboratory</u> <u>Flag</u>	<u>TCLP Limit</u> (mg/L)	<u>TCLP</u> Exceedance	Laboratory LOQ (mg/L)
	1,1-Dichloroethene	0.001	U	0.7	no	0.001
	1,2-Dichloroethane	0.001	U	0.5	no	0.001
	1,4-Dichlorobenzene	0.001	U	7.5	no	0.001
	2,4,5-Trichlorophenol	0.0026	U	400	no	0.0026
	2,4,6-Trichlorophenol	0.001	U	2	no	0.001
	2,4-Dinitrotoluene	0.001	U	0.13	no	0.001
	2-Butanone (MEK)	0.0046	J	200	no	0.01
	2-Methylphenol	0.001	U	200	no	0.001
	3&4-Methylphenol(m&p Cresol)	0.0021	U	200	no	0.0021
	Arsenic	0.0137		5	no	0.005
	Barium	0.108		100	no	0.01
	Benzene	0.0024		0.5	no	0.001
Water	Cadmium	0.0313		1	no	0.003
Waste 1	Carbon tetrachloride	0.001	U	0.5	no	0.001
(6/10/10)	Chlorobenzene	0.001	U	100	no	0.001
(0/19/19)	Chloroform	0.001	U	6	no	0.001
	Chromium	0.0034	J	5	no	0.005
	Hexachlorobenzene	0.001	U	0.13	no	0.001
	Hexachloroethane	0.001	U	3	no	0.001
	Lead	0.005	U	5	no	0.005
	Mercury	0.0002	U	0.2	no	0.0002
	Nitrobenzene	0.001	U	2	no	0.001
	Pentachlorophenol	0.0026	U	100	no	0.0026
	Selenium	0.0244		1	no	0.008
	Silver	0.006	U	5	no	0.006
	Tetrachloroethene	0.001	U	0.7	no	0.001
	Trichloroethene	0.001	U	0.5	no	0.001
	Vinyl chloride	0.001	U	0.2	no	0.001

Sample ID	Parameter	<u>Result</u> (mg/L)	<u>Laboratory</u> <u>Flag</u>	<u>TCLP Limit</u> (mg/L)	<u>TCLP</u> Exceedance	Laboratory LOQ (mg/L)
	1,1-Dichloroethene	0.001	U	0.7	no	0.001
	1,2-Dichloroethane	0.001	U	0.5	no	0.001
	1,4-Dichlorobenzene	0.001	U	7.5	no	0.001
	2,4,5-Trichlorophenol	0.0026	U	400	no	0.0026
	2,4,6-Trichlorophenol	0.001	U	2	no	0.001
	2,4-Dinitrotoluene	0.001	U	0.13	no	0.001
	2-Butanone (MEK)	0.01	U	200	no	0.01
	2-Methylphenol	0.001	U	200	no	0.001
	3&4-Methylphenol(m&p Cresol)	0.002	U	200	no	0.002
	Arsenic	0.005	U	5	no	0.005
	Barium	0.0414		100	no	0.01
	Benzene	0.0026		0.5	no	0.001
Wator	Cadmium	0.0014	J	1	no	0.003
Waste 2	Carbon tetrachloride	0.001	U	0.5	no	0.001
(6/10/10)	Chlorobenzene	0.001	U	100	no	0.001
(0/19/19)	Chloroform	0.001	U	6	no	0.001
	Chromium	0.0029	J	5	no	0.005
	Hexachlorobenzene	0.001	U	0.13	no	0.001
	Hexachloroethane	0.001	U	3	no	0.001
	Lead	0.005	U	5	no	0.005
	Mercury	0.0002	U	0.2	no	0.0002
	Nitrobenzene	0.001	U	2	no	0.001
	Pentachlorophenol	0.0026	U	100	no	0.0026
	Selenium	0.008	U	1	no	0.008
	Silver	0.006	U	5	no	0.006
	Tetrachloroethene	0.001	U	0.7	no	0.001
	Trichloroethene	0.001	U	0.5	no	0.001
	Vinyl chloride	0.001	U	0.2	no	0.001

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 below the laboratory LOQ.

TCLP: Toxicity Characteristic Leaching Procedure

LOQ: Limit of Quantitation

Attachment 1



# GENERAL NOTES

- LATION OF THE GEOMEMERANE.
- 2) THE CUTOFF WALL WILL CONSIST OF APPROXIMATELY 115 FEET OF PSA 23, ASTM A 328 SHEET PILING, 20 FEET IN LENGTH
- CONTACT WITH THE FACE OF THE SHEET PILES APROTECTIVE LATER OF 160 OF THE CUT OFF WALL LENGTH (TOP OF BANK TO TOP OF BANK OF EXISTING EXCAVATION) 20 FOOT WIDTHS ARE PREFERRED AND WIDTHS ARE TO BE OVERLAPPED TO REDUCE SEEPAGE.
- PART OF THE FILL EAST OF THE SHEET PILING AS SHOWN ON SECTION A.A.
- TO BE USED (IN LIEU OF SLAG) IN THE UPPER AREA BETWEEN THE RELIEVING THE EXISTING RANGE MARKER.

- - - REVISION Date DESCRIPTION 5/31/89 FIRST 105115
    - 16/15/83 ADDED ESQUISI FION NOS, REV. NOTE 3

· .	<b>`</b> .	
42762	COAL DOCK	BULKHEAD
DRAWING NO.		REFERENCE

) SITE PREPARATION WILL BE REQUIRED ALONG THE SHEET PILE LINE AT THE NORTH AND SOUTH ENDS OF THE EXISTING EXCAVATION AND TO LOWER THE GRADE BETWEEN THE SHEET PILING AND THE RELIEVING PLATFORM FOR INSTAL

3) A FLEXIBLE GEOMEMORANE, SUCH AS 36 MIL POLYETHYLENE SHALL BE PLACED IN MIL NON-WOVEN GEOTEXTILE SHALL BE PLACED OVER THE GEOMEMBRANE. GEOMEMBRANE AND GEOTEXTILE ARE TO COVER APPROXIMATELY 95 FEET

4) SLAG FILL WILL BE REQUIRED TO CONSTRUCT A WORKING PLATFORM FOR CONSTRUCTION EQUIPMENT. THIS WORKING PLATFORM SLAG FILL IS TO BECOME

5) PORTIONS OF THE EXISTING CLAYDIKE ON THE RELIEVING PLATFORM ARE PLATFORM AND THE SHEET PILES, GARE MUST BE TAKEN SO AS NOT TO DISTURB



Attachment 2



Photo 1: View of a section of the sheet piling (uncovered) located at the southern extent.



Photo 2: Northern extent of the sheet piling.

Parcel B18 Cut-Off Wall Field Verification Photograph Log Sparrows Point, Maryland



Photo 3: View of the sheet piling's southern extent and its alignment in the north direction.



Photo 4: View of the sheet piling's northern extent and its alignment in the south direction.

Parcel B18 Cut-Off Wall Field Verification Photograph Log Sparrows Point, Maryland



Photo 5: Field confirmed alignment of sheet piling, following well installation (facing south).



Photo 6: Field confirmed alignment of sheet piling, following well installation (facing north).

Attachment 3

		ARN Engi	A Group	ntists	Client ARM Project No. Project Description Site Location ARM Representative	: EnviroAnalytics Group : 150300M-14-3 : Sparrows Point - Parcel B18 : Sparrows Point, MD : L. Perrin	Date Weath	ner	: 10/20/2016 : 70s, sunny
E	3orinç	) ID: E	318-037-S (page 1	<b>3B</b> of 1)	Checked by Drilling Company Driller Drilling Equipment	: M. Replogle, E.I. I. : Green Services, Inc : Don Marchese : Geoprobe 7822DT	North Eastir	ing (US ft) ng (US ft)	: 563377.12 : 1456144.19
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval		DESC	RIPTION		nscs	REMARKS
0-		-	B18-037-SB-1	(0-3.3') S brown wit	ANDY SILT with SLA th trace light gray, dry	G GRAVEL, soft, grayish , no plasticity, no cohesion			
-		-						ML	
-	60	59.4							
-		44.6		(3.3-4.5') red, dry, t	BRICK, SAND and G no plasticity, no cohe	GRAVEL-sized, medium dens sion	se,	NA	No water encountered
5-		32.7	B18-037-SB-5	(4.5-5') S olive yello	LAG GRAVEL, loose ow, moist, no plasticit	, light gray and brown with y, no cohesion		GW	
				End of bo	ring				
Total Bo Boring t	prehole D	epth: 5' b d at 5' bgs	gs. s due to refusal.						

		ARN Engi	A Group	ntists	Client ARM Project No. Project Description Site Location ARM Representative Checked by	: EnviroAnalytics Group : 150300M-14-3 : Sparrows Point - Parcel B18 : Sparrows Point, MD : L. Perrin : M. Replogle, E.I.T.	Date Weat	her ing (US ft)	: 10/20/2016 : 70s, sunny : 563352.22
E	Boring	g ID: E	318-038-5	SB	Drilling Company Driller Drilling Equipment	: Green Services, Inc : Don Marchese : Geoprope 7822DT	Eastir	ng (US ft)	: 1456163.58
			(page 1	of 1)				1	1
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval		DESC	RIPTION		USCS	REMARKS
0-				(0-3.3') S medium.	ILTY SAND with trac loose, brown to dark	e GRAVEL SLAG, fine to brown, dry, no plasticity, no			
		-	B18-038-SB-1	cohesion	,	,,,,,,, _			
-	60	14.4						SM	
		3.4							
-									No water encountered
		0.8		(3.3-4') B SAND-siz brown, dr	RICK and CONCRET zed grains, medium d y, no plasticity, no co	E, large GRAVEL with some ense, red, pale brown, and hesion	9	NA	Trace wood fragments at 4' bgs
				End of bo	pring				
5- Total Bo	orehole D	epth: 4' h	as						
Boring t	erminated	d at 4' bgs	s due to refusal.						

ILIAN		ARN Engi	A Group	LLC ntists	Client ARM Project No. Project Description Site Location ARM Representative	: EnviroAnalytics Group : 150300M-14-3 : Sparrows Point - Parcel B18 : Sparrows Point, MD : L. Perrin	Date Weath	ner	: 10/21/2016 : 70s, cloudy		
E	Boring	g ID: E	318-042-8	SB	Checked by Drilling Company Driller Drilling Equipment	: M. Replogle, E.I.T. : Green Services, Inc : Don Marchese : Geoprobe 7822DT	Northi Eastin	ng (US ft) Ig (US ft)	: 563645.54 : 1455766.08		
			(page 1	of 1)					I		
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval		DESC	RIPTION	NSCS	REMARKS			
0		-	B18-042-SB-1	(0.5-1.5') grading to cohesion	Non-native SANDY S SILT, firm to very fir	GILT with SLAG GRAVEL m, brown, dry, no plasticity, i	ML				
-	35.8 (1.5-3.2') Non-native SLAG GRAVEL, small to medium, medium dense, brown and black, dry, no plasticity, no cohesion							GW			
_											
_		10.4		(3.2-4.6') grained, r cohesion	Non-native SAND wi nedium dense, browr	th SILT, very fine to fine n, dry, no plasticity, no		SW-SM			
5-		17.1	B18-042-SB-5	(4.6-6.5') no cohes	SANDY SILT, soft, d	ark brown, dry, no plasticity,					
_		-						SM			
_		7.6		(6.5-10') brown an	SLAG GRAVEL, sma d black, wet, no plast	ll to medium, medium dense icity, no cohesion	,		Wet at 7' bgs		
_	74	6.3									
_		1.7						GW			
10-		0.7									
				End of bo	pring						
Total Bo Boring t	Total Borehole Depth: 10' bgs. Boring terminated at 10' bgs due to water										

E	ARM Group LLC Engineers and Scientists Boring ID: B18-043-SB (page 1 of 1)			o LLC ntists SB of 1)	Client ARM Project No. Project Description Site Location ARM Representative Checked by Drilling Company Driller Drilling Equipment	: EnviroAnalytics Group : 150300M-14-3 : Sparrows Point - Parcel B18 : Sparrows Point, MD : L. Perrin : M. Replogle, E.I.T. : Green Services, Inc : Don Marchese : Geoprobe 7822DT	Date Weath Northin Eastin	er ng (US ft) g (US ft)	: 10/21/2016 : 70s, sunny : 563690.09 : 1455778.81
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval		DESC	RIPTION		NSCS	REMARKS
0-		0.0	B18-043-SB-1	(0-2') GR plasticity,	AVELLY SILT, soft, b no cohesion	prown and gray, dry, no			Organic matter present
_		0.1						ML	
_				(2-2.2') S	AND, fine, loose, yell	ow, dry, no plasticity, no		SP	
-	90	0.0		(2.2-3.2') no plastic	SANDY SILT, soft, b tity grading to low pla	rown with trace yellow, dry, sticity, no cohesion grading t		ML	
		0.0		(3.2-3.6') cohesion	SAND, fine, loose, ye	ellow, dry, no plasticity, no		SP	
_		0.0	B18-043-SB-5	brown, di	y then moist from 4.5	-5', low plasticity, cohesive		ML	
5—		-		(5 5-9') S	LAG GRAVEL with tr	ace SILT, dense, dark grav			-
_		15 1		and brow	n, saturated, no plast	icity, no cohesion			
_		10.1						GW	
_	70	21.7							
		-							Wet at 6.5' has
		-		(9-9.2') S cohesion (9.2-10')	ANDY SILT, soft, bro	wn, saturated, no plasticity, r small to medium, dense, gra	no ay	ML GW	
10-				End of bo	n, saturated, no plast pring	icity, no conesion			
Total Bo Boring t	orehole D erminated	epth: 10' d at 10' b	bgs. gs due to ground	water.					





Bo	ARM Group LLC Engineers and Scientists Boring ID: B18-046-SB/PZ				Client ARM Project No. Project Description Site Location ARM Representative Checked by Drilling Company Driller	: EnviroAnalytics C : 150300M-14-3 : Sparrows Point - : Sparrows Point, I : L. Perrin : M. Replogle, E.I. : Green Services, : Don Marchese	Group Parcel B18 MD T. Inc	Soil Bo Piezom Casing Boreho Riser/S Northin Easting 0-Hr D	ring Installation Date neter Installation Date /Riser/Screen Type le Diameter screen Diameter g (US ft) g (US ft) TW	: 10/26/2016 : 10/26/2016 : PVC : 2.25" : 1" : 563301.25 : 1456053.72 : 12.60' TOC
			(page 1	of 1)	Drilling Equipment : Geoprobe 7822DT			48-Hr E Trace N	DTW NAPL detected at 0 and 4	: 13.67' TOC 48 hours
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESCRIPTIC	DN	USCS	) J		REMARKS
0-		3.4	B18-046-SB-1	(0-1') SA dense, gr	NDY SILT with GRAV ayish brown, dry, no	EL, medium plasticity, no	ML			
-	100	8.8 370.4		cohesion (1-1.8') S brown, ar plasticity, (1.8-3.5') GRAVEI	ILT, hard, light greeni nd brown mottling, dry cohesive SILTY SAND with ve fine to coarse light of	sh gray, pale /, low // small	ML SM		Bentonite seal	Light product present from 1.8-3.5' bgs
5-		232.8 184.0 -		dry, no pl (3.5-6') S with SILT gray, dry,	, mile to occled, light ( asticity, no cohesion LAG, SAND AND GR , medium dense, whit , no plasticity, no cohe	AVEL-sized, te and light esion	sw/Gw	1" PVC Riser	Moderate product with moderate to strong odor from 3.5-5' bgs	
-	60	- 295.7 149.2 134.6	B18-046-SB-8	(6-10') SI dry then i plasticity,	AG GRAVEL, dense moist 9.5-9.7', saturat no cohesion	, light gray, ed at 9.8', no	GW		—Sand Pack	Light product from 7-7.5' bgs
10-		-		(10-17') N continued	NO RECOVERY from I without liner from 15	10-15' bgs, i-17' bgs				Wet at 9.8' bgs
-	0	-					-		T PVC Screen	
15-		-								
-	0	-								
20				End of Bo	oring				_	
Boring to TOC: To DTW: D bgs: Bel AMSL: A	erminat op of P\ epth to ow grou Above n	ed at 17' /C casing water und surfac nean sea	bgs due to water a ce level	nd piezomet	er installation	Riser Sticl Riser: 0 - Screen: 7 Sand Pac Bentonite	kup: 3.20' 7' bgs - 17' bgs [SI k: 5 - 17' bgs Seal: 0 - 5' t	ot Size: 0. s [Grain Si ogs [Grain	.010"] ize: WG #1] Size: 3/8" chips/Granula	ar 30-50 Mesh]

	ARM Group LLC Engineers and Scientists			<b>LLC</b> ntists	Client ARM Project No. Project Description Site Location ARM Representative	: EnviroAnalytics Group : 150300M-14-3 : Sparrows Point - Parcel B18 : Sparrows Point, MD : L. Perrin	Date Weath	er	: 10/20/2016 : 70s, sunny	
	Borino	a ID: E	318-049-5	BB	Checked by Drilling Company Driller	: M. Replogle, E.I.T. : Green Services, Inc : Don Marchese	Northii Eastin	ng (US ft) g (US ft)	: 563291.37 : 1456152.96	
		,	(page 1	of 1)	Drilling Equipment	: Geoprobe 7822DT				
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval		DESC	RIPTION		NSCS	REMARKS	
0-		-	B18-049-SB-1	(0-2') Nor dense, br	n-native SILTY SAND own to dark brown, d	with some GRAVEL, mediu ry, no plasticity, no cohesion	m	SM		
		4.1						SIM		
	70	15.4		(2-2.5') B plasticity,	RICK GRAVEL, flat a no cohesion	ind elliptical, pale brown, dry	, no NA	NA		
	-			black, dry	, no plasticity, no col	lesion		ML	No water encountered	
		15.6	B18-049-SB-4	(3.5-5') S trace pale cohesion	LAG SAND and GRA green, dry then moi	VEL, brown and gray with st at depth, no plasticity, no				
		13.8						SW/GW		
5- Total B	5 End of boring Total Borehole Depth: 5' bgs.									

		ARN Engi	A Group	LLC	Client ARM Project No. Project Description Site Location ARM Representative	: EnviroAnalytics Group : 150300M-14-3 : Sparrows Point - Parcel B18 : Sparrows Point, MD : L. Perrin	Date Weatl	ner	: 10/20/2016 : 70s, sunny	
E	3oring	) ID: E	318-050-S <sub>(page 1</sub>	5 <b>B</b> of 1)	Drilling Company       : Green Services, Inc       Ea         Driller       : Don Marchese         Drilling Equipment       : Geoprobe 7822DT			ing (US ft) ıg (US ft)	: 563264.71 : 1456180.37	
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval		DESC	RIPTION	USCS	REMARKS		
0-		-	B18-050-SB-1	(0-1') SAI dense, br	NDY SILT with some own, dry, no plasticity	GRAVEL SLAG, medium , no cohesion	ML			
-	70	0.2		(1-5') BRI brown, ar	CK, SAND-sized to C ad pale brown, wet, no	COBBLES, medium dense, re o plasticity, no cohesion	sw/Gw	Pohable stormwater 2 5-5' bos		
_		1.2		(3-4.1') S dry, no pl	ILT with SAND, media asticity, no cohesion	um dense, dark brown to bla	ck,	ML	No water encountered	
5-		4.9	B18-050-SB-5	(4.1-5') S and gray plasticity,	LAG, SAND and GRA with trace green, dry no cohesion	VEL, medium dense, brown then moist at depth, no	1	SW/GW		
	5 End of boring									
Total Bo Boring t	orehole De terminated	epth: 5' b d at 5' bg:	gs. s due to refusal.							

E	ARM Group LLC Engineers and Scientists Boring ID: B18-057-SB (page 1 of 1)			o LLC ntists	Client: EnviroAnalytics GroupDateARM Project No.: 150300M-14-3WProject Description: Sparrows Point - Parcel B18Site Location: Sparrows Point, MDARM Representative: L. PerrinChecked by: M. Replogle, E.I.T.Drilling Company: Green Services, IncDriller: Don MarcheseDrilling Equipment: Geoprobe 7822DT		Date Weat North Easti	her ing (US ft) ng (US ft)	: 10/19/2016 : 80s, sunny : 563581.19 : 1456141.13
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval		DESC	RIPTION		nscs	REMARKS
0-		-	B18-057-SB-1	(0-0.8') S brown an	ILTY SAND with SLA d gray, dry, no plastic	G GRAVEL, medium dense sity, no cohesion	SM		
-	80	4.6 20.1		(0.8-2.9') gray, dry	SANDY SLAG GRAN	/EL, medium dense, brown a esion	and	SW/GW	
-		26.6	B18-057-SB-4	(2.9-7.5') light gray 4-5', satu	SLAG and BRICK, S , white, and very pale rated 5-7.5', no plasti	ILT to GRAVEL-sized, dense brown, dry 0-4', very moist city, no cohesion	θ,		
		19.0							
5-		276.2						ML/GW	Wet at 5' bgs
	100	378.4							
_		376.6		End of bo	pring				
_					J				
10-									
Total Bo Boring t	orehole D erminate	epth: 7.5' d at 7.5' b	bgs. ogs due to ground	dwater and r	efusal.				

ARM Group LLC Engineers and Scientists Boring ID: B18-058-SB (page 1 of 1)					Client ARM Project No. Project Description Site Location ARM Representative Checked by Drilling Company Driller Drilling Equipment	: EnviroAnalytics Group : 150300M-14-3 : Sparrows Point - Parcel B18 : Sparrows Point, MD : L. Perrin : M. Replogle, E.I.T. : Green Services, Inc : Don Marchese : Geoprobe 7822DT	Date Weat North Eastir	her ing (US ft) ng (US ft)	: 10/20/2016 : 70s, sunny : 563440.33 : 1456159.60	
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval		DESCRIPTION			nscs	REMARKS	
0-	75	7.9	B18-058-SB-1	(0-0.5') S no plastic (0.5-2') S loose, bro	ILTY SAND with SLA ity, no cohesion ANDY SILT grading t own, dry then moist 1	G GRAVEL, loose, brown, d o SILTY SAND, soft grading .5-2', no plasticity, no cohesi	ry, to on	SM		
_		16.3						ML to SM	No water encountered	
-				End of bo	pring					
- 5-										
Total Bo Boring t	L orehole Do erminated	epth: 2' by I at 2' bgs	gs. s due to refusal.							

ARM Group LLC Engineers and Scientists Boring ID: B18-077-SB/PZ (page 1 of 1)				or LLC ntists B/PZ of 1)	Client: EnviroAnalytics GroupARM Project No.: 150300M-14-3Project Description: Sparrows Point - Parcel B18Site Location: Sparrows Point, MDARM Representative: L. PerrinChecked by: M. Replogle, E.I.T.Drilling Company: Green Services, IncDriller: Rick MillerDrilling Equipment: Geoprobe 7822DT			Soil Boring Installation Date Piezometer Installation Date Casing/Riser/Screen Type Borehole Diameter Riser/Screen Diameter Northing (US ft) Easting (US ft) 0-Hr DTW 48-Hr DTW Trace NAPL detected at 0 hours			: 6/28/2017 : 6/28/2017 : PVC : 2.25" : 1" : 563516.70 : 1456183.33 : 9.16' TOC : 9.78' TOC
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESCRIPTIC	DN	nscs				REMARKS
0-		-	B18-077-SB-1	(0-1.5') S dense, liç cohesion	ANDY SILT with GRA ght brown, dry, no plas	VEL, medium sticity, no	ML		Bentoni	te seal	
-	68	0.0		(1.5-2.2') with som brown, di cohesion	SILTY SAND, very fir e GRAVEL, medium o y, no plasticity, no	SM	1" PVC I	Riser			
-		0.0	B18-077-SB-4.5	(2.2-4') S SILTY SA alternatin no cohes	AND with GRAVEL g AND, medium dense, g brown layers, dry, r ion	SW/SM				Wet at 4.5' bgs	
5		0.0 - 0.0		(4-7') SL/ with som medium o very pale no plastic	AG and BRICK, GRAV e SAND-sized,with tra dense to dense, gray, brown, dry then wet a bity, no cohesion	VEL-sized ace SILT, brown, and at 4.5' bgs,	GW/SW	<b>.</b>	ack	Petroleum-like product from 7-10' bgs (light from 7-7.5' bgs, moderate from 7.5-8.8' bgs,	
-	90	0.0		(7-10') SLAG, GRAVEL and SAND-sized, with SILT from 8.8-10' bgs, dense, gray, dark gray, and light gray, wet, no plasticity, no cohesion							trace from 8.8-10')
_		0.0					GW/SW				
10		-		(10-13') S with trace light gray plasticity,	SLAG, SAND and GRAVEL-sized, SILT, medium dense to dense, and light brown, wet, no no cohesion						Very light to trace product from 10-13' bgs
-	100	-					GW/SW				
	erminate	ed at 13' ′C casing	l bgs due to water a	L End of Bo	oring ter installation	Riser Stick Riser: 0 - 3 Screen: 3	kup: 3.10' 3' bgs - 13' bre 15	lot Size.	0.010"1		L
bgs: Bel AMSL: A	epin to ow groi Above n	water ind surfa nean sea	ce level			Screen: 3 Sand Pacl Bentonite	k: 2 - 13' bgs [S k: 2 - 13' bgs Seal: 0 - 2' b	Grain S Grain S Sgs [Grair	5.510 ] Size: WG #1] n Size: 3/8" chi	ps/Granula	ar 30-50 Mesh]

ARM Group LLC Engineers and Scientists					Client       : EnviroAnalytics Group         ARM Project No.       : 170183M         Project Description       : Sparrows Point - Parcel B18         Site Location       : Sparrows Point, MD         ARM Representative       : L. Perrin         Cheaded by       : M. Baplagia, E. L.T.		Date Weather	: 11/21/16 : Sunny, windy, 30s
	Borin	ig ID:	B18-A-S	<b>3</b> of 1)	Checked by Drilling Company Driller Drilling Equipment	: M. Replogle, E.I.T. : GSI, Inc. : Don Marchese : Geoprobe 7822DT	Northing (US fl Easting (US ft)	) : 563385.65 : 1456000.79
			(1 3	,				
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION	nscs	REMARKS
0-				(0-1') SIL	T, with very fine SAN	D and some GRAVEL SLAG	, NAI	
-				(1-3.5') S	ILT, hard, brown, dry,	low plasticity, cohesive		_
		1.6				1		
	74	3.8					ML	
		5.2		(3.5-10.5)	) SI AG fine to coars	e SAND with some GRAVEL		
-	54	4.4		dark gray	gray, black and very dark brown, dry, non cohesive, plastic			Metallic luster
5-			No Samples Collected					
_		-						
_		-					0.04	
		2.4					500	
		5.0						
-		2.3						
10-								
-		-		(10.5-12') BRICK and small GRAVEL, dense, pale brown, wet, non cohesive, non plastic				- Wet at 10.5' Product present: amber strong
		-						odor (sweet); light viscosity 10.5-15'
		-		(12-13.1') low plasti	(12-13.1') SANDY SILT, firm to hard, very dark gray, wet, low plasticity, cohesive			
-		-		(13.1-15') GRAVELLY SAND with SILT grading to SANDY GRAVEL with SILT, medium dense, strong brown then grav			v	-
-		-		14-15', w	et, non cohesive, non	plastic	SW/GV	V
15—				End of Bo	oring			
					č			
Total Bo	orehole D	epth: 15' l	ogs.	<b>4</b> - 1 <sup>1</sup> 11				
вoring t	erminated	ı at 15' bç	js que to encour	itering groun	iuwater.			

ARM Group LLC Engineers and Scientists					Client: EnviroAnalytics GroupARM Project No.: 170183MProject Description: Sparrows Point - Parcel BSite Location: Sparrows Point, MDARM Representative: L. PerrinChecked by: M. Replogle, E.I.T.		Date Weather Northing (US ft)		: 11/21/16 : Sunny, windy, 30s : 563393.17
	Borir	ng ID:	B18-B-SE	3	Drilling Company Driller Drilling Equipment	: GSI, Inc. : Don Marchese : Geoprobe 7822DT	Eastin	ig (US ft)	: 1455936.55
			(page 1	of 1)					1
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESCRIPTION				REMARKS
0-				(0-1.5') S	ANDY SILT, soft, bro	wn, dry, non cohesive, non			
		-		plastic				• •	Trace organics
-								ML	
		0.6							
		0.0		(1.5-2.7') SILT, hard, pale brown, dry, low plasticity, cohesive					
_		16.3 2.2						ML	
_	90								
				(2.7-10')   BRICK, n	BLAG, SILT to coarse with some GRAVEL and trace redium dense, brown to dark brown with trace				
				yellow, dry then wet at 9.8', non plastic, non cohesive					
_									
		2.5							
5—	60		No Samples Collected						Metallic luster
		-							
-									
								ML/SW	
		-							
_									
		5.8							
-									
		23							
		2.3							
-									
		2.7							Wet at 9.8' bgs
10-				End of Br	orina				
					.9				
Total Br	orehole D	epth: 10' I	ogs.						
Boring t	erminated	d at 10' bg	is due to encour	tering groun	dwater.				
		ARN Engi	<b>A Group</b> neers and Scie	ntists	Client ARM Project No. Project Description Site Location ARM Representative Checked by	: EnviroAnalytics Group : 170183M : Sparrows Point - Parcel B18 : Sparrows Point, MD : L. Perrin : M. Replogle, E.I.T.	Date Weath Northi	ner ng (US ft)	: 11/21/16 : Sunny, windy, 30s : 563417.81
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	Borir	ig ID:	B18-C-SI (page 1	<b>3</b> of 1)	Drilling Company Driller Drilling Equipment	: GSI, Inc. : Don Marchese : Geoprobe 7822DT	Eastir	ng (US ft)	: 1455882.50
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION		nscs	REMARKS
0-		-		(0-4') SIL cohesive	T, firm to hard, pale b	prown, dry, low plasticity,			
-	44	- 11.6 10.7						ML	
-		5.1		(4-5') SLA dry, non	AG, medium dense, S plastic, non cohesive	ILT to small GRAVEL, brow	n,		Metallic luster on some grains; trace oxidation
5—		-	No Samples Collected					ML/GP	
-		36.5		(6.5-8.5') moist, lov	SANDY SILT, firm to v plasticity, cohesive	very firm, black to dark gray	',		Light product; light odor (sweet);
-	70	105.3						ML	light viscosity; black 7-8' bgs
-		21.2		(8.5-10') brown, m	SAND with some GR oist then wet at 9.5', ı	AVEL, medium to very coars non plastic, non cohesive	e,		
10		3.3						SW	Wet at 9.5' bgs
10-				End of Bo	pring				
Total Bo Boring t	orehole D erminated	epth: 10' l d at 10' bç	bgs. gs due to encour	ntering grour	idwater.				

<b>I</b> III	ARM Group LLC Engineers and Scientists			<b>LLC</b> ntists	Client ARM Project No. Project Description Site Location ARM Representative	: EnviroAnalytics Group : 170183M : Sparrows Point - Parcel B18 : Sparrows Point, MD : L. Perrin	Date Weat	ner	: 11/21/16 : Sunny, windy, 30s
	Borir	ig ID:	B18-D-SI (page 1	<b>3</b> of 1)	Checked by Drilling Company Driller Drilling Equipment	: M. Replogle, E.I.T. : GSI, Inc. : Don Marchese : Geoprobe 7822DT	North Eastir	ing (US ft) ig (US ft)	: 563391.78 : 1455838.63
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION		USCS	REMARKS
0		- 6.6		(0-2') SIL black, dry	T with COAL GRAVE , non plastic, non col	L, soft, very dark brown to nesive		ML	Metallic luster on silt grains
_	84	13.2		(2-2.5') C cohesive (2.5-3') S	ONCRETE, dense, g	ray, dry, non plastic, non sized, medium dense, brown	l,	NA ML/SW	
-		25.1		(3-3.3') C cohesive (3.3-4.7') trace oxic	ONCRETE, dense, p SLAG, SILT to SANE lation, dry, non plastic	ale brown, dry, non plastic, r 0-sized, medium dense, brov c, non cohesive	non / vn,	NA ML/SW	
5—		165.1 -	No Samples Collected	(4.7-6') S cohesive	ILT, hard, very dark g	ray, dry, low plasticity,		ML	Product 4.7-5'; trace metallic luster; grains held together by viscous material; dark brown; no odor
-		16.9		(6-7.5') S trace oxic	LAG, SILT to SAND-s lation, dry, non plastic	sized, medium dense, brown c, non cohesive	l,	ML/SW	
-	70	4.2		(7.5-8.3') dry, non p	BRICK and SLAG, m plastic, non cohesive	edium dense, red and yellov	V,	NA	
_		9.1		(8.3-9.2') dense, dr	COAL, SAND-sized t y to moist, non plastic	o GRAVEL-sized, medium c, non cohesive		SW/GW	Strong solvent-like odor; no visible product 8.3-9.2' Wet at 9.2' Light product; strong odor;
10-		7.2		(9.2-10') to black,	SANDY GRAVEL, find wet, non plastic, non o	e, medium dense, dark brow cohesive	'n	SW/GW	moderate viscosity; amber brown 9.2-10'
				End of Bo	pring				
Total Bo Boring t	orehole D erminateo	epth: 10' t d at 10' bg	ogs. Is due to encour	itering groun	dwater.				

Intel	ARM Group LLC Engineers and Scientists			LLC ntists	Client : EnviroAnalytics Group ARM Project No. : 170183M Project Description : Sparrows Point - Parcel B18 Site Location : Sparrows Point, MD ARM Representative : L. Perrin Checked by : M. Replogle, E.I.T. Drilling Company : CSL Inc.		Date Weath	ner	: 11/21/16 : Sunny, windy, 30s
	Borir	ng ID:	B18-E-SE	3	Checked by Drilling Company Driller Drilling Equipment	: M. Replogle, E.I.T. : GSI, Inc. : Don Marchese : Geoprobe 7822DT	Northi Eastir	ng (US ft) Ig (US ft)	: 563388.88 : 1455751.08
			(page 1	of 1)	- ·····3 - 1-··P·····				
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION		NSCS	REMARKS
0-				(0-2.5') C	ONCRETE, dense, w	hite, dry, non plastic, non			
-		-		cohesive				NA	
	44	-		(2.5-5') S	ILTY SAND, very fine	to fine, very dark gray, dry,			
-		5.4		nonpiasu	c, non conesive				
_		0.4						SM	
F		0.4	No Samplao					Sivi	
5-		-	Collected						
_		2.9		(6.5-10') dense, ye	BRICK and SLAG, SA Bellow and light gray, d	AND and GRAVEL-sized, ry then wet at 9', non plastic,	,		
_	70	11.6							
_		4.3						SW/GW	Wet at 9' bgs
		0.6							
10-			I	End of Bo	oring				
Total Bo	orehole D	epth: 10' l	bgs. as due to encour	tering group	dwater				
			, to should	June groun					

	ARM Group LLC Engineers and Scientists Boring ID: B18-F-SB (page 1 of 1)			o LLC ntists B of 1)	Client ARM Project No. Project Description Site Location ARM Representative Checked by Drilling Company Driller Drilling Equipment	: EnviroAnalytics Group : 170183M : Sparrows Point - Parcel B18 : Sparrows Point, MD : L. Perrin : M. Replogle, E.I.T. : GSI, Inc. : Don Marchese : Geoprobe 7822DT	Date Weather Northing Easting (	(US ft) US ft)	: 11/21/16 : Sunny, windy, 30s : 563401.85 : 1456049.48
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION		USCS	REMARKS
0		7.3		(0-1.5') S brown, dr	ILTY SAND with som y, non plastic, non cc	e GRAVEL, medium dense, hesive		SM	
_	94	3.7 3.8		(1.5-3.1') reddish y mottling,	CLAY with SILT and ellow mottling grading dry, low plasticity, col	SAND, hard, light gray and g to yellowish red and brown hesive		CL	
-		3.2		(3.1-4.2') dark brov cohesive	SILTY SAND, fine to vn, gray, yellow and b	medium, some large GRAVI prown, dry, non plastic, non	EL,	SM	
5—		2.1	No Samples Collected	(4.2-6.8') plastic, n	SAND, fine to mediu on cohesive	m, soft, loose, brown, dry, nc	on	SW	
-	92	4.6		(6.8-9') S gray, pale cohesive	LAG and FILL, SANE e brown and light gray	) to GRAVEL-sized, dense, γ, dry, non plastic, non	SI	N/GW	
-		3.8		(9-9.5') S moist, no (9.5-10) S gray, wet	LAG, SILT to SAND- n plastic, non cohesiv SLAG GRAVEL with S , non plastic, non coh	sized, dense, pale brown, /e SAND, brown, white and light lesive	M t	IL/SW GW	Wet at 9.5' bgs
Total Bo Boring t	prehole D erminate	epth: 10' l d at 10' bç	bgs. Js due to encour	End of Bo	bring ndwater.				
- 10 – Total Bo Boring t	prehole D erminated	3.8 178.1 epth: 10' l d at 10' bç	bgs. Js due to encour	(9-9.5') S moist, no (9.5-10) S gray, wet End of Bo	LAG, SILT to SAND- n plastic, non cohesiv SLAG GRAVEL with S , non plastic, non coh pring	sized, dense, pale brown, /e SAND, brown, white and light lesive	M t	IL/SW GW	Wet at 9.5' bgs

Internet	ARM Group LLC Engineers and Scientists Boring ID: B18-G-SB (page 1 of 1)				Client ARM Project No. Project Description Site Location ARM Representative Checked by Drilling Company Driller Drilling Equipment	: EnviroAnalytics Group : 170183M : Sparrows Point - Parcel B18 : Sparrows Point, MD : L. Perrin : M. Replogle, E.I.T. : GSI, Inc. : Don Marchese : Geoprobe 7822DT	Date Weather Northing (US ft) Easting (US ft)		: 11/21/16 : Sunny, windy, 30s : 563271.42 : 1455977.26
			(page 1	of 1)				1	
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION		nscs	REMARKS
0-				(0-1.5') S	ILT, very firm, reddisl	yellow, dry, low plasticity,			
		-						ML	
_									
_		-		(1.5-3.5') medium o	SAND, medium to ve dense, yellow, dry, no	ery coarse with small GRAVE n plastic, non cohesive	Ľ,		
	64	1.6						sw	
-									
		14.1		(3.5-4.7')	SAND with SILT, ver	y fine to medium, brown, dry	,		
_				non plast	ic, non cohesive			SW-SM	
		5.0	No Samples Collected	(4.7-6.5')	SAND with GRAVEL	SLAG, medium dense, blac	k,		
5-				moist, nó	n plastic, non cohesiv	/e			
_		-						SW	
		-		(6 5 0') 8		ek wat low plasticity			Light petroleum odor
-	38			cohesive		ck, wel, low plasticity,			Moderate petroleum odor but no free product
		5.3						ML	Wet at 7.5' bgs
_									
		-							
-				End of Bo	oring				
10-									
Total Bo	Drehole D	epth: 9' b	gs.		huotor				
boring t	erminate	ມaເອ bgs	s que lo encount	ening ground	iwalei.				

		ARN Engi	A Group neers and Scier	LLC	Client ARM Project No. Project Description Site Location ARM Representative	: EnviroAnalytics Group : 170183M : Sparrows Point - Parcel B18 : Sparrows Point, MD : L. Perrin	Date Weath	er	: 11/21/16 : Sunny, windy, 30s
	Borir	ng ID:	B18-H-SI	<b>3</b> of 1)	Checked by Drilling Company Driller Drilling Equipment	: M. Replogle, E.I.T. : GSI, Inc. : Don Marchese : Geoprobe 7822DT	Northir Easting	ng (US ft) g (US ft)	: 563232.88 : 1456017.36
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION		nscs	REMARKS
0-	-	-		(0-1.5') S brown, dr	ILTY SAND with som y, non plastic, non co	e GRAVEL, medium dense, hesive		SM	
	60	17.9 38.2		(1.5-3.7') dry, non p	SAND, fine to coarse plastic, non cohesive	e, medium dense, dark brown	Ι,	SW	Light petroleum odor; trace product 2.8-3.7' bgs
	-	47.6	No Samples Collected	(3.7-4.6') GRAVEL	SILTY SAND, mediu , brown, dry, non plas	m dense, fine to medium tic, non cohesive		SM	Light product present; black; light odor 4.6-5' bgs
5-		279.3		(4.6-5') S medium,	ILTY SAND, medium black and dark brown	dense, and GRAVEL, fine to , dry, non plastic, non	,	SM	No water encountered
		361.5		\cohesive (5-6') SAI plasticity,	NDY SILT, soft, grayis cohesive	sh, brown, moist, low	/	ML	Trace brown product; light odor
	100	427.5		(6-7') SLA brown pro	AG SAND and GRAV oduct, dry to moist, no	EL, medium dense, gray with on plastic, non cohesive	1	SW/GW	Moderate product intermittent throughout; brown product; moderate viscosity; moderate odor
	orehole D	epth: 7' b	gs.	L End of Bo	pring				

Liddle of the second seco	ARM Group LLC Engineers and Scientists Boring ID: B18-I-SB (page 1 of 1)			LLC ntists	Client ARM Project No. Project Description Site Location ARM Representative Checked by Drilling Company Driller Drilling Equipment	: EnviroAnalytics Group : 170183M : Sparrows Point - Parcel B18 : Sparrows Point, MD : L. Perrin : M. Replogle, E.I.T. : GSI, Inc. : Don Marchese : Geonrobe 7822DT	Date Weather Northing (US Easting (US	: 11/21/16 : Sunny, windy, 30s 6 ft) : 563244.08 ft) : 1456071.79
			(page 1	of 1)				
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION	nscs	REMARKS
0-				(0-1.5') S	ILTY SAND, medium	dense, brown, dry, non plas	tic,	
		-			3100		SN	1
		27						
_		5.7		(1.5-3.1') dense, dr	SAND, medium to ve y, non plastic, non co	ery coarse, yellow, medium bhesive		
	86	1.0					SV	/
-								
		0.8		(3.1-4') S   grayish b	AND with GRAVEL, f rown, dry, non plastic	ine to coarse, medium dense , non cohesive	s, SV	v
- 5-		4.8	No Samples	(4-5.5') S 4.7-5', de cohesive	LAG, SAND and GR/ nse, gray, white and	AVEL-sized, then SILT-sized light gray, dry, non plastic, n	on SW GW-	// // ML
		-	Collected	(5 5-8 8')		RAVEL-sized with SILT		_
-		14 1		dense, w cohesive	hite and light gray, dr	y to moist, non plastic, non		
		14.1						
	80	95.9					SW/0	GW
-		23.7						
-		20.1		(8.8-9.3')	SLAG or possible AS	SH, SILT to fine SAND-sized,	ML/S	
		28.9		hard, whi (9.3-10') white and	te, moist, non plastic, SLAG, SAND and GF I light gray, dry to mo	non cohesive RAVEL-sized with SILT, dens ist then wet at 10', non plasti	c, SW/0	GW Wet at 10' bgs
10-			I	End of Bo	oring			
Total Bo	orehole D	epth: 10' l	bgs.					
Boring t	erminated	d at 10' bç	gs due to encour	itering groun	ndwater.			

	ARM Group LLC Engineers and Scientists			LLC ntists	Client ARM Project No. Project Description Site Location ARM Representative	: EnviroAnalytics Group : 170183M : Sparrows Point - Parcel B18 : Sparrows Point, MD : L. Perrin	Date Weather	: 11/22/16 : Sunny, windy, 30s
	Borir	ng ID:	B18-J-SE (page 1	<b>3</b> of 1)	Checked by Drilling Company Driller Drilling Equipment	: M. Replogle, E.I.T. : GSI, Inc. : Don Marchese : Geoprobe 7822DT	Northing (US f Easting (US ft)	t) : 563295.38 : 1456095.49
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION	nscs	REMARKS
0-				(0-3.4') S	ILT, hard, brown, dry	, low plasticity, cohesive		
-	80	- 12.4 13.1					ML	
		96.9		(3.4-9.5') brown, w	SLAG GRAVEL with hite, dry then wet at 9	SAND, dense, gray and pale ', non plastic, non cohesive	9	
5-		299.3	No Samples Collected					
-		-						
		51.1					GW	
_	74	71.2						
_		7.7						Wet at 9' bos
					aring			
10-					gund			
Total Bo Boring t	orehole D terminated	epth: 9.5' d at 9.5' b	bgs. gs due to encou	ntering grou	ndwater.			

	ARM Group LLC Engineers and Scientists			ntists	Client ARM Project No. Project Description Site Location ARM Representative Checked by	: EnviroAnalytics Group : 170183M : Sparrows Point - Parcel B18 : Sparrows Point, MD : L. Perrin : M. Replogle, E.I.T.	Date Weather Northing	I (US ft)	: 11/22/16 : Sunny, windy, 30s : 563311.92
	Borir	ng ID:	B18-K-SI	<b>3</b> of 1)	Drilling Company Driller Drilling Equipment	: GSI, Inc. : Don Marchese : Geoprobe 7822DT	Easting (	(US ft)	: 1455950.44
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION		NSCS	REMARKS
0		- 8.3		(0-2') SIL dry, non	TY fine SAND with G plastic, non cohesive	RAVEL, loose, grayish brow	n,	SM	
-	66	1.7		(2-4') CL/ dry, low p	AY, hard, pale brown blasticity, cohesive	with reddish yellow mottling,		CL	
- 5		0.2	No Samples Collected	(4-8.2') N non plast	lon-native SAND, ver ic, non cohesive	y fine to fine, dense, black, d	ry,		
-	52	-						SW	
_		1.3		(8 2-9') S	I AG GRAVEL mediu	um dense, light grav and			
-		38.9		grayish g End of Bo	reen, dry then wet at	8.8', non plastic, non cohesiv	/e	GW	
10-									
Total Bo Boring t	orehole D erminated	epth: 9' bg d at 9' bgs	gs. s due to encount	ering ground	lwater.				

	ARM Group LLC Engineers and Scientists			ntists	Client ARM Project No. Project Description Site Location ARM Representative Checked by	: EnviroAnalytics Group : 170183M : Sparrows Point - Parcel B18 : Sparrows Point, MD : L. Perrin : M. Replogle, E.I.T.	Date Weatl North	ner ing (US ft)	: 11/22/16 : Sunny, windy, 30s : 563336.79
	Borir	ng ID:	B18-L-SE (page 1	<b>3</b> of 1)	Drilling Company Driller Drilling Equipment	: GSI, Inc. : Don Marchese : Geoprobe 7822DT	Eastir	ng (US ft)	: 1456001.48
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION		nscs	REMARKS
0		-		(0-2') SAI gray and	ND with SILT and GR brown, dry, non plast	AVEL, medium dense, light ic, non cohesive		SW-SM	
_	76	1.1 4.9		(2-3') CL/ cohesive	AYEY SILT, hard, gra	yish brown, dry, low plasticit	y,	ML	
_		5.1		(3-3.4') S non cohe (3.4-4.3') plasticity,	AND, fine to coarse, o sive CLAYEY SILT, hard, cohesive	dense, black, dry, non plastio grayish brown, dry, low	c,	SW ML	
5—		1.2	No Samples Collected	(4.3-10') dense to then wet	BRICK and SLAG, fin dense, red, brown, gr at 9', non plastic, non	e grained to GRAVEL, medi eenish gray and gray, dry cohesive	um		
_		-							
_	40	0.2						SW/GW	
-		1.3							Moderate product 9-10' bgs;
10—		-		End of Bo	pring				Wet at 9' bgs
Boring t	orenole D erminated	eptn: 10' l d at 10' bg	ogs. js due to encour	tering groun	dwater.				

Internet	ARM Group LLC Engineers and Scientists Boring ID: B18-M-SB			ntists	Client ARM Project No. Project Description Site Location ARM Representative Checked by Drilling Company Driller	: EnviroAnalytics Group : 170183M : Sparrows Point - Parcel B18 : Sparrows Point, MD : L. Perrin : M. Replogle, E.I.T. : GSI, Inc. : Don Marchese	Date Weather Northing (US ft) Easting (US ft)		: 11/22/16 : Sunny, windy, 30s : 563342.78 : 1456063.98
			(page 1	of 1)	Drilling Equipment	: Geoprobe 7822DT			
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION		NSCS	REMARKS
0-				(0-2') SA non plast	ND, very fine to fine, ı ic, non cohesive	medium dense, brown, dry,			
-		1.9						SW	
_	82	0.8		(2-3.8') S reddish y	ILTY CLAY, very firm ellow mottling, dry, lo	, brown, pale brown and w plasticity, cohesive		CL	
_		2.0		(3.8-14') dense, gi cohesive	SLAG, SAND and GF ray and white, dry the (intermittent very sma	RAVEL, medium dense to n wet at 13.5', non plastic, no all very moist areas 9-10')	on		
5-		2.1							
-		71.1	No Commiss						
_	100	162.6	Collected						
-		0.9					s	W/GW	
10-		1.1							
-		-							
-	38	-							
_		8.4 48 1							Wet at 13.5' bgs, possibly higher due to very dense slag
-		40.1		End of Bo	oring				
15-									
Total Bo Boring t	orehole D erminated	epth: 14' l d at 14' bg	bgs. gs due to encour	ntering grour	ndwater.				

	Borin	ARN Engi	A Group neers and Scien B18-N-SI (page 1	LLC ntists B of 1)	Client ARM Project No. Project Description Site Location ARM Representative Checked by Drilling Company Driller Drilling Equipment	: EnviroAnalytics Group : 170183M : Sparrows Point - Parcel B18 : Sparrows Point, MD : L. Perrin : M. Replogle, E.I.T. : GSI, Inc. : Don Marchese : Geoprobe 7822DT	Date Weath Northi Eastin	ner ng (US ft) g (US ft)	: 11/22/16 : Sunny, windy, 30s : 563325.81 : 1456119.19
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION		nscs	REMARKS
0-		- 138.0		(0-0.5') A cohesive (0.5-5') S brown wit cohesive	SPHALT, dense, darl AND with FILL GRAV th trace red and gray,	k brown, dry, non plastic, nor /EL, medium dense, very da dry, non plastic, non	rk	NA	
-	80	2.8						SW	
- 5-		0.8	No Samples Collected	(5-9') SL/	AG, SAND and GRAV	/EL, medium dense to dense	·,		Light product throughout with moderate product at 7.5-8'
-	74	- 5.1		gray, ligh cohesive	t gray and white, dry	then wet at 7', non plastic, no	on		bgs and 8.5-9' bgs; brown; viscous; moderate odor
-	74	22.9 32.4						5w/Gw	NAPL present
10 – Total Bo Boring t	prehole D erminated	epth: 9' by d at 9' bgs	gs. s due to encount	End of Bo	bring Iwater.				
Boring t	erminated	a at 9' bgs	s due to encount	ering ground	iwater.				

	Borir	ARN Engi	A Group ineers and Scie B18-O-SI (page 1	D <b>LLC</b> ntists B of 1)	Client ARM Project No. Project Description Site Location ARM Representative Checked by Drilling Company Driller Drilling Equipment	: EnviroAnalytics Group : 170183M : Sparrows Point - Parcel B18 : Sparrows Point, MD : L. Glumac : M. Replogle, E.I.T. : GSI, Inc. : Kevin Pumphrey : Geoprobe 7822DT	Date Weather Northing (US ft) Easting (US ft)		: 12/6/16 : Overcast, 40s : 563241.78 : 1456124.74
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION		nscs	REMARKS
0	60	- 0.3		(0-3') SIL brown, di	T with medium graine y, non plastic, non cc	ed SAND, loose/soft, dark hesive		ML/SW	
5-		2.5	No Samples Collected	((3-6 <sup>-</sup> ) SA tan, wet,	ND and GRAVEL, co	arse, loose to mealum dense sive		sw/Gw	Wet at 4.2' bgs
-	60	-		(6-10') SI gray and	LAG SAND and GRA'	√EL, coarse, medium dense,		sw/gw	
10—				End of Bo	pring				
Total Bo Boring t	orehole D erminate	epth: 10' l d at 10' bo	bgs. gs due to refusal						

		ARN	A Group	<b>LLC</b> ntists	Client ARM Project No. Project Description Site Location ARM Representative	: EnviroAnalytics Group : 170183M : Sparrows Point - Parcel B18 : Sparrows Point, MD : L. Glumac	Date Weat	her	: 12/6/16 : Overcast, 40s
	Borir	ng ID:	B18-P-SE	3	Checked by Drilling Company Driller Drilling Equipment	: M. Replogle, E.I.T. : GSI, Inc. : Kevin Pumphrey : Geoprobe 7822DT	North Eastii	ing (US ft) ng (US ft)	: 563162.61 : 1456126.13
	1	1	(page 1	of 1)				1	Γ
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION		NSCS	REMARKS
0-				(0-5.5') F	ine grained SILT and	SAND, loose, dark brown, d	ry,		
		-		non plast	ic, non conesive				
-									
-		-							
	60	0.0						ML/SW	
		5.0							
5_		2.7	No Samples						
5		-	Collected	(5.5-10') non cohe	GRAVEL, dense, ligh sive	t gray/white, wet, non plastic	;		
_		-							
_	56	-						GW	Wet at /' bgs
-		-							
-		-							
10-		<u>I</u>	L	End of Bo	pring			1	1
Total Bo	I prehole D	epth: 10'	bgs.						
Boring t	erminated	a at 10' bę	gs due to refusal.						

Intel	ARM Group LLC Engineers and Scientists			LLC ntists	Client ARM Project No. Project Description Site Location ARM Representative	: EnviroAnalytics Group : 170183M : Sparrows Point - Parcel B18 : Sparrows Point, MD : L. Perrin	Date Weath	ner	: 11/22/16 : Sunny, windy, 30s
	Borin	ig ID:	B18-Q-SI (page 1	<b>3</b> of 1)	Checked by Drilling Company Driller Drilling Equipment	: M. Replogle, E.I.T. : GSI, Inc. : Don Marchese : Geoprobe 7822DT	Northi Eastir	ing (US ft) ng (US ft)	: 563195.95 : 1456078.91
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION		USCS	REMARKS
0-		2.3		(0-2.1') S to dense,	ILTY fine SAND with brown, dry, non plas	trace GRAVEL, loose gradin tic, non cohesive	g		
_		39.3						SM	
-	100	213.4		(2.1-3.2')	SILT, hard, brown, di	ry, low plasticity, cohesive		ML	
-		64.1		(3.2-10') brown an wet at 8.5	SLAG and FILL SILT d white, dry with very 5', non plastic, non co	to GRAVEL, dense, gray, pa moist areas throughout ther hesive	ale 1		Trace sand; moderate very
5-		0.3	No Samples						sweet odor
_		198.4	Collected						
_		7.1						ML/GW	
_	100	5.3							
_		0.9							Wet at 8.5' bgs
10-		1.1							
				End of Bo	pring				
Total Bo Boring t	rehole D erminated	epth: 10' l d at 10' bg	ogs. Is due to encour	tering grour	dwater.				

		ARN Engi	A Group neers and Scie	ntists	Client ARM Project No. Project Description Site Location ARM Representative	: EnviroAnalytics Group : 170183M : Sparrows Point - Parcel B18 : Sparrows Point, MD : L. Perrin	Date Weath	ner	: 11/22/16 : Sunny, windy, 30s
	Borir	ng ID:	B18-R-SI (page 1	<b>3</b> of 1)	Checked by Drilling Company Driller Drilling Equipment	: M. Replogle, E.I.T. : GSI, Inc. : Don Marchese : Geoprobe 7822DT	Northi Eastin	ng (US ft) ng (US ft)	: 563142.48 : 1456054.60
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION		NSCS	REMARKS
0		-		(0-1.5') S plasticity,	ILT with some SAND, cohesive	dense, brown, dry, low		ML	Trace organics
-	72	9.4 8.8		(1.5-3.1') non cohe	CONCRETE, mediur sive	n dense, gray, dry, non plast	iic,	NA	
_		6.9		(3.1-10') ; brown, gr at 9.2', no	SLAG SAND and GR. ay and white, dry with on plastic, non cohesi	AVEL, medium dense, pale n some moist areas, then we ve	t		
5—		-	No Samples Collected						
_		10.3						SW/GW	
_	76	20.0 0.2							
-		-							Wet at 9.2' bgs
10-				End of Bo	pring				
Total Bo Boring t	orehole D erminated	epth: 10' l d at 10' bç	bgs. gs due to encour	ntering groun	ndwater.				

		ARN Engi	<b>A Group</b> neers and Scier	LLC	Client ARM Project No. Project Description Site Location ARM Representative	: EnviroAnalytics Group : 170183M : Sparrows Point - Parcel B18 : Sparrows Point, MD : L. Perrin	Date Weat	her	: 11/22/16 : Sunny, windy, 30s
	Borir	ig ID:	B18-S-SE	3	Checked by Drilling Company Driller	: M. Replogle, E.I.T. : GSI, Inc. : Don Marchese	North Eastii	ing (US ft) ng (US ft)	: 563147.34 : 1455972.31
			(page 1	of 1)	Drilling Equipment	: Geoprobe 7822DT			
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION	USCS	REMARKS	
0—		8.6		(0-1') SAI dry, non p	ND with SILT, fine to i blastic, non cohesive	medium, medium dense, bro	wn,	SW-SM	
_		1.4		(1-1.7') S mottling,	ILTY CLAY, hard, pal dry, low plasticity, col	e brown and yellowish red nesive		CL	
-	100	1.3		(1.7-2.6') plastic, no	SAND, fine to mediur on cohesive	m, dense, black, dry, non		sw	
-	100	1.0		(2.6-10') dry then v	SLAG SAND and GR wet at 4.5', non plastic	AVEL, dense, gray and white c, non cohesive	Э,		
-		54.2							
		8.8							Wet at 4.5' bgs
5-		-	No Samples Collected						Vitrious luster
_		-						SW/GW	
-	60	76.0							Trace glass; some product present throughout with moderate areas 7-8' bgs, 8.5-8.8' bgs and 9-9.7' bgs; brown; viscous; moderate odor
		89.7							
10		141.8							
10-				End of Bo	pring				
Total Bo Boring t	orehole D erminated	epth: 10' l l at 10' bg	ogs. Js due to encoun	tering groun	dwater.				

		ARN Engi	A Group neers and Scie	LLC ntists	Client ARM Project No. Project Description Site Location ARM Representative Checked by	: EnviroAnalytics Group : 170183M : Sparrows Point - Parcel B18 : Sparrows Point, MD : L. Perrin : M. Replogle, E.I.T.	Date Weather Northing	(US ft)	: 11/21/16 : Sunny, windy, 30s : 563189.00
	Borir	ng ID:	B18-T-SE	<b>3</b> of 1)	Drilling Company Driller Drilling Equipment	: GSI, Inc. : Don Marchese : Geoprobe 7822DT	Easting (I	US ft)	: 1456011.55
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval			NSCS	REMARKS		
0-		-		(0-1') SAI	ND, fine to mediuim, v	with some small GRAVEL			
-		2.4		(1-2.2') C dry, low p	LAY with some large plasticity, cohesive	SLAG GRAVEL, hard, brow	n,	CL	
	74	2.9		(2.2-3.2') black, we	SAND, fine to mediu et, non plastic, non co	m grained, medium dense, hesive	:	SW	
		7.3		(3.2-3.6')	CLAY, hard, brown, o	dry, low plasticity, cohesive		CL	
-		2.0	No Samoles	dense, gr	ay, dry then wet at 9.	9', non plastic, non cohesive			
-		-	Collected						
_		8.9						GW	
_	72	1.4							
		2.1							
_		0.4							Wet at 9.9' bgs
10-			I	End of Bo	oring		<b>I</b>		
Boring t	erminated	epun: 10'1 d at 10' bç	gs due to encour	itering grour	ndwater.				

	ARM Group LLC Engineers and Scientists				Client ARM Project No. Project Description Site Location ARM Representative Checked by	: EnviroAnalytics Group : 170183M : Sparrows Point - Parcel B18 : Sparrows Point, MD : L. Perrin : M. Replogle, F I T	Date Weatl	ner	: 11/22/16 : Sunny, windy, 30s : 563230.32
	Borin	ng ID:	B18-U-SE (page 1	<b>3</b> of 1)	Drilling Company Driller Drilling Equipment	: GSI, Inc. : Don Marchese : Geoprobe 7822DT	Eastir	ng (US ft)	: 1455946.65
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION		USCS	REMARKS
0-		-		(0-3.1') S dry, non	AND, fine to very fine blastic, non cohesive	grained, medium dense, bla	ack,		Vitreous luster
-	60	36.1						SW	
-	60	1.9	No Samples Collected	(3.1-3.7')	CLAYEY SILT, dense	e, yellowish red, dry, low			
_		5.8		plasticity, (3.7-4') S	cohesive AND, medium dense,	, black, dry, non plastic, non		ML SW	
		-		(4-6') SL/ pale brow	AG SAND and GRAV /n, dry then wet at 5.5	EL, medium dense, gray and 5', non plastic, non cohesive	/		
5-	100	0.1						CL	Wet at 5.5' bgs
_									
-									
-									
10-									
Total Bo Boring t	orehole D erminated	epth: 6' bg	gs. s due to multiple	refusals.					

	ARM Group LLC Engineers and Scientists			ntists	Client ARM Project No. Project Description Site Location ARM Representative Checked by	: EnviroAnalytics Group : 170183M : Sparrows Point - Parcel B18 : Sparrows Point, MD : L. Glumac : M. Baplode, E.I.T.	Date Weath	ner	: 12/6/16 : Overcast, 40s
	Borir	ig ID:	B18-V-SI	3	Drilling Company Driller	: GSI, Inc. : Kevin Pumphrey	Eastir	ng (US ft)	: 1456095.58
			(page 1	of 1)	Drilling Equipment	: Geoprobe 7822DT			
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION		nscs	REMARKS
0-		-		(0-2.5') S dark brov	ILT with medium size vn, dry, non plastic, n	d SAND grains, loose, soft, on cohesive			Oder
-		14.3						ML/SW	Odor
-	78	2.8 2.0		(2.5-4.8') green/gra	SAND, coarse, and 0 ay/tan, dry, non plastic	GRAVEL, loose, c, non cohesive		SW/GW	
5—		3.5		(4.8-5') G	RAVEL, large and ve	ry coarse, very loose, gray,	/	GW	Wet at 4.8' bgs
-		-		(5-8') SAI wet, non	plastic, non cohesive ND and GRAVEL, coa plastic, non cohesive	arse, medium dense, light gr	/ ay,	SW/GW	
-	70	-		(8-10.5') non plast	GRAVEL and SAND, ic, non cohesive	coarse, loose, light gray, we	t,	GW/SW	Slight product; low viscosity; light amber; odor 8-10' bgs
10-		-	No Samples Collected	(10.5-15') to gray, w	) SAND, coarse, to G vet, non plastic, non c	RAVEL, medium dense, gree	en		Heavy product; black; low viscosity 10.5-14.7' bgs
-	76	-						SW/GW	
- 15—		-							Dense/heavy product 14.7-15' bgs
-		-		(15-17') S green, we	SAND, coarse, and G et, non plastic, non co	RAVEL, loose, light gray and hesive	1	SW/GW	Light shear 15-17.6 bgs
-	100	-		(17-17.3') non cohe (17.3-18.	) SAND, soft/medium sive 8') SAND, coarse, an	dense, gray, wet, non plastic d GRAVEL, loose to medium	c,	SW SW/GW	Heavy product; black; low viscosity 17.8-18.8' bgs Light product; heavy shean
-		-		(18.8-19. wet, non	8') SAND, fine graine plastic, non cohesive	d, dense and very soft, black	ζ.,	SP Cl	18.8-19.8' bgs
20-				(19.8-20') cohesivity End of Bo	) CLAY, very soft, bla y, no product pring	ck, wet, high plasticity, high			
Total Bo Boring t	orehole D erminated	epth: 20' l d at 20' bg	ogs. js due to Work F	Plan.					

	ARM Group LLC Engineers and Scientists Boring ID: B18-W-SB (page 1 of 1)			LLC ntists B	Client ARM Project No. Project Description Site Location ARM Representative Checked by Drilling Company Driller Drilling Equipment	: EnviroAnalytics Group : 170183M : Sparrows Point - Parcel B18 : Sparrows Point, MD : L. Perrin : M. Replogle, E.I.T. : GSI, Inc. : Kevin Pumphrey : Geoprobe 7822DT	Date Weather Northing (US ft Easting (US ft)		: 11/23/16 : Sunny, 30s : 563473.03 : 1456031.69
			(page 1	of 1)		·		1	
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION		nscs	REMARKS
0-		-		(0-2') SIL	TY very fine to mediu	m SAND, medium dense,			Trace organics
-		67.4						SM	
-	64	44.1 30.1		(2-3.6') B light gray	RICK and SAND, me , dry, non plastic, non	dium dense, yellow, brown a cohesive	ind	SW/GW	
- 5—		10.7		(3.6-6') S black, dry	AND with SILT, very /, non plastic, non coł	fine to medium, medium den nesive	se,	sw	Trace coal
_		-		(6-20') SI	-20') SLAG medium SAND to medium GRAVEL medium				
-		81.5		dense to cohesive	dense, gray, dry then	wet at 9.5', non plastic, non			
-	66	362.7							
-		172.4							
10-		180.1	No Samples Collected						Wet at 9.5' bgs
-		-							Moderate to heavy 11-12.5' bgs
-	80	-							Light product 12.5-15'; brown,
_		-						SW/GW	moderately viscous, moderate odor
-		-							
15-		-							No product 15-20 bgs; moderate odor
_		-							
	100	-							
_		-							
20-		-							
				End of Bo	oring				
Total Bo	orehole D	epth: 20' k	ogs.	itering grour	ndwater				
		. a. zo by		itering grout	andtor.				

ILIA		ARN Engi	A Group neers and Scie	ntists	Client ARM Project No. Project Description Site Location ARM Representative	: EnviroAnalytics Group : 170183M : Sparrows Point - Parcel B18 : Sparrows Point, MD : L. Perrin	Date Weatl	ner	: 11/23/16 : Sunny, 30s
	Borin	ig ID:	B18-X-SI	3	Checked by Drilling Company Driller Drilling Equipment	: M. Replogle, E.I.T. : GSI, Inc. : Kevin Pumphrey : Geoprobe 7822DT	North Eastir	ing (US ft) ng (US ft)	: 563437.72 : 1455979.55
			(page 1	of 1)					
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION		nscs	REMARKS
0		-		(0-2') SA dry, non	ND, fine to medium g plastic, non cohesive	rained, with SILT, loose, brow	wn,	SW	Trace organics
-	60	1.6 2.4		(2-4.7') S	ILT, hard, brown, dry	low plasticity, cohesive		ML	
-		1.6							
5—		-		(4.7-9.8')   GRAVEL	SAND, fine to coarse , loose, black, dry, no	e, non-native, with trace COA n plastic, non cohesive	L		
_		-							
-	40	-						SW	
-		4.4							
10-		1.2	No Samples Collected	(9.8-12.5	) BRICK SAND and (	GRAVEL, medium dense,			Wet at 9.8' bgs
-		-		yenew, w		Silesive		NA	
_	60	-		(12.5-13.	5') SANDY SILT. soft	black. wet. low plasticity.			Product present 12.5-16.5' bgs;
-		-		cohesive (13.5-16.	5') SAND, medium to	coarse with small GRAVEL,		ML	black, viscous, moderate odor
15—		-		medium o	dense, gray, wet, non	plastic, non cohesive		SW	
-		-							
_	100	-		(16.5-18')	) GRAVEL, fine to coa	arse, medium dense, gray, w	ret	GW	Light product 16.5-18' bgs Heavy product
-		-		(18-18.8) heavy pro	GRAVEL, fine to coa	irse, medium dense, gray, w	et,	GW	Trace product No product 19.1-20' bgs
-		-		(18.8-19. moist, lov	1') SANDY SILT, den v plasticity, cohesive	se, very dark gray, wet to ve	ry	SW	
20-				(19.1-20') gray, wet	) SAND, fine to mediu , non plastic, non coh	ım, medium dense, brownish esive	۱ ]		
				End of Bo	oring				
Total Bo Boring t	orehole D erminated	epth: 20' l d at 20' bç	bgs. gs due to encour	ntering grour	ndwater.				

	ARM Group LLC Engineers and Scientists			LLC ntists	Client ARM Project No. Project Description Site Location ARM Representative	: EnviroAnalytics Group : 170183M : Sparrows Point - Parcel B18 : Sparrows Point, MD : L. Perrin	Date Weath	ier	: 11/23/16 : Sunny, 30s
	Borir	ig ID:	B18-Y-SE (page 1	<b>3</b> of 1)	Checked by Drilling Company Driller Drilling Equipment	: M. Replogle, E.I.T. : GSI, Inc. : Kevin Pumphrey : Geoprobe 7822DT	Northii Eastin	ng (US ft) g (US ft)	: 563455.67 : 1455935.49
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION		NSCS	REMARKS
0-		-		(0-1.5') S	ILT, very firm, brown,	dry, low plasticity, cohesive		N 41	
-		-						ML	
-	64	13.4		(1.5-2.3) non cohe	SILTY SAIND, 100se, sive	dark brown, dry, non plastic,		SM	
-		5.5		dense, gr areen. dr	ay, light gray and pal then wet at 3.5'. nor	e brown with trace olive			Light to moderate product
-		112.9			<b>,</b> ,				present 3.5-18' bgs; brown; moderate to high viscosity; moderate to strong odor
5-		-							Wet at 3.5'
-		-							
-	62	130.6							
-		26.5							
-		30.0							
10-		-	No Samples Collected					ML/GW	
-		-							
-	60	-							
-		-							
-		-							
15—		-							
-	-	-							
-	100	-							
-		-		(18-20') S wet, non	SAND, fine to medium plastic, non cohesive	, loose grading to dense, gra	ay,	SW	Sheen in sand 18-19.5' bgs; no visible product; light odor
20-		-		End of Bo	oring				
					-				
Total Bo Boring f	orehole De terminated	epth: 20' b d at 20' bg	ogs. Is due to encoun	itering grour	ndwater.				

		ARN Engi	A Group	LLC ntists	Client ARM Project No. Project Description Site Location ARM Representative	: EnviroAnalytics Group : 170183M : Sparrows Point - Parcel B18 : Sparrows Point, MD : L. Perrin	Date Weath	ner	: 11/23/16 : Sunny, 30s
	Borir	ng ID:	B18-Z-SE (page 1	<b>3</b> of 1)	Checked by Drilling Company Driller Drilling Equipment	: M. Replogle, E.I.T. : GSI, Inc. : Kevin Pumphrey : Geoprobe 7822DT	Northi Eastin	ng (US ft) ig (US ft)	: 563498.43 : 1455976.26
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION		NSCS	REMARKS
0		-		(0-2') SA	NDY SILT, hard, brow	vn, dry, low plasticity, cohesi	ve	ML	
-	64	- 22.2		(2-3.1') G cohesive	RAVEL, medium den	se, gray, dry, non plastic, no	n	GW	
-		2.1		(3.1-4.3') to black,	SAND, fine to mediu dry, non plastic, non o	m, medium dense, dark brow cohesive	vn	SW	light
5-		7.7		(4.3-9') S brown an	ANDY SILT with trace d brown, very moist, l	e black GRAVEL, soft, strong low plasticity, cohesive	3		
-		-						N 41	
-	66	-						ML	
		85.3							Product present 0, 17,5' bas:
10-		39.4	No Samples	(9-17.5') dense, gr	SLAG SAND to medit ay, wet, non plastic, r	um GRAVEL, medium dense non cohesive	e to		brown; moderate to high viscosity; moderate to high odor
-		-	Collected						Wet at 9' bgs
-	100	-							
-		-						SW/GW	
15		-							
-		-							
-	400	-							
-	100	-		(17.5-19. grading to	5') SAND, very fine to b loose, gray, wet, no	n medium grained, dense n plastic, non cohesive		SW	
20—		-		(19.5-20') plasticity.	) CLAY with SAND, so cohesive	oft, gray, wet, medium		CL	
				End of Bo	pring		/		
Total Bo Boring t	orehole D erminated	epth: 20' l 1 at 20' bg	ogs. gs due to encour	tering grour	ndwater.				

	Boring	ARN Engi	I Group neers and Scie B18-AA-S	B	Client ARM Project No. Project Description Site Location ARM Representative Checked by Drilling Company Driller Drilling Equipment	: EnviroAnalytics Group : 170183M : Sparrows Point - Parcel B18 : Sparrows Point, MD : L. Perrin : M. Replogle, E.I.T. : GSI, Inc. : Kevin Pumphrey : Geoprobe 7822DT	Date Weath Northi Eastir	ner ng (US ft) ng (US ft)	: 11/23/16 : Sunny, 30s : 563540.39 : 1455992.10
			(page 1	of 1)					
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION		nscs	REMARKS
0-		-		(0-3.5') S	ILT with some SAND	, very firm, brown and			Trace organics
-		-		yenowish	red, dry, low plasticit	y, concave		МІ	
-	70	5.0						WIL .	
-		78.1		(3.5-8.3')	SAND, fine to coarse	, medium dense, black, dry,			_
5_		21.1		non plast	ic, non cohesive				
		-						SW	
_		-							
-	72	15.6							
-		225.4		(8.3-14.5 light gray	) SLAG, SAND and C , moist to very moist,	GRAVEL-sized, medium den non plastic, non cohesive	se,		Trace product 9-9.2'; brown; light
10-		106.9	No Samples						odor; viscous
-		-	Collected						
-	400	-						3W/GW	
-	100	-							
-		-							. Wet at 14 5'
15—		-		(14.5-18. greenish	2') SLAG, SILT to SA gray, wet, non plastic	ND-sized, medium dense, , non cohesive			
-		-						ML/SW	
-	100	-							
-		-		(18.2-20)	) SAND, fine to mediu	ım, medium dense, gray, we	t,		
-		-		non plast	IC, NON CONESIVE			ML	
20-				End of Bo	oring				
Total Bo	prehole D	epth: 20' I	ogs.						
Boring t	erminated	d at 20' bg	is due to encour	tering grour	ndwater.				

	ARM Group LLC Engineers and Scientists Boring ID: B18-BB-SB			ntists	Client ARM Project No. Project Description Site Location ARM Representative Checked by Drilling Company	: EnviroAnalytics Group : 170183M : Sparrows Point - Parcel B18 : Sparrows Point, MD : L. Perrin : M. Replogle, E.I.T. : GSI, Inc.	Date Weatl North Eastir	ner ing (US ft) ng (US ft)	: 11/23/16 : Sunny, 30s : 563549.21 : 1455941.28
	Borin	g ID: I	(page 1	of 1)	Driller Drilling Equipment	: Kevin Pumphrey : Geoprobe 7822DT			
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION		nscs	REMARKS
0-		-		(0-3') SIL cohesive	T with SAND, very fir	m, brown, dry, low plasticity,			
		-						ML	
_	64	4.8							
-		4.1		(3-9.3') S brown wi	AND with small GRA' th some black grains, on cobesive	VEL, medium dense, dark dry then wet at 8', non			
5—		5.0			on conesive				
-		-						SW	
-		-							
-	50	15.7							Light product present 8-15';
-		3.6							brown; moderate viscosity; moderate odor; sheen in water
10-		28.4	No Samples	(9.3-16.5 to loose,	') SLAG, SAND and 0 gray and brown, wet,	GRAVEL-sized, medium den non plastic, non cohesive	se		Wet at 8' bgs
-		-	Concoled						
-	100	-							
-	100	-						SW/GW	
-		-							
15—		_							
-		-							
-	100	-		(16.5-19. dense, gi cohesive	6') SAND, very fine to ray then pale brown 1	9 medium, loose to medium 7-19.6', wet, non plastic, nor	ו		
-		-						SW	
-		-		(40.0.00)					
20-				l (19.6-20 plasticity,	) CLAY, very soft, pai , cohesive	e brown, wet, medium	/		
Total Br	Drehole D	epth: 20' P	bas		ung				
Boring t	erminated	d at 20' bg	is due to encour	ntering grour	ndwater.				

	ARM Group LLC Engineers and Scientists Boring ID: B18-CC-SB (page 1 of 1)				Client ARM Project No. Project Description Site Location ARM Representative Checked by Drilling Company Driller Drilling Equipment	: EnviroAnalytics Group : 170183M : Sparrows Point - Parcel B18 : Sparrows Point, MD : L. Perrin : M. Replogle, E.I.T. : GSI, Inc. : Kevin Pumphrey : Geoprobe 7822DT	Date Weath Northi Eastir	ner ing (US ft) ng (US ft)	: 11/23/16 : Sunny, 30s : 563604.28 : 1455937.24
Depth (ft.)	0 - (0-3') SANDY SILT, soft, brown, dry, low plasticity, cohesive							nscs	REMARKS
0	50	- - 148.6		(0-3') SAI	NDY SILT, soft, brown	n, dry, low plasticity, cohesiv	e	ML	Trace organics
		198.7 -		(3-5') SIL non cohe	TY SAND, medium desive	ense, brown, dry, non plastic	;, 	SM	
-	90	- 59.0 127.3 178.8		dense, gr non cohe	ray and light gray, dry sive	then wet at 13', non plastic,			
10— - -	96	4.2 - -	No Samples Collected					SW/GW	
- - 15-		-							Moderate product 13.6-14' bgs; brown; moderately viscous; light petroleum odor Wet at 13' bgs
-	92	-		(18-20') S grayish b non cohe	SAND, fine to medium rown grading to grayi sive	ı, dense to medium dense, d sh brown, wet, non plastic,	ark	sw	
20 – Total Bo	prehole D	epth: 20' t	bgs.	End of Bo	pring				
Boring t	erminated	d at 20' bg	gs due to encour	tering grour	ndwater				

Ital	ARM Group LLC Engineers and Scientists				Client ARM Project No. Project Description Site Location	: EnviroAnalytics Group : 170183M : Sparrows Point - Parcel B18 : Sparrows Point, MD	Date Weath	ner	: 11/28/16 : Cloudy, 30s
	Borin	g ID: E	818-DD-S (page 1	6 <b>B</b> of 1)	Checked by Drilling Company Driller Drilling Equipment	: M. Replogle, E.I.T. : GSI, Inc. : Kevin Pumphrey : Geoprobe 7822DT	Northi Eastin	ng (US ft) g (US ft)	: 563537.27 : 1455885.66
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	nscs	REMARKS		
0		-		(0-2.5') S non plast	ILTY SAND with SLA ic, non cohesive	G GRAVEL, loose, brown, d	ry,	SM	
_	44	Wet		(2.5-4') S cohesive	ANDY SILT, very firm	n, brown, dry, low plasticity,		ML	NADI present 4 45 5' brev derk
5—		-		(4-15.5') gray to gi	SLAG, SILT to GRAV ray, wet, non plastic, i	'EL-sized, medium dense, lig non cohesive	ght		brown/blac; viscous; light to moderate layering Wet at 4' bas
-	70	-							
- 10—		-	No Samples Collected					ML/GW	
-	50	-							
		-							
-	90	-		(15.5-19. wet, non	5') SAND, fine to mec plastic, non cohesive	lium, dense, grayish brown,			Trace product 15.5-18' bgs; sheen in water
-		-						SW	
20-				End of Bo	oring at 19.5 feet				
Total Bo Boring t	orehole D erminated	epth: 19.5 d at 19.5' l	5' bgs. bgs due to enco	untering gro	undwater.				

	ARM Group LLC Engineers and Scientists			<b>LLC</b> ntists	Client ARM Project No. Project Description Site Location	: EnviroAnalytics Group : 170183M : Sparrows Point - Parcel B18 : Sparrows Point, MD	Date Weath	ier	: 11/28/16 : Sunny, 30s
	Borin	g ID: I	B18-EE-S (page 1	B of 1)	ARM Representative Checked by Drilling Company Driller Drilling Equipment	: L. Perrin : M. Replogle, E.I.T. : GSI, Inc. : Kevin Pumphrey : Geoprobe 7822DT	Northi Eastin	ng (US ft) g (US ft)	: 563592.79 : 1455855.09
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION		USCS	REMARKS
0-		-		(0-3') SIL ploasticity	T with trace SAND, v v, cohesive	ery firm, brown, dry, low			
-		-						ML	Very light gray; metallic luster;
-	72	46.0							gravel with some coal; trace oxidation
_		14.2		(3-7') SL/ brown, st plastic, n	AG, medium to coarse rong brown and black on cohesive	e with some GRAVEL, dark , dry then moist at 4.8', non			
5-		22.0						SW	
-		-							
-		-		(7-15') SI	_AG. SAND and GRA	VEL-sized. medium dense to	0		
-	60	127.2 3.4	No Samples Collected	dense, lig plastic, n	ght gray and white, mo on cohesive	oist then wet at 9' bgs, non			
-		0.7							Wet at 9' bgs
10-		0.1							
-		-						SW/GW	
-		-							
-	80	-							
-		-							
15—		-							
				End of Bo	gund				
Total Bo	orehole D	epth: 15' l	bgs. as due to encour	itering grour	ndwater				
			, to shoot	<u>9</u> 9,001					

	ARM Group LLC Engineers and Scientists			LLC	Client ARM Project No. Project Description Site Location ARM Representative Checked by	: EnviroAnalytics Group : 170183M : Sparrows Point - Parcel B18 : Sparrows Point, MD : L. Perrin : M. Replogle, E.I.T.	Date Weather Northing (L	: 11/28/16 : Sunny, 30s (US ft) : 563634.75
	Borin	g ID: I	B18-FF-S	В	Drilling Company Driller Drilling Equipment	: GSI, Inc. : Kevin Pumphrey : Geoprobe 7822DT	Easting (US	JS ft) : 1455829.86
			(page 1	of 1) I				
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		ഗ്പ ട്ര മ			
0-		_		(0-1.5') S	ANDY SILT with GRA	VEL, soft, brown and light		
-				gray, dry,	non plastic, non con	carre	N	ML
-	56	- 44.3		(1.5-3.2') plastic, n	SLAG GRAVEL, med on cohesive	lium dense, light gray, dry, n	G	GW
-		3.9 1.0		(3.2-8.1') black, dry	Non native SAND, fir / then moist 7.6-8.1', ı	ne to coarse, dark brown to non plastic, non cohesive		
5-								
		-					S	SW
-		-						
	48	-	No Samples Collected					Wet at 8.1' bas
		-		(8.1-13') brown, w	GRAVEL with SAND, et, non plastic, non co	fine, medium dense, dark bhesive		Worldro. i bys
		-						
10—		-					G	GW
-		-						-
-	84	-						
-		-		(13-15') S light gray	SLAG, GRAVEL and S to gray, wet, non plas	SAND-sized, medium dense, stic, non cohesive	,	
-							GW	N/SW
15—		_		End of Br	oring			
					······9			
Total Bo	prehole D	epth: 15' l	bgs.					
Boring t	erminated	a at 15' bo	gs due to encour	itering grour	iawater.			

		ARN Engin	I Group neers and Scie	ntists	Client ARM Project No. Project Description Site Location ARM Representative	: EnviroAnalytics Group : 170183M : Sparrows Point - Parcel B18 : Sparrows Point, MD : L. Perrin	Date Weath	ner	: 11/28/16 : Sunny, 30s
E	Borinę	g ID: E	318-GG-S	SB	Checked by Drilling Company Driller Drilling Equipment	: M. Replogle, E.I.T. : GSI, Inc. : Kevin Pumphrey : Geoprobe 7822DT	Northi Eastir	ng (US ft) ng (US ft)	: 563507.93 : 1455838.34
,			(page 1	of 1)					[
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION		nscs	REMARKS
0-		_		(0-2') SAI	NDY SILT, very firm,	brown, dry, low plasticity,			Product present 0-5' bgs; dark
-		15.3		cohesive				ML	brown/black; viscous; light to moderate grading; light odor
	80	8.1		(2-6') SIL yellowish	TY SAND, medium de green, moist, non pla	ense, brown, light gray and p astic, non cohesive	ale		
-		-						SM	
5—		- 29.5							
-				(6-10') SL	_AG, fine SAND to sm	nall GRAVEL, medium dense	<del>)</del> ,		
-	60	_		light gray non cohe	, brown and pale yello sive	owish green, wet, non plastic	,		Wet at 7' bgs Moderate product with moderate
-	00	-						SW/GW	odor
-									
10-		-	No Samples Collected	(10-15.5') dense, br	) SLAG, fine SAND to own and dark brown.	small GRAVEL, medium wet, non plastic, non			Heavy product with strong odor 10-15' bgs
-		-		cohesive	,	····, ···· F····, ····			
-	100	-						SW/GW	
-		-						omon	
-		-							
15—		-		(15 5-19)	2') SAND dense dar	k brown wet non plastic no	n		
-		-		cohesive	2 <i>) 01 11 D</i> , donoo, dar				Light to trace product in sand 16-19.2' bgs
-	80	-						SW	
		-							
20-		-		(19.2-20') plasticity.	) CLAY, dense, strong cohesive	g brown, moist, medium		CL	No product 19.2-20' bgs
				End of Bo	oring		/		
Total Bo	orehole D	epth: 20' t	ogs.						
Boring t	erminated	d at 20' bg	s due to encour	ntering groun	ndwater.				

Intel	ARM Group LLC Engineers and Scientists Boring ID: B18-HH-SB			ntists	Client : EnviroAnalytics Group Date ARM Project No. : 170183M Weather Project Description : Sparrows Point - Parcel B18 Site Location : Sparrows Point, MD ARM Representative : L. Perrin Checked by : M. Replogle, E.I.T. Northing (US ft Drilling Company : GSI, Inc. Easting (US ft) Driller : Kevin Pumphrey		ing (US ft)	: 11/28/16 : Cloudy, 30s : 563587.00 : 1455795 57	
l	Borin	g ID: E	318-HH-S	B of 1)	Driller Drilling Equipment	: Goi, inc. : Kevin Pumphrey : Geoprobe 7822DT	Easu	ig (03 it)	. 1455765.57
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION		nscs	REMARKS
0-				(0-2.5') S	ANDY SILT with som	e GRAVEL, very firm, brown	۱,		
-		-		ary, iow p	nasticity, conesive			ML	
-									
-	60	81.8 3.8		(2.5-4') N granules, cohesive	on native SAND, fine medium dense, blac	to coarse with COAL k, dry, non plastic, non		SW	
-		1375		(4-6') SLA brown an cohesive	AG SAND and GRAV d dark gray, dry then	EL, medium dense, strong moist at 4.5', non plastic, no	n	SWICW	Von light grov, motallia lustor:
5		-						300/800	trace oxidation
_		-		(6-15') SL light gray	AG SAND and GRA , dry then wet at 10',	VEL, medium dense, white a non plastic, non cohesive	nd		Melted liner 5-10' bgs
-	70	3.6	No Samples Collected						
-		3.3							
10-		5.2							Wet at 10'
-		-						SW/GW	
-		-							
-	100	-							
-		-							
45		-							
10-				End of Bo	pring				
Total Br	orehole D	epth: 15' I	bqs.						
Boring t	erminated	d at 15' bç	gs due to encour	tering groun	dwater.				

Intel	ARM Group LLC Engineers and Scientists			ntists	Client ARM Project No. Project Description Site Location ARM Representative	: EnviroAnalytics Group : 170183M : Sparrows Point - Parcel B18 : Sparrows Point, MD : L. Perrin	Date Weatł	ner	: 11/29/16 : Cloudy, 40s
	Borir	ng ID:	B18-II-SE	3 of 1)	Checked by Drilling Company Driller Drilling Equipment	: M. Replogle, E.I.T. : GSI, Inc. : Kevin Pumphrey : Geoprobe 7822DT	Northi Eastir	ng (US ft) ng (US ft)	: 563583.57 : 1455721.12
			(page i						
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION		USCS	REMARKS
0-				(0-3') SIL	.T, very firm, yellowisł	n brown, dry, low plasticity,			Light organics
_		-		cohesive				ML	
_	66	6.4							
-		0.7		(3-8') SA 7.5-8', m cohesive	ND, very fine to fine 3 edium dense, dark bro	8.5-5', medium to very coarse own, dry, non plastic, non	9		
		21.9							COAL present 4.3-4.7' bgs
5-		-						SW	
_		-							
-	50	1.9	No Samples Collected					0.01/0.01	
		0.3		(8-8.4') B	RICK, SAND and GR	AVEL-sized, medium dense i cohesive	, /	SW/GW	
10-		0.8		dense, lig non cohe	stad, sand with Gr ght gray and gray, mo sive	ist then wet at 9.5', non plast	tic,		Wet at 9.5' bgs
		-							
_		-						SW	
	80	-							
		-							
_		-							
15—				End of Bo	oring				
Total Bo Boring t	orehole D erminate	epth: 15' l d at 15' bo	bgs. gs due to encour	ntering grour	ndwater.				

	ARM Group LLC Engineers and Scientists		<b>LLC</b> ntists	Client ARM Project No. Project Description Site Location ARM Representative Checked by	: EnviroAnalytics Group : 170183M : Sparrows Point - Parcel B18 : Sparrows Point, MD : L. Perrin : M. Replogle, E.L.T.	Date Weath	ner	: 11/29/16 : Cloudy, 40s : 563552 82	
	Borin	g ID:	B18-JJ-S	В	Drilling Company Driller Drilling Equipment	: GSI, Inc. : Kevin Pumphrey : Geoprobe 7822DT	Eastin	g (US ft)	: 1455751.76
	<b>I</b>		(page 1	of 1)					
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		NSCS	REMARKS			
0-		-		(0-2') SIL cohesive	T, hard, yellowish bro	wn, dry, low plasticity,		ML	Trace organics
-	60	3.4 5.3		(2-3.6') C	ONCRETE GRAVEL	, dense, white, dry		NA	
-		10.0		(3.6-4.2')	SILT, hard, brown, di	ry, low plasticity, cohesive		ML	
5—		-		(4.2-5.4') dense, da	SAND, fine to mediu ark brown, dry, non pl	m with some GRAVEL, medi astic, non cohesive	um	SW	
-		- 3.8		(5.4-18.1 and light plastic, no	') SLAG SAND and G gray, dry but moist 7- on cohesive	RAVEL, medium dense, gra 7.2' then wet at 11.2', non	у		
-	84	2.3							
-		10.5							NAPL present 9.1-9.3' bgs and trace at 9.5' bgs
10-		-	Collected						
_		-						SW/GW	Wet at 11.2' bgs
-	76	-							Heavy to moderate NAPL present 11.2-18.1' bgs; dark brown; viscous; strong odor
_		-							
15—		-							
_		-							
-	100	-							
-		-		(18.1-19. non plast	7') SAND, very fine to ic, non cohesive	o medium, dense, gray, wet,		SW	Light to trace product with sheen 18.1-19.7' bgs; light odor
20-		-		(19.7-20')	) CLAY. firm. vellowis	h brown, verv moist, medium	<u>ו</u>	CL	
				\plasticity,	cohesive	, <b>,</b> , ,	]		
Total Bo	orehole D	epth: 20' I	bqs.		21119				
Boring t	erminate	d at 20' bç	gs due to encour	itering groun	ndwater.				

	ARM Group LLC Engineers and Scientists			ntists	Client ARM Project No. Project Description Site Location ARM Representative Checked by	: EnviroAnalytics Group : 170183M : Sparrows Point - Parcel B18 : Sparrows Point, MD : L. Perrin : M. Replogle, E.I.T.	Date Weatl North	ner ing (US ft)	: 11/28/16 : Cloudy, 30s : 563529.12
	Borin	g ID: I	B18-KK-S	B	Drilling Company Driller Drilling Equipment	: GSI, Inc. : Kevin Pumphrey : Geoprobe 7822DT	Eastir	ng (US ft)	: 1455785.88
			(page 1	of 1)					
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION		USCS	REMARKS
0-		_		(0-7') SAI	ND with some GRAVI	EL, fine to medium with SILT	,		
-		-		meaium a	aense, brown, ary, no	n plastic, non conesive			
-	40	-							
		0.1						SW-SM	
_		1.0							
5-		-							
-		-							
-	60	6.9		(7-9') GR plastic, no	AVEL and SAND, me on cohesive	dium dense, white, dry, non		SW/GW	
-		81.5							Light product 8.5-10' bgs
10-		395.4	No Samples Collected	(9-11') SL plastic, no	AG, SAND and GRA on cohesive	VEL, light gray, wet, non		SW/GW	Wet at 9' bgs
-		-		(1117.5	) SLAG SAND, medi	um to coarse, dense to medi	um		Hoove product 11 5 17 5' boos
-	70	-		dense, da plastic, no	ark brown, gray and p on cohesive	ale yellowish green, wet, no	n		dark brown; viscous; strong odor
_		-							
-		-						SW	
15—		-							
-		-							
_	90	-		(17 7 9 9 9					Trace product 17.5-20' bgs and
-		-		(17.5-20') gray, wet	) SAND, fine to mediu , non plastic, non coh	im, medium dense to dense, esive		SW	light sheen in water; moderate odor
20-		-							
20-				End of Bo	pring				
Total Bo	prehole D	epth: 20' I	bgs.						
Boring t	erminated	d at 20' bç	gs due to encour	tering groun	dwater.				

I	ARM Group LLC Engineers and Scientists				Client ARM Project No. Project Description Site Location ARM Representative	: EnviroAnalytics Group : 170183M : Sparrows Point - Parcel B18 : Sparrows Point, MD	Date Weath	ner	: 11/29/16 : Rainy, 40s
	Borin	g ID:	B18-LL-S	B of 1)	Checked by Drilling Company Driller Drilling Equipment	: M. Replogle, E.I.T. : GSI, Inc. : Kevin Pumphrey : Geoprobe 7822DT	Northi Eastir	ng (US ft) ig (US ft)	: 563499.43 : 1455756.97
				,					
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		USCS	REMARKS			
0-		-		(0-5') SIL dense, br	TY SAND with some rown and dark brown.	GRAVEL, medium dense to dry but wet 2-2.5'			Ground surface 5-10' below
_	82	44.9 11.9			,			SM	Increased gravel 2-2.5' bgs
_		8.3							
_		25.0							Trace product with sheen in water
5-		-		(5-7') GR non plast	AVEL with SAND, me	edium dense, dark brown, we	et,		Light to moderate NAPL present; moderate odor; dark brown; moderate viscosity
-		-						GW	Wet at 5' bgs
-	100	-		(7-10') No brown, w	on native SAND, fine et, non plastic, non co	to coarse, medium dense, da bhesive	ark		
-		-						SW	
10-		-	No Samples	(40,401) (			1		Heavy NAPL; moderate viscosity;
-		-	Collected	non plast	ic, non cohesive	dium dense, dark brown, we	÷L,		strong odor; dark brown 10-15' bgs
_		-						GW-SW	
_	100	-		(13-16.5'	) SAND, fine to mediu	ım, medium dense, dark grav	V.		
-		-		wet, non	plastic, non cohesive				
15—		-							
-									
-	60	_		(16.5-20') plasticity,	) CLAY, firm, very pal cohesive	e brown, moist, medium			Only sheen in water, no NAPL 17-20' bgs
_		-						CL	
-		-							
20-			<u> </u>	End of Bo	oring				
Total D		opth: 2011	hao						
Boring t	erminated	epun: 20' l d at 20' bç	ogs. gs due to encour	ntering grour	ndwater.				
		ARN Engi	<b>A Group</b> neers and Scie	ntists	Client ARM Project No. Project Description Site Location ARM Representative Checked by	: EnviroAnalytics Group : 170183M : Sparrows Point - Parcel B18 : Sparrows Point, MD : L. Perrin : M. Replogle, E.I.T.	Date Weath Northi	ner ng (US ft)	: 11/29/16 : Rainy, 40s : 563466.79
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E	Borinç	g ID: E	318-MM-S (page 1	65B	Drilling Company Driller Drilling Equipment	: GSI, Inc. : Kevin Pumphrey : Geoprobe 7822DT	Eastir	ng (US ft)	: 1455789.94
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION		nscs	REMARKS
0		-		(0-6') GR non cohe	AVEL with SAND, loc sive	ose, brown, wet, non plastic,			Ground surface is 5-10' below surrounding area
-	40	-						GW	Sheen in water Wet at 3' bgs
-		0.5 0.4							
5—		-		(6-10.5')	GRAVELLY SAND wi	th SILT, medium dense, dar	k		
- - 10	50	-	No Samples Collected	brown, w	et, non plastic, non co	bhesive		SW- SM/GW	Light to heavy product present 7.5-12.5' bgs; dark brown; moderate to strong odor; moderate viscosity; sheen in water
-		-		(10.5-11') plasticity, (11-12.5')	) SANDY CLAY, very cohesive ) GRAVELLY SAND v	soft, dark gray, wet, medium vith SILT, medium dense, da	ı / ırk	CL	
-	100	-		(12.5-13. medium p	et, non plastic, non co 5') SANDY CLAY, vei plasticity, cohesive	y soft, pale brown, wet,		SW- SM/GW CL	Sheen in water 12.5-14' bgs
-		-		(13.5-14') cohesive (14-15') (	) SAND, loose, pale b CLAY, soft, pale brow	rown, wet, non plastic, non n, very moist, medium	/	SW CL	
15 – Total Bo Boring t	prehole D erminated	epth: 15' l d at 15' bg	ogs. Is due to encour	plasticity, End of Bo	cohesive pring dwater.				

		ARN Engi	A Group neers and Scie	<b>LLC</b> ntists	Client ARM Project No. Project Description Site Location ARM Representative	: EnviroAnalytics Group : 170183M : Sparrows Point - Parcel B18 : Sparrows Point, MD : L. Perrin	Date Weatl	ner	: 11/29/16 : Rainy, 40s
	Borinę	g ID: E	B18-NN-S	B	Checked by Drilling Company Driller Drilling Equipment	: M. Replogle, E.I.T. : GSI, Inc. : Kevin Pumphrey : Geoprobe 7822DT	North Eastir	ing (US ft) ng (US ft)	: 563444.74 : 1455764.26
			(13						
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION		nscs	REMARKS
0-		-		(0-3') SIL	TY SAND with WOOI	D fragment, medium dense,			Ground surface is approximately
-		-		brown, dr	y, non plastic, non co	hesive		SM	5-10' below surrounding ground level
-	35	-							
_		3.0 3.1		(3-8') GR wet at 4',	AVEL with SAND, me non plastic, non cohe	edium dense, brown, dry thei esive	า		Wet at 4' bgs
5-		_						GW	
_								011	
-		-							Sheen in water 7-8' bgs
_	62	-		(8-11.5') very dark	SANDY SILT with GR gray, wet, low plastic	AVEL, firm, dark brown to ity, cohesive			Light to moderate NAPL present; dark brown; moderate viscosity
-		-						МІ	0-10 bgs
10-		-	No Samples Collected						
-		-				··· 01.7			
_	24	-		lenses, ve	ery dark gray, mediun	n dense, wet, non plastic, no	'n		
-		-						SW/GW	
_		-							Moderate to heavy NAPL 13.8-15' bgs
15—		-		(15-20') (	CLAY, soft to firm, ver	y pale brown, moist, medium	1		No NAPL 15-20' bgs
-		-		plasticity,	conesive				
-	100	-						CI	
-		_							
-		_							
20-				End of Bo	oring				
Total Bo Boring t	orehole De erminated	epth: 20' l d at 20' b <u>o</u>	bgs. js due to encour	itering groun	dwater.				

ITT	ARM Group LLC Engineers and Scientists Boring ID: B18-00-SB				Client ARM Project No. Project Description Site Location ARM Representative Checked by	: EnviroAnalytics Group : 170183M : Sparrows Point - Parcel B18 : Sparrows Point, MD : L. Perrin : M. Replogle, E.I.T.	Date Weath Northi	ner ng (US ft)	: 11/29/16 : Rainy, 40s : 563430.59
E	Boring	g ID: E	3 <b>18-OO-S</b> (page 1	65B	Drilling Company Driller Drilling Equipment	: GSI, Inc. : Kevin Pumphrey : Geoprobe 7822DT	Eastin	ig (US ft)	: 1455794.07
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION		nscs	REMARKS
0—		-		(0-3') SIL brown, no	TY SAND with some on plastic, non cohesi	GRAVEL, medium dense, ve			
-		-						SM	
_	60	5.8							
_		38.3		(3-3.9') C plastic, n	ONCRETE GRAVEL	, medium dense, white, dry,	non	NA	Wet at 3.9' bgs
5-		4.7		(3.9-9') S plastic, n	ANDY GRAVEL, mec on cohesive	lium dense, brown, wet, non	1		
-		-							
-		-						SW/GW	
-	40	-	No Samples Collected						Light to moderate NAPL present 8-14' bgs; dark brown; moderate viscosity; moderate odor
- 10-		-		(9-10.5') very dark	SILTY SAND with sor gray, wet, non plastic	ne GRAVEL, medium dense c, non cohesive	9,	SM	
-		-		(10.5-13.) grav. wet	2') GRAVELLY SAND	), medium dense, very dark esive			
-		-		9.29,	, p,			SW	
-	70	-							
-		-		(13.2-14') very dark	) CLAYEY SAND, fine gray, wet, non plastic	e to medium, medium dense c, non cohesive	,	SW-SC	No NAPL 14-15' bgs
15—				plasticity,	cohesive	n, very moist, meaium		CL	
				End of Bo	gning				
Total Bo Boring t	orehole D erminated	epth: 15' l d at 15' bç	bgs. gs due to encour	itering grour	idwater.				

	Borin		A Group	LLC ntists	Client ARM Project No. Project Description Site Location ARM Representative Checked by Drilling Company	: EnviroAnalytics Group : 170183M : Sparrows Point - Parcel B18 : Sparrows Point, MD : L. Perrin : M. Replogle, E.I.T. : GSI, Inc.	Date Weatl North Eastir	ner ing (US ft) ng (US ft)	: 11/29/16 : Rainy, 40s : 563398.10 : 1455801.84
	DOLIN	y ID. I	page 1)	of 1)	Driller Drilling Equipment	: Kevin Pumphrey : Geoprobe 7822DT			
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION		nscs	REMARKS
-0		-		(0-2.5') S plastic, n	ILT and WOOD fragn on cohesive	nents, soft, brown, moist, noi	ו	ML	Strong metallic odor
-	52	6.8		(2.5-3.4')	CONCRETE, loose,	gray, dry, non plastic, non		NA	
- 5—		7.7 1.0		(3.4-6') S moist, no	AND and BRICK, loo n plastic, non cohesiv	se, dark brown and yellow, /e		sw	
- - - 10 —	60	- - 0.9 0.8	No Samples Collected	(6-11') SI dense, gr cohesive	AG and BRICK, SAN ay with yellow, dry th	ID and GRAVEL, medium en wet at 9', non plastic, non	I	sw/Gw	Wet at 9'
- - - 15-	58	-		(11-19.7') SAND wi non plast	) SANDY GRAVEL wi th SILT, medium dens ic, non cohesive	ith SILT grading to GRAVEL se, very dark gray to black, v	LY vet,		Moderate NAPL present 12.1-19.7' bgs; dark brown/black; moderate viscosity; strong odor
-	60	-						SW/GW	
- 20-		-		(19.7-20') plastic, no End of Bo	) SAND, fine to mediu on cohesive pring	ım, dense, gray, wet, non	/	SW	Light product with sheen 19.7-20' bgs
Total Bo Boring t	brehole D erminated	epth: 20' l d at 20' bç	ogs. js due to encour	itering grour	idwater.				

		ARN Engi	<b>I</b> Group neers and Scie	LLC ntists	Client ARM Project No. Project Description Site Location ARM Representative	: EnviroAnalytics Group : 170183M : Sparrows Point - Parcel B18 : Sparrows Point, MD : L. Glumac	Date Weat	her	: 12/6/16 : Rainy, 40s
E	Borinę	g ID: E	318-QQ-S	BB	Checked by Drilling Company Driller	: M. Replogle, E.I.T. : GSI, Inc. : Kevin Pumphrey	North Eastii	ing (US ft) ng (US ft)	: 563491.53 : 1455860.76
			(page 1	of 1)	Drilling Equipment	: Geoprobe 7822DT			
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION		nscs	REMARKS
0-		-		(0-1.5') S cohesive	ILT and SAND, loose	, dark brown, non plastic, no	n	ML/SW	Light product and strong odor from 0-2.5' bgs
-	70	- 261.7		(1.5-7.3') gray with cohesive	SAND and GRAVEL, chunks of green thro	. coarse, medium dense, ligh ughout, non plastic, non	it		Heavy NAPL 2.5-14.4' bgs
- 5—		60.6 -						SW/GW	Wet at 4' bgs
-		-							
	70	-		(7.3-7.8')	SILT, soft, dark brow	n, non plastic, non cohesive		ML	
-		-		(7.8-10') gray with cohesive	SAND and GRAVEL, chunks of green thro	coarse, medium dense, ligh ughout, non plastic, non	t	SW/GW	
10		-	No Samples Collected	(10-14.4') black and	) SAND, fine to mediu I dark brown, non pla	m grained, medium dense, stic, non cohesive			
-	96	-						sw	
-		-		(14,4-15)	) SAND verv fine, der	nse, light grav, non plastic, n	on	SP	Heavy sheen/trace product from
15—		-		cohesive (15-18') \$	SAND, very fine, very	dense, gray, non plastic, no	/		1 14.4-10 NG2
		-		cohesive				SP	
	100	-							
-		-		(18-20') ( cohesive	CLAY, soft, reddish ye , no product	llow, high plasticity, highly		CL	
20-		-		End of Bo	oring				
					-				
Total Bo	orehole D	epth: 20' l	ogs.	llan					
	eminale	⊿ar∠∪ bÇ	je due io vvork F	idii.					

		ARN Engi	<b>A Group</b> neers and Scie	<b>LLC</b> ntists	Client ARM Project No. Project Description Site Location ARM Representative	: EnviroAnalytics Group : 170183M : Sparrows Point - Parcel B18 : Sparrows Point, MD : L. Glumac	Date Weat	her	: 12/6/16 : Rainy, 40s
	Borin	g ID: E	818-RR-S (page 1	6 <b>B</b>	Checked by Drilling Company Driller Drilling Equipment	: M. Replogle, E.I.T. : GSI, Inc. : Kevin Pumphrey : Geoprobe 7822DT	North Eastii	ing (US ft) ng (US ft)	: 563520.10 : 1455859.80
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION		nscs	REMARKS
0-		-		(0-2') SIL dry, non	T with fine grained S/ plastic, non cohesive	AND, soft/loose, dark brown,		ML/SW	Light product and strong odor from 2.1-4.5' bgs
-	68	-		(2-10') S/ with gree	AND, coarse, and GR n throughout, non pla	AVEL, loose, gray to brown stic, non cohesive			Heavy product 4.5-14.5' bgs
5	72	-						SW/GW	Wet at 4.5' bgs
- 10		-	No Samples Collected	(10-14.5') and gray,	) SAND, coarse, with , non plastic, non coh	some GRAVEL, dense, blac esive	k		
-	80	-						SW/GW	
15—		-		(14.5-15') non plast (15-19.6') plastic, n	) GRAVEL, large and ic, non cohesive ) SAND, very fine, ver on cohesive	coarse, with SAND, light gra y dense, black/dark gray, no	ıy, / vn	GW/SW	Very heavy product 14.5-15' bgs Trace product sheen 15-19.6' bgs
-	100	-						SP	
20—		-		(19.6-20) cohesive End of Bo	) CLAY, soft, light gra	y, high plasticity, highly	/	CL	
Total Bo Boring t	prehole D erminated	epth: 20' l d at 20' bg	ogs. js due to Work F	Plan.	-				

Internet	Boring	ARN Engin	A Group neers and Scie B18-SS-S (page 1	o LLC ntists	Client ARM Project No. Project Description Site Location ARM Representative Checked by Drilling Company Driller Drilling Equipment	: EnviroAnalytics Group : 170183M : Sparrows Point - Parcel B18 : Sparrows Point, MD : L. Glumac : M. Replogle, E.I.T. : GSI, Inc. : Kevin Pumphrey : Geoprobe 7822DT	Date Weat North Eastir	her ing (US ft) ng (US ft)	: 12/6/16 : Rainy, 40s : 563512.48 : 1455887.42
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION		USCS	REMARKS
0 — - - -	78			(0-1') SIL plastic, n (1-5') SA with gree	T and SAND, soft and on cohesive ND, coarse, and GRA n chunks throughout,	d loose, dark brown, non VEL, loose, gray and brown non plastic, non cohesive		ML/SW SW/GW	Black product 0-9' bgs
5	84			(5-10') S/ to mediun througho	AND, coarse to mediu n dense, gray and bro ut, non plastic, non co	Im grained, and GRAVEL, lo own with green chunks bhesive	ose	SW/GW	Heavy product 9-14.8' bgs; black
- 10	100	-	No Sample Collected	(10-12.5' gray, nor (12.5-14.	) SAND, fine to mediu plastic, non cohesive 8') GRAVEL, coarse,	and SAND, very loose, gray	dark ,	SW	
- 15		-		(14.8-18. non cohe	5') SAND, very fine, c sive	lense, dark gray, non plastic.	,	GW/SW SP	Sheen/trace product 14.8-18.9' bgs
- - 20—	78	-		(18.5-18. cohesive (18.9-20) cohesive End of Bo	9') CLAY, very hard, g , no product CLAY, soft, reddish y , no product pring	gray, non plastic, non yellow, high plasticity, highly	/	LC CL	
Total Bo Boring t	prehole D erminated	epth: 20' k d at 20' bg	ogs. js due to Work F	Plan.					

I		ARN Engi	<b>A Group</b> neers and Scie	<b>LLC</b> ntists	Client ARM Project No. Project Description Site Location ARM Representative	: EnviroAnalytics Group : 170183M : Sparrows Point - Parcel B18 : Sparrows Point, MD : L. Glumac	Date Weat	her	: 12/6/16 : Rainy, 40s
	Borin	g ID: l	B18-TT-S	В	Drilling Company	: M. Replogie, E.I.T. : GSI, Inc. : Kevin Pumphrev	Eastin	ng (US ft)	: 1455911.23
		-	(page 1	of 1)	Drilling Equipment	: Geoprobe 7822DT			
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION		USCS	REMARKS
0-		-		(0-2') GR non plast	AVEL, coarse, loose, ic, non cohesive	gray with green chunks, dry	,	GW	
-	74	-		(2-4.5') S plastic, n	AND and GRAVEL, c on cohesive	coarse, loose, gray and tan, r	non	SW/GW	Product 2.6-8.9' bgs
5—		-		(4.5-5') S	LAG			NA	
-		-		(5-10') SA some gre cohesive	AND and GRAVEL, co en GRAVEL chunks :	parse, loose, gray and tan, w throughout, non plastic, non	vith		Wet at 6.2'
-	80	-						SW/GW	Heavy product 8.9-14.8' bgs
10-		-	No Samples Collected	(10-14.8') black and	) SAND, fine to mediu d gray, non plastic, no	ım grained, medium dense, n cohesive			
-	100	-						sw	
15—		-		(14.8-18. plastic, n	6') SAND, very fine g on cohesive	rained, dense, gray to tan, no	on		Sheen/trace product 14.8-18.6' bgs
_	100	-						SP	
-		-		(18.6-18.	8') CLAY, hard, gray,	high plasticity, highly cohesi	ve		
20-		-		(18.8-20) cohesive	CLAY, soft, reddish y	ellow, high plasticity, highly		CL	
				End of Bo	oring				
Total Bo Boring t	orehole D erminate	epth: 20' l d at 20' bg	ogs. gs due to Work F	Plan.					

		ARN Engi	<b>I</b> Group neers and Scien	LLC ntists	Client ARM Project No. Project Description Site Location ARM Representative Checked by	: EnviroAnalytics Group : 170183M : Sparrows Point - Parcel B18 : Sparrows Point, MD : L. Perrin : M. Replogle, E.I.T.	Date Weath Northi	er ng (US ft)	: 12/7/16 : Cloudy, 50s : 563563.91
	Boring	g ID: E	818-UU-S	B	Drilling Company Driller Drilling Equipment	: GSI, Inc. : Kevin Pumphrey : Geoprobe 7822DT	Eastin	g (US ft)	: 1455826.47
			(page i						
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION		NSCS	REMARKS
0-		-		(0-1.5') S yellow, m	ANDY SILT, soft, red loist, low plasticity, co	dish yellow and brownish hesive		ML	
_	84	0.9 2.8		(1.5-3.4') loose to r plastic, n	SAND with SILT and nedium dense, gray a on cohesive	some GRAVEL, fine to coar and dark brown, dry, non	se,	SW	
_		8.4		(3.4-4.3')	SILTY SAND, dense	, gray and brown, dry, non		SM	
5-		3.6		(4.3-6.5') dark brov	on cohesive SAND with some GR yn to black, dry, non r	AVEL, fine to coarse, loose,			Non native
-		-			·····, ···, ···,	,		SW	
-	40	-		(6.5-8') G coarse, lo plastic, no	RAVELLY SAND with bose, dark brown with on cohesive	n COAL GRAVEL, fine to trace yellowish red, dry, nor	ı	SW/GW	
-		1.1		(8-16.5') wet, non	SLAG SAND and GR plastic, non cohesive	AVEL, medium dense, gray,			Wet at 9' bos: light oxidation
10-		10.6	No Samples						Moderate product 9.4-9.7' bgs; dark brown; moderate odor
-		-	Collected						Moderate to beavy product
-	70	-						GW	11.5-15.5' bgs; strong odor
_		-							
15-		-							
-		-							Light product 15.5-16.5' bgs
-	100	-		(16.5-20') cohesive	) SAND, dense, gray, , heavy sheen in wate	wet, non plastic, non er			Trace product 16.9-20' bgs
-	100	-						SW	
-		-							
20-				End of Bo	oring				
Total Bo	orehole D	epth: 20' I	ogs.						
Boring t	erminated	d at 20' bg	is due to Work F	'lan.					

		ARN Engi	A Group	<b>LLC</b> ntists	Client ARM Project No. Project Description Site Location ARM Representative	: EnviroAnalytics Group : 170183M : Sparrows Point - Parcel B18 : Sparrows Point, MD : L. Perrin	Date Weath	ner	: 12/7/16 : Cloudy, 50s
	Borin	g ID: I	B18-VV-S (page 1	B of 1)	Checked by Drilling Company Driller Drilling Equipment	: M. Replogle, E.I.T. : GSI, Inc. : Kevin Pumphrey : Geoprobe 7822DT	Northi Eastin	ng (US ft) Ig (US ft)	: 563449.62 : 1455902.66
			(1 3	,					
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION		USCS	REMARKS
0-		_		(0-1') CL/	AY, soft, very pale bro	own, moist, medium plasticity	Ι,	CL	Trace organics
-				(1-1.5') Q	UARTZ GRAVEL, loo	ose, white and pale brown, d	ry,	GW	
-	66	14.8 199.4		<u>non plast</u> (1.5-12.5 and white plastic, ne	iic, non cohesive ') SLAG SAND and G e, moist then very moi on cohesive	RAVEL, medium dense, gra st 4.5-9' then wet at 9', non	/ У		Trace grading to light product 2.4-5' bgs
_		163.6							
5-		-							Light to moderate product 5-10' bgs
-		-							
_	74	-						SW/GW	
_		-							Wet at 9' bgs
10-		-	No Samples						Heavy product 10-15' bgs
_		-	Collected						
_	60	_							
-	00			(12.5-13. non plast	4') GRAVELLY SANE ic, non cohesive	), medium dense, gray, wet,		SW/GW	
-		-		(13.4-16. medium o	5') SAND with some ( dense, black, wet, nor	GRAVEL, fine to medium, plastic, non cohesive			
15—		-						SW	
-		_							Heavy sheen with no visible
-	400			(16.5-18. brownish	<li>8') SAND, fine to mee gray, wet, non plastic</li>	lium with trace coarse, c, non cohesive			product 16.5-18.8' bgs
-	100	-						SW	
-		-		(18.8-20') moist, hig	) CLAY, hard, very pa gh plasticity, cohesive	le brown and reddish yellow	,	СН	
20-				End of Bo	oring				
Boring t	erminated	eptn: 20' l d at 20' bg	ogs. gs due to Work P	Plan.					

	ARM Group LLC Engineers and Scientists				Client ARM Project No. Project Description Site Location	: EnviroAnalytics Group : 170183M : Sparrows Point - Parcel B18 : Sparrows Point, MD	Date Weat	her	: 12/7/16 : Cloudy, 50s
E	Boring	ID: E	818-WW-S	SB of 1)	ARM Representative Checked by Drilling Company Driller Drilling Equipment	: L. Perrin : M. Replogle, E.I.T. : GSI, Inc. : Kevin Pumphrey : Geoprobe 7822DT	North Eastii	ing (US ft) ng (US ft)	: 563436.29 : 1455866.47
			(1 3	,					
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION		USCS	REMARKS
0-		_		(0-0.5') G	RAVELLY SILT, soft,	, brown, moist, non plastic, n	on	ML	
-		22.0		\cohesive (0.5-11') white, mo	SLAG, SAND and GF bist then wet at 4.7'	RAVEL, gray, greenish gray a	and	1	Trace to light product 1.2-4.7' bgs
	80	75.3							
_		22.5							
- 5-		42.1							Wet at 4.7' bgs
Ű		-						sw/gw	Moderate product 4.7-8.7' bgs;
_		-							moderate to strong odor
-	60	-							
-		-							Heavy product 8.7-15' bgs;
_		-							strong odor
10-		-	No Samples Collected						
_		-		(11-15') S dense, bl	SAND with some GRA ack, wet, non plastic,	VEL, fine to coarse, mediun non cohesive	n		
	60	-							
-		-						SW	
_		-							
15—		-		(15-18') S non plast	SAND, dense, fine to ic, non cohesive	medium, brownish gray, wet,	1		Light sheen in water 15-18' bgs; no visible product
_		-						sw	
-	100	-							
-		-		(18-20') ( plasticity,	CLAY, soft, very pale cohesive	brown, very moist, high		СН	
		-							
20-				End of Bo	oring				
Total Bo	Drehole D	epth: 20' I	bgs.						
Boring t	erminated	d at 20' bg	gs due to Work F	lan.					

	ARM Group LLC Engineers and Scientists				Client ARM Project No. Project Description	: EnviroAnalytics Group : 170183M : Sparrows Point - Parcel B18	Date Weather	: 12/7/16 : Cloudy, 50s
	Boring	g ID: E	B18-XX-S (page 1	B of 1)	ARM Representative Checked by Drilling Company Driller Drilling Equipment	: Sparrows Point, MD : L. Perrin : M. Replogle, E.I.T. : GSI, Inc. : Kevin Pumphrey : Geoprobe 7822DT	Northing (U Easting (US	S ft) : 563312.48 S ft) : 1456060.76
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION		3 REMARKS
0-		-		(0-1.5') S	ILTY SAND, very fine	to fine, medium dense, brov	vn,	A/
-		5.6				d gravieh brown dry low		
-	76	6.1		plasticity,	cohesive	d, grayish brown, dry, low	N	L
-		157.2		(2.7-3.4') yellowish	SAND, medium to co red, dry, non plastic,	arse with some very coarse, non cohesive	S'	N
_		33.8		(3.4-4.2') medium (	SAND, fine to medium dense, brown, dry, no	m with very small GRAVEL, n plastic, non cohesive		
5—		-		(4.2-18') gray, ligh	SLAG SAND and GR t gray and white, dry t	AVEL, medium dense to der then very moist at 4.5' then	ise,	
-		12.1		wet at 8.5	5', non plastic, non co	hesive		
-	84	17.5						
-		_						Wet at 8.5'
-		_						
10-			No Samples Collected					
-		-					SW	GW
-		-						
-	70	-						
-		-						Very light to light product 13.7-15' bgs
15—		-						Heavy product 15-18' bgs
-		-						
_		-						
-	80	-						No product 18-20' bgs
_		-		(18-20') S greenish	SLAG or BRICK SANI gray, wet, non plastic	D and GRAVEL, dense, , non cohesive	SW	GW
20-			<u> </u>	End of Bo	oring		I	
Total Bo Boring t	orehole D erminateo	epth: 20' k d at 20' bg	ogs. js due to Work P	lan.				

	Boring	ARN Engin	I Group neers and Scient 318-YY-S	LLC ntists B	Client: EnviroAnalytics GroupDateARM Project No.: 170183MWeatherProject Description: Sparrows Point - Parcel B18Site Location: Sparrows Point, MDARM Representative: L. PerrinChecked by: M. Replogle, E.I.T.Drilling Company: GSI, Inc.Driller: Kevin PumphreyDrilling Equipment: Geoprobe 7822DT		: 12/7/16 : Cloudy, 50s : 563292.48 : 1456070.28		
			(page 1	of 1)					
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION	USCS	REMARKS	
0-		-		(0-1.5') S plastic. no	AND, dense, fine to n	nedium, brown, moist, non		SW	
-	80	8.7 16.7		(1.5-3.9') brown, m	SAND, fine to coarse oist, non plastic, non	e with some very coarse, dar cohesive	k	SW	Trace product intermittent 2-3.9' bgs; light odor
-		48.7		(3.9-5') S moist, no	LAG SAND and GRA n plastic, non cohesiv	VEL, dense, white and gray /e	,	sw/Gw	Very light product 3.9-5' bgs; light odor
5-		54.0		(5-18') SL gray, moi	AG SAND and GRA	VEL, medium dense, white a wet at 9', non plastic, non		Trace to very light product 5-9' bgs	
-	100	-		cohesive					
_		-							Wet at 9'
10-		-	No Samples Collected						Light product 10-15' bgs
-		-						SW/GW	
-	64	-							
-		-							
15-		-							Heavy product 15-18 bgs
-	70	-							
-	70	-		(18-20') E wet, non	RICK or SLAG SANI plastic, non cohesive	D with GRAVEL, dense, gray	Ι,	sw	
20—		-		End of Bo	oring				
					-				
Total Bo Boring t	orehole D erminated	epth: 20' t d at 20' bg	ogs. js due to Work P	'lan.					

		ARN Engi	A Group neers and Scier	<b>LLC</b> ntists	Client ARM Project No. Project Description Site Location ARM Representative Chacked by	: EnviroAnalytics Group : 170183M : Sparrows Point - Parcel B18 : Sparrows Point, MD : L. Perrin : M. Benlada, E. LT.	Date Weather	(115 ft)	: 12/7/16 : Sunny, 50s
	Borin	g ID: I	B18-ZZ-S	В	Drilling Company Driller	: M: Replogie, E.I.T. : GSI, Inc. : Kevin Pumphrey	Easting (	US ft)	: 1456054.09
			(page 1	of 1)	Drilling Equipment	: Geoprobe 7822DT			
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION		USCS	REMARKS
0-				(0-1.5') S plastic, n	AND with some GRA on cohesive	VEL, dense, brown, wet, non			
_		-						SW	
		84.6							Stormwater
-				(1.5-2.7) moist, no	n plastic, non cohesiv	e, with some GRAVEL, black, e		SW	Trace to light product; light odor;
	74	47.7							dark brown 2.1-5' bgs
-				(2.7-5') S dense, br	ILTY SAND with SLA rown and gray, dry, no	G GRAVEL and SAND 4-5', on plastic, non cohesive			
-		75.5	No Samples Collected				:	SM	
		26.3							
5—		-		(5-7.5') S white and cohesive	LAG SAND and GRA brown, wet 5-6' then	VEL, medium dense, gray, moist 7.5', non plastic, non			Light product 5-6' bgs
_	100						sv	V/GW	
_		-							No groundwater encountered
				End of Bo	oring				
-									
10-									
Total Bo	orehole D	epth: 7.5'	bgs. as due to refuse	ls					
Bonngi		D	30 440 10 101434						

ITT		ARN Engi	<b>A</b> Group neers and Scien	ntists	Client ARM Project No. Project Description Site Location ARM Representative	: EnviroAnalytics Group : 170183M : Sparrows Point - Parcel B18 : Sparrows Point, MD : L. Perrin	Date Weath	ier	: 12/7/16 : Sunny, 50s
E	Boring	ID: B	18-AAA-\$ (page 1	SB of 1)	Checked by Drilling Company Driller Drilling Equipment	: M. Replogle, E.I.T. : GSI, Inc. : Kevin Pumphrey : Geoprobe 7822DT	Northi Eastin	ng (US ft) g (US ft)	: 563251.52 : 1456040.76
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION		nscs	REMARKS
0-				(0-1') SIL	T, hard, brown, dry, l	ow plasticity, cohesive			
		-						ML	
-		6.0		(1-2.6') S GRAVEL cohesion	AND, medium to coa , medium dense, blac	rse grained, with trace k, moist, no plasticity, no		SW	Light product 1.5-2.6' bgs
	90	85.3		(2.6-4') S	AND, fine to medium	grained, with trace GRAVEL	-,		
-		91.3		brown, ai	y, no plasticity, no co	nesion		SW	
_		50.8	No Samples Collected	(4-4.5') S GRAVEL cohesion	AND, medium to coa , medium dense, blac	rse grained, with trace ck, moist, no plasticity, no	/	SW	Moderate product 4-5' bgs
5—		495.5		(4.5-8') S dry then v	LAG GRAVEL with S wet at 7.5', no plastici	AND, gray, white, and browr ty, no cohesion	١,		Moderate intermittent product 5-8' bgs
_	100	200.2						GW/SW	
	100	209.3							Liner melted 7.8' bas
		353.9							Wet at 7.5' bgs
-		1		End of Bo	oring				L
-									
10-									
Total Bo	rehole D	epth: 8' bo	JS.						
bonng t	Similare								

E	Boring	ARN Engi	A Group neers and Scient 18-BBB-S	LLC ntists	Client ARM Project No. Project Description Site Location ARM Representative Checked by Drilling Company Driller Drilling Equipment	: EnviroAnalytics Group : 170183M : Sparrows Point - Parcel B18 : Sparrows Point, MD : L. Perrin : M. Replogle, E.I.T. : GSI, Inc. : Kevin Pumphrey : Geoprobe 7822DT	Date Weat North Eastin	her ing (US ft) ng (US ft)	: 12/7/16 : Sunny, 50s : 563262.00 : 1456014.09
			(page 1	of 1)				1	
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION		USCS	REMARKS
0-		-		(0-1') SIL plasticity.	TY SAND, medium d	ense, brown, moist, no		SM	Trace organics
-		0.3		(1-1.7') S	ILT with SAND, hard,	brown, dry, low plasticity,		ML	
-	90	4.1		(1.7-3.5') gravel, m (2.7-3.5')	SAND, medium to ve ledium dense, pale br , dry, no plasticity, no	ry coarse grained with quart own (1.7-2.7'), grayish browi cohesion	/ z ו	sw	
-		49.4		(3.5-4.3') no plastic	SAND with SILT, der city, no cohesion	nse, brown to dark brown, dr	y,	SW-SM	Light product 3.5-4.5' bgs
5—		45.2 -		(4.3-6') N GRANUL	lon-native SAND with ES, loose, black, dry,	some GRAVEL and COAL no plasticity, no cohesion		SW/GW	
_		-		(6-18') SI wet at 7.5	AG GRAVEL, dense	, gray and light gray, dry the	n		
-	60	-		wordtric					Wet at 7.5' bgs Trace product 7.5-8.5' bgs
10-		-	No Samples						
10		-	Collected						
		-						GW	
	80	-							
_		-							Light to moderate product 13.5-18' bas
15—		-							
		-							
_		-							
_	90	-							
_		-		(18-20') E GRAVEL cohesion	BRICK OR SLAG, SA -sized, dense, gray a	ND-sized with some nd white, wet, no plasticity, r	0	sw	
20-				End of Bo	oring			I	
I otal Bo Boring t	orehole D erminated	epth: 20 b d at 20' bg	ogs. Js due to encoun	tering grour	ndwater.				

		ARN Engi	I Group neers and Scie	ntists	Client ARM Project No. Project Description Site Location ARM Representative Checked by Drilling Company	: EnviroAnalytics Group : 170183M : Sparrows Point - Parcel B18 : Sparrows Point, MD : L. Perrin : M. Replogle, E.I.T. : GSI Inc.	Date Weath Northi Eastin	ng (US ft) a (US ft)	: 12/13/16 : Sunny, 50s : 563290.57 : 1455998 85
B	Boring	ID: B	18-CCC-	SB	Driller Drilling Equipment	: Kevin Pumphrey : Geoprobe 7822DT	Luotin	9 (00 11)	
			(page 1	of 1)					
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION		nscs	REMARKS
0		-		(0-1.3') S plasticity,	ILTY SAND, medium no cohesion	dense, brown, wet, no		SM	
_	70	7.2		(1.3-2.5') cohesive	SILT with SAND, har	d, brown, dry, low plasticity,		ML	
-	78	4.3		(2.5-4.3') dense, pa no plastic	SAND, medium to ve ale brown (2.5-3.3'), g city, no cohesion	ry coarse grained, medium rayish brown (3.3-4.3'), dry,			
-		2.6						SW	
5		3.3	No Samples Collected	(4.3-5') N loose, bla	lon-native SAND with ack, dry, no plasticity,	some COAL GRANULES, no cohesion		SW	
5-		-		(5-9') SL/ wet, no p	AG GRAVEL, medium lasticity, no cohesion	n dense, gray and pale brown	٦,		werals bgs
	75	10.1						GW	
	10	8.2							
		4.1							
				End of Bo	oring				
10-									
Total Bo Boring t	brehole D erminated	epth: 9' bạ d at 9' bgs	gs. s due to encount	ering ground	lwater and refusal.				

В	Boring	ARN Engi	A Group neers and Scie 18-DDD-4 (page 1	o LLC ntists SB of 1)	Client: EnviroAnalytics GroupDateARM Project No.: 170183MWeatherProject Description: Sparrows Point - Parcel B18Site LocationSite Location: Sparrows Point, MDARM Representative: L. PerrinChecked by: M. Replogle, E.I.T.Northing (US ft)Drilling Company: GSI, Inc.Easting (US ft)Driller: Kevin PumphreyDrilling Equipment: Geoprobe 7822DT		: 12/13/16 : Sunny, 50s : 563312.48 : 1456015.04		
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION		NSCS	REMARKS
0-		-		(0-0.8') S cohesion	ILTY SAND, loose, b	rown, moist, no plasticity, no	)	SM	
-		5.8		(0.8-1.7') dry, low p	SILT, hard, grayish g blasticity, cohesive	reen, dark brown, and brow	n,	ML	
-	90	11.8 135.6		(1.7-4.2') grained g brown, m	SAND with COAL GF rading to fine to med oist, no plasticity, no	RANULES, fine to coarse ium grained, medium dense cohesion		SW	
5—		93.7	No Samples Collected	(4.2-6') S grained, i cohesion	ILTY SAND with COA medium dense, black	AL GRANULES, fine to medi , moist, no plasticity, no	um	SM	Light odor 4.2-5 bgs
-	49	- 43.6		(6-8.5') S dense, gr no plastic	LAG, SAND and GR/ ay, greenish gray, an ity, no cohesion	AVEL-sized, medium dense d white, moist then wet at 8	to .2',	SW/GW	Wet at 8.2' bgs Moderate NAPL 8.2-8.5' bgs Dark brown viscous moderate
		-		End of Bo	oring				odor
- 10-									
Total Bo Boring t	orehole D erminated	epth: 8.5' d at 8.5' b	bgs. gs due to encou	ntering grou	ndwater and refusal.				

E	Boring	ARN Engi	A Group neers and Scie 18-EEE-S (page 1	o LLC ntists SB of 1)	Client : EnviroAnalytics Group Date   ARM Project No. : 170183M Weather   Project Description : Sparrows Point - Parcel B18 Weather   Site Location : Sparrows Point, MD ARM Representative : L. Perrin   Checked by : M. Replogle, E.I.T. Northing (US ft)   Drilling Company : GSI, Inc. Easting (US ft)   Driller : Kevin Pumphrey Drilling Equipment			: 12/13/16 : Sunny, 50s : 563331.53 : 1456039.80		
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION		NSCS	REMARKS	
0-		- 4.8		(0-0.8') S plasticity, (0.8-2.1') cohesive	AND, medium dense, no cohesion SILT, hard, yellowish	, yellowish brown, moist, no brown, dry, low plasticity,		SW		
-	80	8.0 207.2	No Samples	(2.1-3.8') medium (	SAND, fine to coarse dense, moist, no plast	e with trace very coarse, ticity, no cohesion		SW	Trace product with moderate odor 2.5-2.8' bgs	
- 5-		46.6	Concerca	(3.8-5') S dense, bl	ILTY SAND with som ack, dry, no plasticity	e GRAVEL, medium dense t , no cohesion	to	SM	Moderate product 4.8-5' bgs	
-	100	-		white and	l gray, wet, no plastic	ity, no cohesion		SW/GW		
				(6.7-7') S dense; gr bgs, no p End of Bo	LAG, SAND and GR/ ray, greenish gray, an lasticity, no cohesion oring	AVEL-sized, medium dense f id white, moist then wet at 8.	to 2'	SW/GW		
Total Bo Boring t	orehole D terminate	epth: 7' bg d at 7' bgs	gs. due to encount	ering ground	lwater and refusal.					

ITT		ARN Engi	<b>A Group</b> neers and Scie	ntists	Client ARM Project No. Project Description Site Location ARM Representative	: EnviroAnalytics Group : 170183M : Sparrows Point - Parcel B18 : Sparrows Point, MD : L. Perrin	Date Weath	ner	: 12/13/16 : Sunny, 50s
E	Boring	J ID: E	818-FFF-S	SB	Checked by Drilling Company Driller Drilling Equipment	: M. Replogle, E.I.T. : GSI, Inc. : Kevin Pumphrey : Geoprobe 7822DT	Northi Eastir	ng (US ft) ng (US ft)	: 563362.00 : 1455964.57
			(page 1	of 1)					Γ
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION		NSCS	REMARKS
0-		0.0		(0-0.7') S	AND, fine to medium	grained, medium dense,		SW	
-		0.1		(0.7-3.5') low plasti	SILT, hard, yellowish city, cohesive	brown to dark brown, dry,	/	МІ	
	92	7.8						IVIL	
-		10.0 4.7		(3.5-7.8') moist to v	CLAY, very firm grad very moist, med plasti	ing to soft, brownish gray, city, cohesive			
5—		-							
-		1.5						CL	
-	70	3.6							
-		1.5		(7.8-10.5 plasticity,	') SANDY CLAY, soft, cohesive	very dark gray, wet, low			Wet at 7.8' bgs
10		-	No Comulas					CL	
10-		-	Collected	(10.5-13.	7') SANDY GRAVEL,	medium dense, brown, wet,			
		-		no plastic	ity, no cohesion				Heavy sheen in water 11-15 bgs
	80	-						SW/GW	
-		-		(13.7-16.	5') SAND, fine to coa	rse grained, dense, yellowish	<u>ו</u>		Trace product 13.7-15' bgs
15—		-		brown, w	et, no plasticity, no co	hesion		SW	
-		-							
-		-		(16.5-20') medium o	) SLAG OR BRICK, S dense to dense, gravi	AND and GRAVEL-sized, sh green, wet, no plasticity, r	no		
-	30	-		cohesion				SW/GW	
-		-							
20—		-		End of Bo	oring				
					~ 				
Total Bo Boring t	orehole D erminated	epth: 20' l d at 20' b <u>o</u>	ogs. js due to Work F	Plan.					

		ARN Engi	<b>A Group</b> neers and Scie	<b>LLC</b> ntists	Client ARM Project No. Project Description Site Location ARM Representative Checked by	: EnviroAnalytics Group : 170183M : Sparrows Point - Parcel B18 : Sparrows Point, MD : L. Perrin : M. Benlogle, E. LT	Date Weatl	ner	: 12/13/16 : Cloudy, 50s
В	oring	ID: B	18-GGG- (page 1	SB of 1)	Drilling Company Driller Drilling Equipment	: GSI, Inc. : Kevin Pumphrey : Geoprobe 7822DT	Eastir	ng (US ft)	: 1455908.37
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION		USCS	REMARKS
0-		-		(0-3') CO	NCRETE, dry, white				
-		-						NA	
-	50	55.2							
-		1.2		(3-7.5') S no plastic	AND, fine to medium city, no cohesion	grained, medium dense, bla	ck,		Metallic grains throughout 3-5' bgs
5_		0.7							
5_		-						sw	
_		-							
_	40	-							Wet at 8' bgs
-		-		(7.5-10') brown an	SANDY GRAVEL with d yellow, wet, no plas	n BRICK, medium dense, da sticity, no cohesion	rk	SW/GW	
10-		-	No Samples	(10-17') 9	SAND fine to coarse		um		Sheen in water 9.7-10' bgs Moderate to heavy product
-		-	Collected	dense, bl	ack, wet, no plasticity	, no cohesion	um		10-12.5' bgs Heavy sheen in water 10-18' bgs
-	400	-							
-	100	-						SW/	Light product 12.5-14.5' bgs
-		-						300	
15—		_							Trace to light product 15-17' bgs
-		-							
-	100	-		(17-18.1') gravish g	) SLAG OR BRICK SA	AND and GRAVEL, dense,		SW/GW	
-		-		(18.1-20')	) SAND, fine to mediu	ım grained, dense, gray, wet	.,		
-		-						SW	
20-				End of Bo	oring				
Total Bo	orehole D	epth: 20' I	ogs.						
Boring t	erminated	d at 20' bg	is due to Work F	Plan.					

В	Boring	ARN Engi	A Group neers and Scie 18-HHH-S (page 1	o LLC ntists SB of 1)	Client: EnviroAnalytics GroupDateARM Project No.: 170183MWeatherProject Description: Sparrows Point - Parcel B18Site LocationSite Location: Sparrows Point, MDARM Representative: L. PerrinChecked by: M. Replogle, E.I.T.Northing (US ft)Drilling Company: GSI, Inc.Easting (US ft)Driller: Kevin PumphreyDrilling Equipment: Geoprobe 7822DT				: 12/13/16 : Cloudy, 50s : 563316.29 : 1455908.37
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION		USCS	REMARKS
0	46	- - 33.8		(0-3') CO cohesion	NCRETE, medium de	ense, dry, white, no plasticity	, no	NA	
- 5-		7.1 31.1 -		(3-6') SAI medium ( cohesion	ND with COAL GRAN grained, medium dens	IULES to GRAVEL, very fine se, black, dry, no plasticity, n	e to IO	sw	
-	60	- -		(6-9.8') S medium ( cohesion	ANDY GRAVEL with dense, very dark brow	SILT with trace GRAVEL, /n, wet, no plasticity, no	S	W/GW-G	Wet at 7' bgs M
10-		-	No Samples Collected	(9.8-10.5	) BRICK SAND, med	ium dense, yellow, dry, no		SW	
-	70	-		(10.5-13. dense, ye	5') SLAG with BRICK low and light gray, w	SAND and GRAVEL, mediu et, no plasticity, no cohesior	/ וm ו	SW/GW	Light product 11.5-13.5' bgs
- 15—		-		(13.5-18. plasticity,	8') SLAG OR BRICK, no cohesion	dense, grayish green, wet, r	าง		
-	74	-		(18.8-18.	9') SAND, fine to med	lium grained, dark brown, we	et.	SW/GW	
20		-		(18.9-20) (18.9-20) moist, me End of Bo	) CLAY, firm, reddish edium plasticity, cohe	yellow and gray mottling, sive	]	CL	
25-									
I otal Bo Boring t	orehole D erminated	epth: 20' l d at 20' bg	ogs. js due to Work F	Plan.					

IT	ARM Group LLC Engineers and Scientists Boring ID: B18-III-SB				Client ARM Project No. Project Description Site Location ARM Representative Checked by	: EnviroAnalytics Group : 170183M : Sparrows Point - Parcel B18 : Sparrows Point, MD : L. Perrin : M. Replogle, E.I.T.	Date Weath	er ng (US ft)	: 12/14/16 : Sunny, 40s : 563268.67
	Borin	g ID:	B18-III-SI	3	Drilling Company Driller	: GSI, Inc. : Kevin Pumphrey	Easting	g (US ft)	: 1455913.14
			(page 1	of 1)	Drilling Equipment	: Geoprobe 7822D1			[
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION		nscs	REMARKS
0-				(0-1.1') S no plastic	AND with SILT, medi tity, no cohesion	um dense, brown, very moist	.,		
		8.1						SW-SM	
-				(1.1-2.6')	SANDY GRAVEL wit	h SLAG, dark brown, dry, no	,		
		5.9		plasticity,	no cohesion				
								SW/GW	
-	90		No Samples Collected						
		37.8							
				(2.6-4') S white, dry	LAG, SAND and GRA /, no plasticity, no col	AVEL-sized, light gray and nesion			
-									No water encoutered
		10.8						SW/GW	
_				End of bo	pring				
5-									
Total Bo Boring t	orehole D terminated	epth: 4' bọ d at 4' bgs	gs. s due to refusal.						

	Borino	ARN Engi	<b>I Group</b> neers and Scient	D <b>LLC</b> ntists	Client ARM Project No. Project Description Site Location ARM Representative Checked by Drilling Company Driller	: EnviroAnalytics Group : 170183M : Sparrows Point - Parcel B18 : Sparrows Point, MD : L. Perrin : M. Replogle, E.I.T. : GSI, Inc. : Kevin Pumphrey	Date Weat North Eastin	her ing (US ft) ng (US ft)	: 12/14/16 : Sunny, 40s : 563297.24 : 1455873.14
			(page 1	of 1)	Drilling Equipment	: Geoprobe 7822DT			
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION		nscs	REMARKS
0		-		(0-2') SA dense to	ND with SILT, very fin loose, brown, dry, no	e to medium grained, mediu plasticity, no cohesion	IM	SW-SM	
-	62	33.7 0.7 0.5		(2-7.5') S very dark plasticity,	ILTY SAND with som brown, dry then mois no cohesion	e GRAVEL, medium dense, st 7-7.5', wet at 7.5', no			Medium metallic grains throughout 2.6-7.5' bgs
5		-						SM	
-	60	-		(7.5-9.3') coarse S, wet, no p	SANDY GRAVEL, sr AND, medium dense lasticity, no cohesion	nall GRAVEL with medium to to dense, very dark brown,	0	sw/gw	Wet at 7.5' bgs
10-		-	No Samples Collected	(9.3-14.3 no plastic	') SLAG SAND and G ity, no cohesion	RAVEL, dense, light gray, w	vet,		brown with light odor 9.3-14.3'
-	40	-						SW/GW	
15—		-		(14.3-20') plasticity,	) SLAG OR BRICK, d no cohesion	ense, grayish green, wet, no	)		
-	60	-						SW/GW	
20—		-		End of bo	pring				
Total Bo Boring t	orehole D erminated	epth: 20' l d at 20' bg	ogs. js due to Work F	Plan.					

Intel	ARM Group LLC Engineers and Scientists Boring ID: B18-KKK-SB				Client : EnviroAnalytics Group Date ARM Project No. : 170183M Weather Project Description : Sparrows Point - Parcel B18 Site Location : Sparrows Point, MD ARM Representative : L. Perrin Checked by : M. Replogle, E.I.T. Northing (U Drilling Company : GSI, Inc. Easting (U Driller : Kevin Pumphrey		er g (US ft) g (US ft)	: 12/14/16 : Sunny, 40s : 563325.81 : 1455834.09	
E	Boring	ID: B	(page 1	SB of 1)	Driller Drilling Equipment	: Kevin Pumphrey : Geoprobe 7822DT			
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION		nscs	REMARKS
-0	54	- 18.9		(0-3.5') S medium ( cohesion	ILTY SAND with som grained, medium dens	e small GRAVEL, very fine t se, black, dry, no plasticity, n	0	SM	Some very fine metallic grains throughout 2.3-4.7' bgs
5-		0.9		(3.5-6') B brown, ar	RICK GRAVEL with S nd red, dry, no plastic	SAND, medium dense, yellov ity, no cohesion	N,	SW/GW	
-	50	-		(6-9.3') B brown, w	RICK GRAVEL with S et, no plasticity, no cc	SAND, dense, red, white, and hesion	t t	SW/GW	Wet at 7.5' bgs
- 10- -	78	-	No Samples Collected	(9.3-13.8 wet, no p	') SANDY GRAVEL, r lasticity, no cohesion	nedium dense, dark brown,		SW/GW	Moderate product, dark brown with moderate odor 9.3-10' bgs Heavy product 11-13.8' bgs
- - 15-		-		(13.8-20') dense, gr	) SLAG OR BRICK S/ ayish green, wet, no	AND and GRAVEL, medium plasticity, no cohesion			No product 13.8-20' bgs
-	56	-					\$	SW/GW	
20—		-		End of Bo	pring				
Total Bo Boring t	orehole D erminated	epth: 20' l d at 20' bg	bgs. js due to Work F	Plan.					

Intel	ARM Group LLC Engineers and Scientists				Client : EnviroAnalytics Group Da ARM Project No. : 170183M We Project Description : Sparrows Point - Parcel B18 Site Location : Sparrows Point, MD ARM Representative : L. Perrin Checked by : M. Replogle, E.I.T. No Drilling Company : GSL Inc. Fa		Date Weatl	ner	: 12/14/16 : Sunny, 40s
E	Boring	j ID: E	8 <b>18-LLL-S</b> (page 1	<b>SB</b> of 1)	Checked by Drilling Company Driller Drilling Equipment	: M. Replogle, E.I.T. : GSI, Inc. : Kevin Pumphrey : Geoprobe 7822DT	North Eastir	ing (US ft) ng (US ft)	: 563363.91 : 1455836.95
				,					
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION		nscs	REMARKS
0-		-		(0-1') SIL	T, soft, brown, dry, no	plasticity, no cohesion		ML	Trace organics
-	56	- 58.6 170.0 156.4		(1-6') SIL medium ( cohesion	TY SAND with some grained, medium dens	small GRAVEL, very fine to se, black, dry, no plasticity, n	0	SM	Very small metallic luster grains thoughout 2.4-5' bgs
5-		-							
-	36	-		(6-9.3') G wet, no p	RAVELLY SAND, me lasticity, no cohesion	edium dense, very dark brow	'n,	SW/GW	Wet at 8.2' bgs
- 10— -		-	No Samples Collected	(9.3-13') wet, no p	SANDY GRAVEL, me lasticity, no cohesion	edium dense, very dark brow	'n,	SW/GW	
_	54	-							
-		-		(13-15') S very dark	SAND with some sma brown, wet, no plasti	II GRAVEL, medium dense, city, no cohesion		sw	Heavy grading to light NAPL, dark brown 13-15' bgs
15-		-		(15-18.1') very dark	) SILTY SAND with so brown to black, wet,	ome GRAVEL, medium dens no plasticity, no cohesion	e,		Moderate sheen 13-18.1' bgs
_	100	-						SM	Moderate to heavy NAPL 15-18' bgs
-		-		(18.1-20') yellow, m	) CLAY, very firm, gra loist, medium plasticit	yish brown grading to reddis y, cohesive	h	CL	
20-		-							
20-				End of Bo	pring				
Total Bo	prehole D	epth: 20' k	ogs.						
Boring t	erminated	at 20' bg	is due to Work P	'ian.					

		ARN Engin	I Group neers and Scie	<b>LLC</b> ntists	Client ARM Project No. Project Description Site Location ARM Representative	: EnviroAnalytics Group : 170183M : Sparrows Point - Parcel B18 : Sparrows Point, MD : L. Perrin	Date Weat	ner	: 12/14/16 : Sunny, 40s
В	oring	ID: B'	18-MMM-	SB	Checked by Drilling Company Driller Drilling Equipment	: M. Replogle, E.I.T. : GSI, Inc. : Kevin Pumphrey : Geoprobe 7822DT	North Eastir	ing (US ft) ng (US ft)	: 563361.05 : 1455788.37
			(page 1						
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION		USCS	REMARKS
0-		-		(0-1.5') S	ANDY SILT, soft, dar	k brown, dry, no plasticity, no	)	MI	Moderate organics
_	78	68.5 0.5		(1.5-2.6') very pale	SLAG SAND and GF brown and light gray	AVEL, with SAND, dense, , dry, no plasticity, no		SW/GW	Fine metallic luster grains and
-		0.4		(2.6-3.4')	SILTY SAND, mediu	m dense, very dark no cohesion	/	SM	trace coal 2.6-3.4' bgs
- 5—		0.3		(3.4-5.5') brown an no cohes	SLAG SAND and GF d light gray, dry but tr ion	RAVEL, with SAND, very pale ace moist at 4.8', no plasticit	/ 9,	SW/GW	
_		-		(5.5-9') S brown, ar	LAG GRAVEL with S nd dark brown, wet, n	AND and SILT, dense, gray, o plasticity, no cohesion			Wet at 6.2' bgs
_	76	-					S	W/GW-G	М
-		-		(9-9.6') S wet. no p	ILTY SAND, fine to collection	oarse grained, greenish gray	,	SM	Moderate NAPL, dark brown with moderate odor 9.6-10' bgs
10		-	No Samples Collected	(9.6-14.2 wet, no p	) SANDY GRAVEL, r lasticity, no cohesion	nedium dense, dark brown,	/		Heavy NAPL 10-14.2' bgs
_	100	-						SW/GW	
_		-							
15—		-		(14.2-16.) dark gray	5') SAND, fine to mec ish brown, wet, no pla	lium grained, medium dense asticity, no cohesion	,	sw	Trace NAPL with heavy sheen 14.2-16.5' bgs
_	100	-		(16.5-18.) intermitte plasticity,	5') SANDY GRAVEL nt, medium dense, ve no cohesion	with GRAVELLY SAND ery dark brown, wet, no		sw/gw	Moderate to heavy product 16.5-18.5' bgs
-		-		(18.5-20') plasticity,	) CLAY, very firm, red cohesive	dish yellow, moist, medium		CL	
20-				End of Bo	oring				
Total Bo Boring t	orehole De erminated	epth: 20' k I at 20' bg	ogs. Is due to Work F	Plan.					

E	Boring	ARN Engi	<b>A Group</b> neers and Scient 18-NNN-S	LLC ntists	Client: EnviroAnalytics GroupDateARM Project No.: 170183MWeatherProject Description: Sparrows Point - Parcel B18Site LocationSite Location: Sparrows Point, MDARM Representative: L. PerrinChecked by: M. Replogle, E.I.T.Northing (UDrilling Company: GSI, Inc.Easting (US)Driller: Kevin PumphreyDrilling Equipment			ner ing (US ft) ng (US ft)	: 12/14/16 : Sunny, 40s : 563540.10 : 1456047.42
			(page 1	of 1)					1
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION		NSCS	REMARKS
0-				(0-2') SIL cohesion	T with SAND, soft, br	own, moist, no plasticity, no			Trace organics
-		-						ML	
_	60	12.6	No Samples Collected	(2-3.2') S brown, di	AND with SILT and S	LAG GRAVEL, medium den hesion	se,	SW-SM/ GW	No water encountered
-		20.4		(3.2-4.7') dark brov	SILTY SAND with GI	RAVEL, medium dense, very asticity, no cohesion	,	SM/GW	
				(4.7-5') S plasticity,	LAG GRAVEL, mediu	um dense, light gray, dry, no		GW	
5 – Total Bo	prehole D	epth: 5' b	gs.	End of B	oring				
- 5- Total Bo Boring t	60	12.6 20.4 2.1 epth: 5' b d at 5' bg:	No Samples Collected	(3.2-4.7') dark brov (4.7-5') S plasticity, End of Bo	SILTY SAND with GI vn, dry to moist, no pl sLAG GRAVEL, mediu no cohesion	RAVEL, medium dense, very asticity, no cohesion	/	SW-SM/ GW	No water encountered

		ARN Engi	A Group neers and Scier	LLC ntists	Client ARM Project No. Project Description Site Location ARM Representative Checked by	: EnviroAnalytics Group : 170183M : Sparrows Point - Parcel B18 : Sparrows Point, MD : L. Perrin : M. Replogle, E I T	Date Weath	ner	: 12/14/16 : Sunny, 40s
В	oring	ID: B	18-000-	SB	Drilling Company Driller	: GSI, Inc. : Kevin Pumphrey	Eastir	ng (US ft)	: 1456044.57
			(page 1	of 1)	Drilling Equipment	: Geoprobe 7822D1			
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION		nscs	REMARKS
0-				(0-2') CO	NCRETE, medium de	ense, white, dry, no plasticity	, no		
		-		cohesion					
		-						NA	
-				(2-4 5') S	AND with some GRA	VEL fine to medium grained			
	60	5.5		dense, da	ark brown, dry, no pla	sticity, no cohesion	',		
-								SW	
		6.4							
		22.7		(4.5-10')	SLAG SAND and GR	AVEL, loose, gray and light			
5—			No Samples Collected	gray, dry	then wet at 7.5', no p	lasticity, no cohesion			
_		-							
		-							
-	00	445.0						SW/GW	
-	60	445.2							vvet at 7.5 bgs
		394.5							
-		007.0							
10-		267.0							
				End of Bo	oring				
Total Bo Termina	orehole D ated at 10	epth: 10' l ' bgs due	bgs. to refusal.						
	-	0 -							

E	Boring	ARN Engi	A Group neers and Scient 318-PPP-S	SB	Client ARM Project No. Project Description Site Location ARM Representative Checked by Drilling Company Driller Drilling Equipment	: EnviroAnalytics Group : 170183M : Sparrows Point - Parcel B18 : Sparrows Point, MD : L. Perrin : M. Replogle, E.I.T. : GSI, Inc. : Kevin Pumphrey : Geoprobe 7822DT	Date Weath Northi Eastir	ner ing (US ft) ng (US ft)	: 12/14/16 : Sunny, 40s : 563589.62 : 1455992.18
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION		nscs	REMARKS
0-		-		(0-1') SIL	T, soft, brown, dry, no	plasticity, no cohesion		ML	
_		2.4		(1-2.1') C cohesion	ONCRETE, medium	dense, white, no plasticity, n	0	NA	
-	76	203.2		(2.1-2.7') medium o	SAND with some GR dense, brown, dry, no	AVEL, fine to coarse grained plasticity, no cohesion	J,	SW	
_		195.7	No Samples Collected	(2.7-4.2')	SILT, very firm, brow	n, dry, low plasticity, cohesiv	e	ML	
_		34.2		(4.2-4.5') very dark	SILTY SAND with so brown, dry, no plastic	me GRAVEL, medium dense city, no cohesion	ə,	SM	Small metallic luster grains throughout 4.2-4.5' bgs
5—	100	63.7		(4.5-6') S dry, no pl	LAG GRAVEL with S lasticity, no cohesion	AND, medium dense, light gi	ray,	GW/SW	No water encountered
-				End of Bo	pring				
10 Total Bo Termina	orehole D ated at 6'	epth: 6' b bgs due t	gs. o refusal.						

В	oring	ARN Engi	A Group neers and Scies 18-QQQ- (page 1	ntists	Client EnviroAnalytics Group Date   ARM Project No. : 170183M Weat   Project Description : Sparrows Point - Parcel B18 Weat   Site Location : Sparrows Point, MD ARM Representative : L. Perrin   Checked by : M. Replogle, E.I.T. North   Drilling Company : GSI, Inc. East   Driller : Kevin Pumphrey   Drilling Equipment : Geoprobe 7822DT			her ing (US ft) ng (US ft)	: 12/14/16 : Sunny, 40s : 563647.72 : 1456039.80
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION		nscs	REMARKS
0-		-		(0-1') SIL	T, soft, brown, moist,	low plasticity, cohesive		м	Moderate organics
-	76	18.3		(1-2.7') S dense, ye	AND with GRAVEL, f ellowish brown, dry, n	ine to coarse grained, mediu o plasticity, no cohesion	m	sw/Gw	Light oxidation 1.5-2' bgs
-	70	23.0		(2.7-3.1')	SAND with SILT, fine	e to medium grained, dense,		SW-SM	
-		92.6		\black, dry (3.1-5') S	/, no plasticity, no con AND with SLAG and	BRICK GRAVEL, medium	/	SW/GW	
5-		6.0		dense; gr cohesion	ay, brown, yellow, an	d red; dry, no plasticity, no	,		
_		1.7		(5-17.5') then wet	SLAG GRAVEL, med at 8', no plasticity, no	ium dense, gray, dry to mois cohesion	t		
		-			· · · ·				
	60	-							
_		-							Wet at 8' bgs
_		-							
10-		-	No Samples Collected						
-		-						GW	Light to very light amber brown
_	70	_							NAPL 11.5-15' bgs
-									
-		-							
15—		-							
-		-							
-		-							
_	72	-		(17.5-19.	6') SAND, dense, dar	k gray, wet, no plasticity, no			No visible product, but sheen in water from 17.5-19.6' bqs
_		-		cohesion				SW	
20		-		(19.6-19)	9') SAND dense ver	v pale brown wet no		ŞW	
20-				plasticity,	no cohesion		/		
				plasticity,	cohesive	very pale brown, wet, low			
				End of Bo	oring				
Total Bo Termina	orehole De ated at 20	epth: 20' ł ' bgs due	ogs. to Work Plan.						
		-							

	ARM Group LLC Engineers and Scientists			<b>LLC</b> ntists	Client : EnviroAnalytics Group Dat ARM Project No. : 170183M We Project Description : Sparrows Point - Parcel B18 Site Location : Sparrows Point, MD ARM Representative : L. Perrin Checked by : M. Replogle, E.I.T. Nor Drilling Company : GSI, Inc. Eas		Date Weat	her ing (US ft)	: 12/14/16 : Sunny, 40s : 563643.91
В	Boring	ID: B	18-RRR-	SB of 1)	Drilling Company Driller Drilling Equipment	: GSI, Inc. : Kevin Pumphrey : Geoprobe 7822DT	Eastii	ng (US ft)	: 1455991.23
		(V		,					
Depth (ft.)	% Recovery	PID Reading (PPN	Sample No/Interve		DESC	RIPTION		nscs	REMARKS
0-		-		(0-3') SAI	ND with SLAG GRAV	EL, medium dense, brown,			
_		-		ary, no pi	asticity, no conesion			SW/GW	
_	58	8.3							
-		44.1		(3-4.2') S no cohes	ILTY SAND, medium	dense, black, dry, no plastic	ity,	SM	
5		59.3		(4.2-8) SI	LAG GRAVEL with Bl	RICK, medium dense; light g	ıray,		
5-		-		brown, a	la roa, ary, no plaoto				
_		-						GW	
_	50	-							Wet at 8' bos
_		-		(8-10.5')   wet, no p	SANDY GRAVEL, me lasticity, no cohesion	edium dense, gray and brown	n,		, i i i i i i i i i i i i i i i i i i i
10-		-	No Samples					SW/GW	
_		-	Collected	(10.5-14.) wet no p	5') SANDY GRAVEL,	medium dense, dark brown,	,		Moderate to heavy dark
_		-							
-	84	-						SW/GW	
_		-							
15—		-		(14.5-15. plasticity,	5') SANDY GRAVEL, no cohesion	medium dense, gray, wet, n	10	SW/GW	
_		-		(15.5-18') wet, no p	) SLAG SAND and Gl lasticity, no cohesion	RAVEL, medium dense, gray	<b>/</b> ,		
-	80	_						SW/GW	
-		-		(18-20') S plasticity,	SAND, fine to medium no cohesion	ı grained, dense, gray, wet, r	าด	sw	
20-		-		End of bo	pring				
Total Bo Boring t	orehole D erminated	epth: 20' l d at 20' bg	bgs. js due to Work F	Plan.					

<b>MALE NO.</b>		ARN Engi	A Group neers and Scier	<b>LLC</b> ntists	Client ARM Project No. Project Description Site Location ARM Representative	: EnviroAnalytics Group : 170183M : Sparrows Point - Parcel B18 : Sparrows Point, MD : L. Perrin	Date Weat	her	: 12/19/16 : Cloudy, 30s
E	Boring	ID: B	18-SSS-\$	SB	Checked by Drilling Company Driller Drilling Equipment	: M. Replogie, E.I.T. : GSI, Inc. : Don Marchese : Geoprobe 7822DT	Easti	ing (US π) ng (US ft)	: 1455928.37
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION		USCS	REMARKS
0-		-		(0-1') GR	AVELLY SAND, med	ium dense, brown, wet, no		SW/GW	
-	74	0.2 0.3		(1-3.3') S moist, no	LAG SAND and GRA plasticity, no cohesic	VEL, medium dense, gray, n		SW/GW	
-		7.9		(3.3-4.2')	SILT, medium dense	, dark brown, moist, low		MI	
- 5—		0.4		plasticity, (4.2-7') B dry, no pl	cohesive RICK SAND and GRA lasticity, no cohesion	AVEL, loose, red and yellow	,		
-		-						SW/GW	
-	68	-		(7-15.1') and very	SANDY GRAVEL, me pale brown, wet, no p	edium dense to dense, light ç əlasticity, no cohesion	gray		
		3.7							Wet at 8.6' bgs
-		32.3							
10		-	No Samples Collected					SW/GW	
-	80	-							
-		-							
15—		-							
_		-		(15.1-17. gray, wet	7') SAND, fine to mec , no plasticity, no coh	lium grained, medium dense esion	<b>;</b> ,	sw	
-	96	-							
-		-		(17.7-20') moist to v	) CLAY, soft to very fi /ery moist, med plasti	rm, yellow to reddish yellow, city, cohesive		CL	
20—		-		End of bo	pring				
Total Bo Boring t	orehole D erminated	epth: 20' l d at 20' bg	bgs. gs due to Work F	'lan.					

Intel		ARN Engi	I Group neers and Scie	ntists	Client ARM Project No. Project Description Site Location ARM Representative Checked by Drilling Company	: EnviroAnalytics Group : 170183M : Sparrows Point - Parcel B18 : Sparrows Point, MD : L. Perrin : M. Replogle, E.I.T. : GSI, Inc.	Date Weat North Eastii	her ing (US ft) ng (US ft)	: 12/19/16 : Sunny, 30s : 563636.29 : 1455875.99
E	Boring	j ID: E	218-TTT) (page 1	SB of 1)	Driller Drilling Equipment	: Don Marchese : Geoprobe 7822DT		5(-)	
Depth (ft.)	% Recovery	PID Reading (PPM)	sample No/Interval		DESC	RIPTION		SCS	REMARKS
0-		<u>L</u>	0,			CPAVEL firm brown dry n			
_		-		plasticity,	no cohesion	GRAVEL, IIIII, DIOWII, diy, I	10	ML	Organic matter
-	54	-		(2-3.2') G coarse, n cohesion	RAVELLY SAND, no nedium dense, dark b	n-native, medium to very rown, moist, no plasticity, no		SW/GW	
5-		1.3 77.9		(3.2-6.5') dense to plasticity,	SLAG and BRICK SA loose; gray, dark brow no cohesion	AND and GRAVEL, medium wn, and yellow; dry, no		sw/Gw	
-		-		(6.5-10.5		fine to coarse grained medi	ium		
-	36	-		dense, ye cohesion	ellow and dark brown	wet, no plasticity, no		sw/gw	Wet at 8.2' bgs
10-		-	No Samples						
-	76	-	Collected	(10.5-15. gray, and plasticity,	5') GRAVELLY SANE very pale brown, the no cohesion	), medium dense, light gray, n dark gray 14.6-15', wet, no	)		
-		-						SW/GW	
15—		-							
-		-		(15.5-18. gray then cohesion	5') SAND, fine to mee light brownish gray 1	lium grained, medium dense l8-18.5', wet, no plasticity, no	', )	sw	
_	90	-							
_		-		(18.5-20') cohesive	) CLAY, firm to very fi	rm, dry, low plasticity,		CL	
20-				End of bo	pring			I	
Total Bo Boring t	orehole D erminateo	epth: 20' l d at 20' bg	ogs. js due to Work F	Plan.					

		ARN Engi	A Group neers and Scie	<b>LLC</b> ntists	Client ARM Project No. Project Description Site Location ARM Representative	: EnviroAnalytics Group : 170183M : Sparrows Point - Parcel B18 : Sparrows Point, MD : L. Perrin	Date Weath	ner	: 12/19/16 : Sunny, 30s
В	Boring	ID: B	5 <b>18-UUU-</b> 5 (page 1	SB of 1)	Checked by Drilling Company Driller Drilling Equipment	: M. Replogle, E.I.T. : GSI, Inc. : Don Marchese : Geoprobe 7822DT	Northi Eastin	ng (US ft) Ig (US ft)	: 563652.48 : 1456141.71
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION		NSCS	REMARKS
0-		-		(0-4.5') S brown, dr	AND with some SILT y, no plasticity, no co	and GRAVEL, medium dens hesion	se,		
-	62	1.6						SW	
		9.7	No Samples Collected	(4.5-9.5') dense, lig plasticity.	SLAG SAND and GR ht gray and white, mo no cohesion	RAVEL, medium dense to bist to dry, then wet at 8.5', n	10		Trace NAPL 5-8.9' bgs
_		10.7		,, ,					
-	86	19.5						SW/GW	
-		399.3							Wet at 8.5' bgs
_		433.6		End of bo	pring				Light NAPL, light brown with light odor 8.9-9.5' bgs
10-					č				
Total Bo Boring t	orehole D erminated	epth: 9.5' d at 9.5' b	bgs. gs due to refusa	Ι.					

E	ARM Group LLC Engineers and Scientists Boring ID: B18-VVV-SB (page 1 of 1)				Client ARM Project No. Project Description Site Location ARM Representative Checked by Drilling Company Driller Drilling Equipment	: EnviroAnalytics Group : 170183M : Sparrows Point - Parcel B18 : Sparrows Point, MD : L. Perrin : M. Replogle, E.I.T. : GSI, Inc. : Don Marchese : Geoprobe 7822DT	Date Weath Northi Eastin	ner ng (US ft) g (US ft)	: 12/19/16 : Sunny, 30s : 563491.53 : 1456151.23
	1		(page 1	of 1)	5 1 1				
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION		NSCS	REMARKS
0		- 2.2		(0-2') SA grained, i cohesion	ND with some GRAVI medium dense, browr	EL, very fine to medium n, dry, no plasticity, no		SW	
-	72	13.2		(2-2.8') C	ONCRETE SAND wit	h some GRAVEL, medium		NA	Trace evidetion 2.9.4.2' has
_		1.8		(2.8-4.3') brown wi	SAND, fine to coarse th trace reddish yellow	grained, medium dense, v, dry, no plasticity, no		SW	Trace Unidation 2.0-4.5 bys
5-		219.4		cohesion (4.3-18')	SLAG SAND and GR	AVEL, medium dense, white			
-		-		and light	gray, dry, no plasticity	, no conesion			
-		167.7							
-	76	84.0							Llght NAPL, medium brown 7.5-10' bgs
-		165.2							Wet at 9' bgs
10-		89.3	No Samples Collected						Light to moderate NADI 10.5.15'
-		-						SW/GW	bgs
-	90	-							
-		-							
-		-							
15—		-							
_		-							
_	90	-							
-		-		(18-19.5') dense, gr	ay to light gray, wet, i	m grained, medium dense to no plasticity, no cohesion	)	SW	
20-		-		(19.5-20') \cohesive	) CLAY, hard, light gra	ay, moist, low plasticity,		CL	
				End of bo	pring				
Total Bo Termina	orehole D ated at 20	epth: 20' l ' bgs due	ogs. to Work Plan.						
		-							
		ARN Engi	A Group neers and Scie	<b>LLC</b> ntists	Client ARM Project No. Project Description Site Location ARM Representative	: EnviroAnalytics Group : 170183M : Sparrows Point - Parcel B18 : Sparrows Point, MD : L. Perrin	Date Weath	ier	: 12/19/16 : Sunny, 30s
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В	oring	ID: B′	1 <b>8-WWW</b> - (page 1	-SB of 1)	Checked by Drilling Company Driller Drilling Equipment	: M. Replogle, E.I.T. : GSI, Inc. : Don Marchese : Geoprobe 7822DT	Northi Eastin	ng (US ft) g (US ft)	: 563486.76 : 1456109.33
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION		nscs	REMARKS
0— - -	74	- 7.6 25.6 21.7		(0-1') SIL brown, w (1-12') SA dense; br 9', no pla	TY SAND with some et, no plasticity, no cc AND with SLAG GRA rown, gray, light gray, sticity, no cohesion	GRAVEL, medium dense, whesion VEL and BRICK, medium and yellow; dry then wet at		SM	
- 5—		16.6							
-	70	-						SW/GW	
- 10—		-	No Samples Collected						Wet at 9' bgs
-	2	-		(12-15') S wet, no p	SANDY GRAVEL with lasticity, no cohesion	SILT, medium dense, browr	٦,		
- 15—		-		(15-19.3') with white	) GRAVELLY SAND, e, wet, no plasticity, n	medium dense to dense, gra o cohesion	ly S		
-	100	-						SW/GW	
- 20—		-		(19.3-20') cohesion End of bo	) SAND, medium den	se, gray, wet, no plasticity, n	0	SW	
Total Bo Boring t	orehole D erminateo	epth: 20' l d at 20' bç	bgs. gs due to Work F	'lan.					

E	Boring	ARN Engi	A Group neers and Scient 18-XXX-S	LLC ntists	Client       : EnviroAnalytics Group       Date         ARM Project No.       : 170183M       Weather         Project Description       : Sparrows Point - Parcel B18       Weather         Site Location       : Sparrows Point, MD       ARM Representative       : L. Perrin         Checked by       : M. Replogle, E.I.T.       Northing         Drilling Company       : GSI, Inc.       Easting (         Driller       : Don Marchese       Drilling Equipment       : Geoprobe 7822DT			ner ing (US ft) ng (US ft)	: 12/19/16 : Sunny, 30s : 563542.00 : 1456103.61
			(page 1	of 1)					
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION		NSCS	REMARKS
0-		-		(0-1') SA	NDY SILT, soft, brown, moist to dry, no plasticity, no				
-		26.9							
-	76	15.6			ry, no plasticity, no co	nesion			
-		23.4						SWIGW	
_		9.5							
5-		-							
_		-		(6.5-8.7')	GRAVEL. loose. grav	/ and vellow. drv. no plasticit			
_	44	-		no cohes	sion				Wet at 7.8' bqs
_		-		(9.7.15')		dium danca, brown than ligh			U U
10_		-	No Samples	gray at 1	1.3, wet, no plasticity,	no cohesion	ii.		Trace NAPL 9.7-10' bgs
10		-	Collected						
_		-						SW/GW	Light NAPL, amber brown to dark brown 11.5-15'
_	74	-							bgs
_		-							
15—		-							
-		-		(15-18') S very sma with white	SLAG or BRICK, med II GRAVEL, medium ( e. wet. no plasticity, n	um to very coarse SAND wit dense to dense, greenish gra o cobesion	ih ay		
_		-			, wei, no placadity, n			SW/GW	
-	100	-		(40.00!) (					
-		-		dense, gr plasticity,	ray then light brownis	n gray 19.2-20', wet, no		sw	
20-		-		End of bo	orina				
					5				
Total Bo Boring t	orehole D erminated	epth: 20' l d at 20' b <u>c</u>	ogs. Js due to Work F	Plan.					

		ARN Engi	A Group	ntists	Client ARM Project No. Project Description Site Location	: EnviroAnalytics Group : 170183M : Sparrows Point - Parcel B18 : Sparrows Point, MD	Date Weath	ner	: 12/19/16 : Sunny, 30s
E	Boring	ID: E	8 <b>18-YYY-</b> (page 1	SB of 1)	Arkin Representative       L. Fernin         Checked by       : M. Replogle, E.I.T.         Drilling Company       : GSI, Inc.         Driller       : Don Marchese         Drilling Equipment       : Geoprobe 7822DT			: 563599.14 : 1456100.76	
Depth (ft.)	0 0 0 0 0 0 0 0 0 0 0 0 0 0								REMARKS
0-		-		(0-2') SIL to loose,	TY SAND with ASPH brown and black, dry	ALT GRAVEL, medium dens no plasticity, no cohesion	se	SM	
	68	9.0 5.8 7.7		(2-6.5') S dense, gr	LAG GRAVEL and S ay and brown, dry, no	AND, fine to coarse, medium plasticity, no cohesion	I	SW/GW	
-	40	-		(6.5-10.5 brown, w	') SANDY GRAVEL, r et, no plasticity, no cc	nedium dense, gray and ligh hesion	t	GW/SW	Wet at 8' bgs
10—		-	No Samples Collected	(10.5-15	5') SII TY SAND with	some GRAV/EL dense whit	•		
- - - 15-	80	-		wet, no p	lasticity, no cohesion		ς,	SM/GW	Light amber brown NAPL 11.5-13.5' bgs
-	76	-		(15.5-20' grained, i no plastic	) SAND with some GF medium dense to den sity, no cohesion	RAVEL, medium to very coar se, gray with trace white, we	se it,	SW	
20-				End of bo	pring				
Total Bo Boring t	orehole D erminated	epth: 20'   d at 20' bç	bgs. gs due to Work F	Plan.					

ILIA	ARM Group LLC Engineers and Scientists				Client ARM Project No. Project Description Site Location ARM Representative	: EnviroAnalytics Group : 170183M : Sparrows Point - Parcel B18 : Sparrows Point, MD : L. Perrin	Date Weat	her	: 12/19/16 : Sunny, 30s
E	Boring	J ID: E	818-ZZZ-S	SB	Checked by Drilling Company Driller Drilling Equipment	: M. Replogle, E.I.T. : GSI, Inc. : Don Marchese : Geoprobe 7822DT	North Easti	ning (US ft) ng (US ft)	: 563649.62 : 1456097.90
			(page 1	of 1)				1	[
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESC	RIPTION		USCS	REMARKS
0		- 14.5		sw					
-	86	2.7		(2-2.7') B	RICK SAND and GR/	AVEL, medium dense to den , drv, no plasticity, no	ise,	SW/GW	
-		1.4		cohesion (2.7-6') S	ILTY SAND with som	e GRAVEL and COAL	]		
-		3.9		GRANUL	ES, medium dense, v k, dry, no plasticity, no	very dark brown with trace gr cohesion	ray	SM	
		-							
_		-		(6-17.8') dense, ye	GRAVEL, very small t ellowish brown then ye	to large, dense to medium ellow and brown 16-17.8',			
_	40	-		wet, no p	iasticity, no conesion				Wet at 8' bos
-		-							
10-		-	No Samples						
-		-	Collected						
-		-						GW	Very light amber brown NAPL in water 13.9-15' bgs
-	22	-							
-		-							
15—		-							
-		-							
_	80	-							
-	00			(17.8-20')	) SAND, fine to mediu	m grained, gray, wet, no			
-		-		plaotiony,				SW	Trace sheen at 19.5' bgs
20-				End of Bo	oring			I	
Total D		onth: 2011							
Boring t	erminated	epun: 20' l d at 20' bo	igs. Js due to Work F	Plan.					

Attachment 4



Photo 1: View of NAPL collected from a B18 well. Take note of the NAPL observed as LNAPL and DNAPL.



Photo 2: Another view of the NAPL collected in Photo 1.



Photo 3: View from the top of the same NAPL jar from Photo 1.

Attachment 5







Attachment 6

T	ARM Group LLC Engineers and Scientists			LLC ntists	Client : EnviroAnalytics Group ARM Project No. : 150300M-14-3 Project Description : Sparrows Point - Parc Site Location : Sparrows Point, MD ARM Representative : L. Perrin Checked by : M. Replogle, EIT		Group Parcel B18 MD	Soil Boring Installation Date Piezometer Installation Date Casing/Riser/Screen Type Borehole Diameter Riser/Screen Diameter Northing (US ft)		: 1/17/2019 : 1/17/2019 : PVC : 2.25" : 1" : 563440.45	
Borin *Replace installed	g ID ement c on 10/ <sup>-</sup>	<b>B18</b> f piezom 19/16	-017-SB/P2 <sup>eter</sup> (page 1	Z NEW	Drilling Company : Allied Driller : Tim Moyer Drilling Equipment : Geoprobe 77DT			Easting 0-Hr DT 48-Hr D No LNA	(US ft) W TW PL or DNAPL detected	: 1456274.04 : 9.27' TOC : 8.96' TOC at 0 or 48 hours	
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESCRIPTIC	DN	nscs			REMARKS	
-0	10	-		(0-5') BRI GRAVEL- and very dry, non-p	CK and SLAG, SANE -sized, medium dense pale brown with red a plastic, non-cohesive	D and e, dark brown Ind gray,	SWICH		Bentonite seal		
-	40	- 0.1 0.5					300/600				
5-		1.3		(5-6') Nor medium c brown, dr	n-native SAND, fine to lense, yellowish red a y, non-plastic, non-co	o medium, and dark ohesive	sw				
-	100	1.1 2.4	None	(6-13') No and GRA dark gray bgs, non- coke ash	on-native SAND and S VEL-sized, dense, ve , and green, dry then plastic, non-cohesive	SLAG, SAND ry light gray, wet at 7' , possible			— Sand Pack	Wet at 7' bgs Very light product present from 7-8' bgs	
- 10-		7.5 9.6					SW/GW		1" PVC Screen	Moderate NAPL 9-10' bgs Light to moderate NAPL 10-14' bgs	
-	100	0.5 2.8								with heavy sheen from 9-14' bgs	
-		0.2		(13-14') S dense to wet, non-	AND, fine to medium dense, yellowish red a plastic, non-cohesive	i, medium and gray,	SW				
15 – Boring te TOC: To DTW: Do bgs: Bel	erminate op of PV epth to ow grou	ed at 14' 'C casing water ind surfac	bgs due to refusal,	End of Bo	pring	Riser Sticl Riser: 0 Screen: 4 Sand Pacl	kup: 2.96' 4' bgs - 14' bgs [S k: 3 - 14' bgs	lot Size: 0.0	010"] e: WG #2]		
AMSL: A	bove n	nean sea	level			Bentonite	Seal: 0 - 3' b	ogs [Grain S	Size: 3/8" chips]		





ARM Group LLC Engineers and Scientists Boring ID: B18-046-SB/PZ (page 1 of 1)					Client: EnviroAnalytics GroupARM Project No.: 150300M-14-3Project Description: Sparrows Point - Parcel B18Site Location: Sparrows Point, MDARM Representative: L. PerrinChecked by: M. Replogle, E.I.T.Drilling Company: Green Services, IncDriller: Don MarcheseDrilling Equipment: Geoprobe 7822DT			Soil Bo Piezom Casing Boreho Riser/S Northin Easting 0-Hr D 48-Hr I Trace N	ring Installation Date leter Installation Date /Riser/Screen Type le Diameter screen Diameter g (US ft) J (US ft) TW NAPL detected at 0 and 4	: 10/26/2016 : 10/26/2016 : PVC : 2.25" : 1" : 563301.25 : 1456053.72 : 12.60' TOC : 13.67' TOC #8 hours
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESCRIPTIC	DN	nscs			REMARKS
0-	100	3.4 8.8 370.4 232.8 184.0	B18-046-SB-1	(0-1') SA dense, gu cohesion (1-1.8') S brown, ai plasticity, (1.8-3.5') GRAVEL dry, no pl (3.5-6') S with SILT grav, dry	NDY SILT with GRAV rayish brown, dry, no p ILT, hard, light greeni nd brown mottling, dry cohesive SILTY SAND with ve , fine to coarse, light of asticity, no cohesion LAG, SAND AND GR , medium dense, whit no plasticity, no cohe	/EL, medium plasticity, no ish gray, pale /, low // ry small olive brown, // AVEL-sized, te and light esion	ML ML SM SW/GW		Bentonite seal	Light product present from 1.8-3.5' bgs Moderate product with moderate to strong odor from 3.5.5' bos
	60	- 295.7 149.2 134.6	B18-046-SB-8	(6-10') SI dry then plasticity,	AG GRAVEL, dense moist 9.5-9.7', saturat no cohesion	, light gray, ed at 9.8', no	GW		—Sand Pack	Light product from 7-7.5' bgs Wet at 9.8' bgs
	0			(10-17') N continued	NO RECOVERY from	10-15' bgs, 5-17' bgs	-			
20 – Boring t TOC: Tr DTW: D brs: Be	erminat pp of P\ epth to	- ed at 17' /C casing water und suffer	bgs due to water a	End of Be	oring er installation	Riser Sticl Riser: 0 - Screen: 7 Sand Pac	kup: 3.20' 7' bgs - 17' bgs [SI *: 5 - 17' brgs	ot Size: 0.	010"] ze: WG #11	

Bo	ARM Group LLC Engineers and Scientists Boring ID: B18-047-SB/PZ (page 1 of 1)				Client: EnviroAnalytics GroupARM Project No.: 150300M-14-3Project Description: Sparrows Point - Parcel B18Site Location: Sparrows Point, MDARM Representative: L. PerrinChecked by: M. Replogle, E.I.T.Drilling Company: Green Services, IncDriller: Don MarcheseDrilling Equipment: Geoprobe 7822DT			Soil Borii Piezome Casing/F Borehole Riser/Sci Northing Easting ( 0-Hr DTV 48-Hr DT No LNAF	ng Installation Date ter Installation Date Riser/Screen Type Diameter reen Diameter (US ft) US ft) V W PL or DNAPL detected	: 10/18/2016 : 10/18/2016 : PVC : 2.25" : 1" : 563541.54 : 1456367.34 : 12.63' TOC : 12.74' TOC at 0 or 48 hours
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESCRIPTION		nscs			REMARKS
0-		-	B18-047-SB-1	(0-2.5') S light gray	LAG, SAND-sized, medium ish brown, dry, no plasticity	i dense, , no			Bentonite seal	
-		16.1		Conesion			SW		1" PVC Riser	
	70	17.1		(2.5-4') C	INDER BALLAST with large	e SLAG,				Comment on sound
_		15.2	B18-047-SB-4	moist, no	plasticity, no cohesion	k gray,	SW/GW			SLAG from 3-4' bgs
-		235.5		(4-12') SI medium o green, ar	AG, GRAVEL-sized with S dense, brown, dark brown, o d black, wet, no plasticity, r	ILT, plive าง				Product procent
		-		cohesion					— Sand Pack	from 4-9' bgs Moderately thick with moderate odor; immiscible
-		-								
-	100	-					GW/ML		1" PVC Screen	
_		-								
10-		-								
-	100	-								
-		-		(12-12.5'	) SLAG, SILT to SAND-size	d,	ML/SW			
-				dense, gi white, we	ay and t, no plasticity, no cohesion pring		1112/011			
-					9					
15-										
Boring to TOC: To DTW: D bgs: Bel AMSL: A	erminat op of P\ epth to ow grou \bove r	ed at 12.9 /C casing water und surfan	5' bgs due to water 1 ce level	and piezom	eter installation	Riser Stick Riser: 0 - 2 Screen: 2. Sand Pack Bentonite S	up: 3.20' 2.5' bgs 5 - 12.5' bgs :: 2 - 12.5' b Seal: 0 - 2' b	s [Slot Size: gs [Grain S ogs [Grain S	0.010"] ize: WG #1] šize: 3/8" chips/Granul;	ar 30-50 Meshl

	ARM Group LLC Engineers and Scientists				Client ARM Project No. Project Description Site Location ARM Representative Chapted by	: EnviroAnalytics C : 150300M-14-3 : Sparrows Point - : Sparrows Point, I : L. Perrin	Group Parcel B18 MD	Soil Bor Piezome Casing/l Borehole Riser/So	ing Installation Date eter Installation Date Riser/Screen Type e Diameter creen Diameter	: 10/18/2016 : 10/18/2016 : PVC : 2.25" : 1" : 563560 52
Bo	oring	ID: E	8 <b>18-059-SB</b> (page 1	6/PZ	Drilling Company : Green Services, Inc Easting (US Driller : Don Marchese O-Hr DTW Drilling Equipment : Geoprobe 7822DT 48-Hr DTW No DNAPL			(US ft) W TW .PL or LNAPL detected	: 1456451.18 : DRY : DRY at 0 or 48 hours	
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESCRIPTIC	DN	USCS	Π		REMARKS
0-		-	B18-059-SB-1	(0-2.5') S dense to cohesion	LAG, SILT to SAND-s soft, brown, dry, no p	sized, medium lasticity, no			* • • •	
-		3.5					ML/SW		—Bentonite seal	
-	90	64.9		(2.5-3') S	ILT, hard, dark gray a	and black, dry,	MI		1" PVC Riser	Tar-like substance or NAPL, dark brown, light odor, PID
-		11.9		no plastic (3-9') SL/ GRAVEL white, an at 7.5', no	ity, no cohesion AG and BRICK, SILT -sized, dense, brown, d very pale brown, dr o plasticity, no cohesio	to dark gray, y then wet on				reading is 76.7
5-		5.4							—Sand Pack	
		34.8					ML/GW/			
		14.2								
-	100	677.4	B18-059-SB-7.5							Wet at 7.5' bgs
-		122.9								
-			I	End of Bo	oring					
Boring to	erminat	ed at 9' b	gs due to water an	d piezomete	r installation	Riser Sticl	kup: 3.30'			
TOC: To DTW: D bgs: Bel AMSL: A	op of P\ epth to ow grou \bove r	/C casing water und surfa nean sea	) ce level			Riser: 0 - 4 Screen: 4 Sand Pacl Bentonite	4 <sup>°</sup> bgs - 9' bgs [Slo k: 3 - 9' bgs Seal: 0 - 3' b	t Size: 0.0 Grain Size gs [Grain	10"] e: WG #1] Size: Granular 30-50 Me	esh]



ARM Group LLC Engineers and Scientists Boring ID: B18-077-SB/PZ (page 1 of 1)				or LLC ntists B/PZ of 1)	Client: EnviroAnalytics GroupARM Project No.: 150300M-14-3Project Description: Sparrows Point - Parcel B18Site Location: Sparrows Point, MDARM Representative: L. PerrinChecked by: M. Replogle, E.I.T.Drilling Company: Green Services, IncDriller: Rick MillerDrilling Equipment: Geoprobe 7822DT		Soil Boring Installation Date Piezometer Installation Date Casing/Riser/Screen Type Borehole Diameter Riser/Screen Diameter Northing (US ft) Easting (US ft) 0-Hr DTW 48-Hr DTW Trace NAPL detected at 0 hour		e : 6/28/2017 ie : 6/28/2017 : PVC : 2.25" : 1" : 563516.70 : 1456183.33 : 9.16' TOC : 9.78' TOC hours	
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESCRIPTIC	nscs			REMARKS	
0-		-	B18-077-SB-1	(0-1.5') S dense, liç cohesion	ANDY SILT with GRA ght brown, dry, no plas	VEL, medium sticity, no	ML		Bentonite se	al
-	68	0.0		(1.5-2.2') with som brown, di cohesion	SILTY SAND, very fir e GRAVEL, medium o y, no plasticity, no	ne to coarse, dense, dark	SM	• • • • • • • • • • • • • • • • • • •	1" PVC Rise	r
-		0.0	B18-077-SB-4.5	(2.2-4') S SILTY SA alternatin no cohes	AND with GRAVEL g AND, medium dense, g brown layers, dry, r ion	rading to yellow with io plasticity,	SW/SM			Wet at 4.5' bgs
5		0.0 - 0.0		(4-7') SL/ with som medium o very pale no plastic	AG and BRICK, GRAV e SAND-sized,with tra dense to dense, gray, brown, dry then wet a bity, no cohesion	/EL-sized ace SILT, brown, and at 4.5' bgs,	GW/SW	<b>.</b>	— Sand Pack	Petroleum-like product from 7-10' bgs (light from 7-7.5' bgs, moderate from 7.5-8.8' bgs,
-	90	0.0		(7-10') SI with SILT dark gray no cohes	AG, GRAVEL and S/ from 8.8-10' bgs, der , and light gray, wet, i ion	AND-sized, nse, gray, no plasticity,				en
_		0.0					GW/SW			
10		-		(10-13') S with trace light gray plasticity,	SLAG, SAND and GR. SILT, medium dense and light brown, wet, no cohesion	AVEL-sized, to dense, no				Very light to trace product from 10-13' bgs
-	100	-					GW/SW			
15 – Boring te TOC: To DTW: D	erminate	ed at 13' ′C casing	l bgs due to water a	L End of Bo	oring ter installation	Riser Stick Riser: 0 - 3 Screen: 3	kup: 3.10' 3' bgs - 13' bgs [5]	J Lot Size: (	0.010"1	L
bgs: Bel AMSL: A	epin to ow groi Above n	water ind surfa nean sea	ce level			Screen: 3 Sand Pacl Bentonite	- 13 bgs [S k: 2 - 13' bgs Seal: 0 - 2' b	Grain S Grain S Sgs [Grair	size: WG #1] Size: 3/8" chips/Gra	anular 30-50 Mesh]

		AR En	M Group	ntists	Client       : EnviroAr         ARM Project No.       : 150300N         Project Description       : Sparrow:         Site Location       : Sparrow:         ARM Representative       : M. Kedel         Checked by       : M. Replo         Dillion Company       : Allied Dri	nalytics G M-14-3 vs Point - F vs Point, M enburg ogle, E.I.T	roup Parcel B18 ID	Soil Bo Piezom Casing Boreho Riser/S Northin	ring Installation Date neter Installation Date /Riser/Screen Type ole Diameter Screen Diameter ng (US ft)	: 7/12/2018 : 7/12/2018 : PVC : 2.25" : 1" : 563371.19 : 1456050.52
Bo	oring	ID: E	818-078-SE	B/PZ	Drilling Company : Allied Dr Driller : Ryan Sit Drilling Equipment : Geoprob	rilling Co. tes be 7822DT	г	Easting 0-Hr D 48-Hr I	g (US ft) TW DTW	: 1456050.52 : 12.61' TOC : 12.95' TOC
			(page 1	of 1)				No LNA	APL or DNAPL detected	at 0 or 48 hours
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESCRIPTION		nscs			REMARKS
0-		-	No Samples	(0-1') SA	ND, fine to medium, with GRAV	EL	SW	• • • •	Bentonite seal	
-		43.6	Collected	dry, no pl (1-2.5') C	asticity, no cohesion LAY with SAND and GRAVEL,	/	CL	• • • • • • •	1" PVC Riser	
_	76	21.8		very firm, plasticity,	pale brown, slightly moist, low cohesive	/				Motol frogmonto
_		50.5		(2.5-7') S medium, slightly m	AND with GRAVEL and SILT, slightly dense, dark brown to bla oist_no plasticity_no cohesion	ack,				from 3.2-7' bgs
5-		9.1					SW			
-		-								
_		62.3								
-	82	0.2		(7-20') Gi coarse, d slightly m	RAVEL with SAND, medium to ense, pale gray to bluish gray, oist to wet at 12' bos, no plastic	;itv.				
-		3.9		no cohes	ion				—Sand Pack	
10-		7.8						_		
-		-								
-		1721								Wet at 12' bgs
-	65	15000								
-		15000					GW/SW			
15—		35.6								Dark amber NAPL lenses at 13.5' bos
-		247 9								and 15' bgs
-	70	60.3								
-		35.6								
-		-								
20-		<u> </u>	l	End of Bo	pring					
Boring to	erminat	ed at 20'	bas due to water a	nd piezomet	er installation R	Riser Stick	up: 2.58'			
TOC: To DTW: D	op of P\ epth to	/C casing water			R	Riser: 0 - 3 Screen: 3	' bgs - 20' bgs [S	lot Size: 0	).010"]	
bgs: Bel AMSL: A	ow groi Above r	und surfa nean sea	ce level		S B	and Pack Sentonite S	:: 2 - 20' bgs Seal: 0 - 2' b	s [Grain Si ogs [Grain	ize: WG #1] Size: 3/8" chips]	

Bo	oring	AR En	M Group	D LLC ntists	Client       : EnviroAnalytics C         ARM Project No.       : 150300M-14-3         Project Description       : Sparrows Point -         Site Location       : Sparrows Point, I         ARM Representative       : M. Kedenburg         Checked by       : M. Replogle, E.I.         Drilling Company       : Allied Drilling Con         Drillor       : Sparrows	Group Parcel B18 MD T.	Soil Boring Installation Da Piezometer Installation D Casing/Riser/Screen Typ Borehole Diameter Riser/Screen Diameter Northing (US ft) Easting (US ft)	ate : 7/13/2018 ate : 7/13/2018 e : PVC : 2.25" : 1" : 563603.26 : 1456035.85
		10.0	(page 1	of 1)	Driller : Ryan Sites Drilling Equipment : Geoprobe 7822D	ЭT	0-Hr DTW 48-Hr DTW No LNAPL or DNAPL det	: 11.43 TOC : 11.50' TOC ected at 0 or 48 hours
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESCRIPTION	USCS		REMARKS
0	50	- 0.8 2.5	No Samples Collected	(0-1') SA loose, pa cohesion (1-5') SA dense, bl cohesion	ND with GRAVEL and SILT, fine, le gray, dry, no plasticity, no ND with GRAVEL, medium, medium ack, slightly moist, no plasticity, no	SP/GW SP/GW	Bentonite s	eal er Metal fragments from 3.25-5' bgs
5—		1.9 -		(5-20') N	0 RECOVERY			
-	0	-						
- 10-		-					Sand Pack	
-	0	-				-	1" PVC Scr	een
- 15-		-						No Water Encountered
-	0	- -						
20-		-		End of Be	oring			
Boring te TOC: To DTW: Do bgs: Bel AMSL: A	erminate op of PV epth to ow grou Above n	ed at 20' 'C casing water und surfac nean sea	bgs due to water a ce level	nd piezome	ter installation Riser Stick Riser: 0 - Screen: 3 Sand Pac Bentonite	kup: 3.26' 3' bgs - 20' bgs [S k: 2 - 20' bgs Seal: 0 - 2' b	Slot Size: 0.010"] s [Grain Size: WG #1] bgs [Grain Size: 3/8" chips]	

Intel		AR En	M Group gineers and Scie	ntists	Client       : EnviroAnalytics Group         ARM Project No.       : 150300M-14-3         Project Description       : Sparrows Point - Parcel B18         Site Location       : Sparrows Point, MD         ARM Representative       : M. Kedenburg         Checked by       : M. Replogle E L T		Soil Boring Installation Date Piezometer Installation Date Casing/Riser/Screen Type Borehole Diameter Riser/Screen Diameter	<ul> <li>: 7/13/2018</li> <li>: 7/16/2018</li> <li>: PVC</li> <li>: 2.25"</li> <li>: 1"</li> </ul>
Bo	oring	ID: B	18-080-SE (page 1	8/PZ of 1)	Checked by : M. Replogle, E.I Drilling Company : Allied Drilling Co Driller : Ryan Sites Drilling Equipment : Geoprobe 78221	Northing (US ft) Easting (US ft) 0-Hr DTW 48-Hr DTW No LNAPL or DNAPL detec	: 563633.14 : 1455835.54 : 11.40' TOC : 10.92' TOC ted at 0 or 48 hours	
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESCRIPTION	nscs		REMARKS
0	50	- 0.0 0.0 0.2	No Samples Collected	(0-0.3') S to mediur plasticity, (0.3-12.5' dense, bl plasticity,	AND with SILT and GRAVEL, fine n, loose, pale brown, dry, no no cohesion ') SAND with GRAVEL, medium, ack, dry then wet at 8' bgs, no no cohesion	_SW-SM	Bentonite sea	1
5	40	- - 0.2				SP/GW	_▼. — Sand Pack	
10		0.4 2.9 3.2					1" PVC Scree	Wet at 8' bgs
- - 15—	98	0.0 0.4 3.0		(12.5-15.) wet, dens cohesion	5') GRAVEL with SAND, coarse, se, bluish gray, no plasticity, no	GP/SW		
-	80	- 0.0 0.0		(15.5-18') to black, v	) SAND, medium, dense, pale gray wet, no plasticity, no cohesion	SP		
- 20—		0.0 0.0		(18-20') C brown to plasticity, End of Bo	CLAY, very firm to soft, pale reddish yellow, wet, low cohesive	CL		
Boring te TOC: To DTW: Do bgs: Bel AMSL: A	erminate op of P\ epth to ow grou Above n	ed at 20' l /C casing water und surfac nean sea	ogs due to water a ce level	nd piezomet	er installation Riser Stid Riser: 0 - Screen: 3 Sand Pad Bentonite	ckup: 4.00' 3' bgs 3 - 20' bgs [S ck: 2 - 20' bgs 9 Seal: 0 - 2' bg	Slot Size: 0.010"] s [Grain Size: WG #1] bgs [Grain Size: 3/8" chips]	

ARM Group LLC Engineers and Scientists			M Group gineers and Scie	ntists	Client       : EnviroAnalytics Group         ARM Project No.       : 150300M-14-3         Project Description       : Sparrows Point - Parcel B18         Site Location       : Sparrows Point, MD         ARM Representative       : M. Kedenburg         Check de burg       : M. Representative		Soil Borin Piezomet Casing/R Borehole Riser/Scr	g Installation Date er Installation Date iser/Screen Type Diameter een Diameter	7/12/2018 7/12/2018 PVC 2.255" 1"
Boring ID: B18-081-SB/PZ (page 1 of 1)					Checked by : M. Replogle, E Drilling Company : Allied Drilling ( Driller : Ryan Sites Drilling Equipment : Geoprobe 782	Northing Easting (I 0-Hr DTV 48-Hr DT No LNAP	(US ft) JS ft) V W L or DNAPL detected a	: 563336.29 : 1455886.62 : 10.27' TOC : 10.37' TOC at 0 or 48 hours	
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESCRIPTION	USCS			REMARKS
0 - - -	80	- 199.1 2.1 3.9	No Samples Collected	(0-0.5') O GRAVEL plasticity, (0.5-9') S fine, sligh plasticity,	RGANIC SILT with SAND and , loose, dry, medium brown, low cohesive AND with GRAVEL, medium to tly dense, black, slightly moist, no no cohesion			—Bentonite seal —1" PVC Riser	Metal fragments from 1.3-9' bgs
5	50	4.8 - 85.1 14.6				SW	.▼.	—Sand Pack	
- 10— -		3.7 - -		(9-12') BF	RICK	NA		—1" PVC Screen	
-	65	1150 19.5 48 9		(12-14.7') GRAVEL no cohes	) SAND, medium to coarse, with , wet, black, dense, no plasticity, ion	SW			Wet at 12' bgs NAPL from 12-14.75' bgs
15—		-		(14.7-16') coarse, g plasticity,	) GRAVEL with SAND, medium to rayish blue, wet, dense, no no cohesion	GW			NAPL sheen at 14.8' bgs and 20' bgs
-	40	-		GRAVEL no cohes	, wet, black, dense, no plasticity, ion	SW			
-		39.9 5.6		(18-20') C coarse, g plasticity,	GRAVEL with SAND, medium to rayish blue, wet, dense, no no cohesion	GW			
20-				End of Bo	pring				
Boring terminated at 20' bgs due to water and piezometer installation       Riser Stickup: 2.36'         TOC: Top of PVC casing       Riser: 0 - 3' bgs         DTW: Depth to water       Screen: 3 - 20' bgs [Slot Size: 0.010"]         bgs: Below ground surface       Sand Pack: 2 - 20' bgs [Grain Size: WG #1]         AMSL: Above mean sea level       Bentonite Seal: 0 - 2' bgs [Grain Size: 3/8" chips]									

ARM Group LLC Engineers and Scientists			Client: EnviroAnalytics GroupARM Project No.: 150300M-14-3Project Description: Sparrows Point - Parcel B18Site Location: Sparrows Point, MDARM Representative: M. Kedenburg		Soil Bori Piezome Casing/F Borehole Riser/Sc	ng Installation Date eter Installation Date Riser/Screen Type Diameter reen Diameter	: 7/11/2018 : 7/11/2018 : PVC : 2.25" : 1"			
Boring ID: B18-082-SB/PZ (page 1 of 1)				8/PZ of 1)	Checked by: M. Replogle, E.I.T.Drilling Company: Allied Drilling Co.Driller: Ryan SitesDrilling Equipment: Geoprobe 7822DT			Northing (US ft) Easting (US ft) 0-Hr DTW 48-Hr DTW 1.51 ft of LNAPL detected at 48		: 563332.35 : 1456223.58 : 12.00' TOC : 13.56' TOC hours
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESCRIPTIC	Ν	USCS	Π		REMARKS
0	70	- 0.0 1.3 1.0 0.0	No Samples Collected	(0-0.3') G plasticity, (0.3-0.6') plasticity, (0.6-5.5') fine to co to black, o	RAVEL, loose, gray, o no cohesion SILT, loose, gray to ta no cohesion SAND with SILT and arse grained, loose, g dry, no plasticity, no c	dry, no an, dry, no GRAVEL, ray grading ohesion	SW-SM		Bentonite seal	
-	100	101.5 222.1 133.4 730.2		(5.5-9.5') fine, dens pockets, i	SAND with GRAVEL, medium to se, bluish gray with dark amber moist, no plasticity, no cohesion		SW/GW		Sand Pack	Odor from 5.5-20' bgs Low viscosity, dark amber NAPL pockets at 6.25' bgs, 7' bgs, 8' bgs, 9.5' bgs, 11.5' bgs, 12.5' bgs, and 14'
10— - - -	100	1804 287.4 735.3 131.5 219.3 50.5		(9.5-18') ( dense, pa bgs, no p	GRAVEL with SAND, ale brown, moist to we lasticity, no cohesion	oarse, at 10.9'	GP/SW		- 1" PVC Screen	bgs Wet at 10.9' bgs
	100	213.1 159.4 221.0 70.7 172.2		(18-20') S wet, no p	GAND, fine, very dense lasticity, no cohesion	e, black,	SP			NAPL sheen at 19' bgs
20-				End of Bo	pring					
Boring terminated at 20' bgs due to water and piezometer installationRiser Stickup: 2.31'TOC: Top of PVC casingRiser: 0 - 3' bgsDTW: Depth to waterScreen: 3 - 20' bgs [Slot Size: 0.010"]bgs: Below ground surfaceSand Pack: 2 - 20' bgs [Grain Size: WG #1]AMSL: Above mean sea levelBentonite Seal: 0 - 2' bgs [Grain Size: 3/8" chips]										

ARM Group LLC Engineers and Scientists			Client       : EnviroAnalytics Group         ARM Project No.       : 150300M-14-3         Project Description       : Sparrows Point - Parcel B18         Site Location       : Sparrows Point, MD         ARM Representative       : M. Kedenburg		Soil Bor Piezome Casing/I Borehole Riser/So	ing Installation Date eter Installation Date Riser/Screen Type e Diameter creen Diameter	7/12/2018 7/12/2018 PVC 2.25" 1"			
Boring ID: B18-083-SB/PZ (page 1 of 1)				6/PZ	Checked by: M. Replogle, E.I.T.Drilling Company: Allied Drilling Co.Driller: Ryan SitesDrilling Equipment: Geoprobe 7822DT			Northing Easting 0-Hr DT 48-Hr D No LNA	) (US ft) (US ft) W TW PL or DNAPL detected a	563609.39 1456194.21 11.61' TOC 11.06' TOC tt 0 or 48 hours
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval		DESCRIPTION		nscs	Π		REMARKS
0-		-	No Samples	(0-1') SAI	ND with GRAVEL and SIL	LT,	SW/GW		Bentonite seal	
-		4.3	Collected	cohesion (1-2.25')	2.25') SAND with GRAVEL, medium,				- 1" PVC Riser	
-	80	9.3		loose, bla (2.25-3.5	ick, dry, no plasticity, no o GRAVEL with SAND, n	cohesion nedium,	GP		Metal fragments from 1.75-2.75' bgs	
_	4.2 dry, dens				e, black to medium brown no cohesion	n, no / BA\/EI				
5-		0.0		soft to ve	ry firm, black to yellowish oist, low plasticity, cohesi	i red, ive	CL			
-		-								
-	80	0.0 4 5		(6.5-18.2 coarse, w	5') GRAVEL with SAND, i hite to grayish blue, mois	medium to st, dense,				
-	00	1.6		no plastic	ity, no conesion				-Sand Pack	
-		0.0								
10-		75.8								
-		116.1							-1" PVC Screen	Wet at 11.25' bgs
-	80	3901					GW			
-		1139								12.5' bgs and 13.75' bgs
15-		4.0								
-		1257								
-		680.2								
-	100	67.1								Sheen at 18.25'
-		45.2		(18.25-20 gray, wet	)') SAND, medium, black ; , dense, no plasticity, no o	to pale cohesion	SP			bgs
20-		36.7		End of Bo	pring					
Boring terminated at 20' bgs due to water and piezometer installationRiser Stickup: 2.31'TOC: Top of PVC casingRiser: 0 - 3' bgsDTW: Depth to waterScreen: 3 - 20' bgs [Slot Size: 0.010"]bgs: Below ground surfaceSand Pack: 2 - 20' bgs [Grain Size: WG #1]AMSL: Above mean sea levelBentonite Seal: 0 - 2' bgs [Grain Size: 3/8" chips]										

