

RESPONSE AND DEVELOPMENT COMPLETION REPORT

AREA B: SUB-PARCEL A11-1
TRADEPOINT ATLANTIC
SPARROWS POINT, MARYLAND

Prepared For:



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Respectfully Submitted,
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A handwritten signature in black ink that reads "Melissa R. Hritz".

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Revision 0 – April 13, 2021

TABLE OF CONTENTS

1.0	Introduction.....	3
1.1.	Report Purpose	3
1.2.	Project Background.....	4
1.2.1.	Site Description and History.....	4
1.2.2.	Historical Environmental Activities	4
1.2.3.	Phase II Investigation.....	5
1.3.	Site Development and Response Actions.....	5
2.0	Response Activities.....	6
2.1.	Well Abandonment	6
3.0	Site Development Activities	7
3.1.	Pre-Construction Meeting	7
3.2.	Grading and Site Preparation	7
3.3.	Utility Installation	8
3.4.	Fill Materials	8
3.5.	Placement of Sub-base	8
3.6.	Soil Sampling and Disposal	8
3.7.	Dust Control	9
3.8.	Water Management	9
3.9.	Health and Safety	10
3.10.	Notable Occurrences	10
3.11.	Paving.....	10
3.12.	Landscaped Areas	10
3.13.	Vapor Barrier and Venting System	10
3.14.	Institutional Controls (Future Land Use Controls)	11
3.15.	Post Remediation Requirements	11
4.0	Conclusion	13

TABLE OF CONTENTS (CONT.)

FIGURES

Figure 1	Area A & B Parcels.....	Following Text
Figure 2	Development Area	Following Text
Figure 3	Abandoned 1992 Well Locations.....	Following Text

TABLES

Table 1	Dewatering Aqueous Laboratory Data Summary.....	Following Text
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APPENDICES

Appendix A	Reference List	Following Text
Appendix B	Email Communication	Following Text
Appendix C	CHS Request Letter	Following Text
Appendix D	Well Abandonment Records	Following Text
Appendix E	Notice of Completion of Remedial Actions.....	Following Text
Appendix F	Development Photograph Log	Following Text
Appendix G	Quarterly Development Status Updates and Response to Agency Comments	Following Text
Appendix H	Preconstruction Meeting Records.....	Following Text
Appendix I	Trench Plug Documentation	Following Text
Appendix J	Fill Approvals	Following Text
Appendix K	Stockpile Soil Sample Laboratory Reports.....	Following Text
Appendix L	Modified Level D Contractor Certification	Following Text
Appendix M	Landscape Cap Marker Fabric Specification.....	Following Text
Appendix N	Vapor Barrier Specifications and Installation Photographs.....	Following Text

ELECTRONIC ATTACHMENTS

Daily Dust Data Summaries.....	Following Text
Dewatering Aqueous Laboratory Reports	Following Text

1.0 INTRODUCTION

ARM Group LLC (ARM), on behalf of Tradepoint Atlantic, has prepared this Response and Development Completion Report for the portion of the Tradepoint Atlantic property that has been designated as Area A: Sub-Parcel A11-1 (the Site). The full Parcel A11 comprises roughly 102 acres of the approximately 3,100-acre former plant property located as shown on **Figure 1**. Sub-Parcel A11-1 consists of 12.7 acres within the eastern portion of Parcel A11 as shown on **Figure 2**. Outside of the main development area designated as Sub-Parcel A11-1, a temporary easement with an area of approximately 1.3 acres within the Limit of Disturbance (LOD) was utilized to install a force main and pump station to the west.

All documents related to the investigation and development of the sub-parcel are listed in the Reference List in **Appendix A**. Copies of relevant email communication are provided in **Appendix B**.

A Phase II Investigation specific to soil and groundwater conditions was performed for the area surrounding Sub-Parcel A11-1 in accordance with the agency-approved Area A: Parcel A11 Phase II Investigation Work Plan (Revision 1) dated May 18, 2016. The full analytical results and conclusions of the investigation have been presented to the agencies in the Area A: Parcel A11 Phase II Investigation Report (Revision 1) dated May 22, 2020.

Tradepoint Atlantic submitted a letter (**Appendix C**) requesting an expedited remedial plan review to achieve construction deadlines for the proposed development on this Site. The Sub-Parcel A11-1 Response and Development Work Plan (RADWP) (Revision 4) and accompanying Comment Response Letter were submitted on May 28, 2019. A previous revision of the RADWP was approved for implementation by the Maryland Department of the Environment (MDE) on October 15, 2018.

The development of Sub-Parcel A11-1 generally included grading; construction of a 79,000 square foot warehouse building; and paving of parking, laydown areas, and roadways.

1.1. REPORT PURPOSE

The purpose of this Response and Development Completion Report is to document response actions and development activities undertaken in order to secure a No Further Action (NFA) Letter and Certificate of Completion (COC) for the Site. In addition, this report is being submitted in accordance with the requirements outlined in the following agreements:

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

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

The following section (Section 1.2) provides the project background and Section 1.3 provides an overview of the Site development and response action activities. The response actions performed are described in Section 2.0, and conclusions are provided in Section 4.0.

1.2. PROJECT BACKGROUND

1.2.1. Site Description and History

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

The Sub-Parcel A11-1 Development Area consists of 12.7 acres in the eastern portion of Parcel A11 as shown on **Figure 2**. A temporary easement (with an area of approximately 1.3 acres within the LOD) was utilized to install a force main and pump station to the west of the main development area. The Site is zoned Manufacturing Heavy-Industrial Major (MH-IM). The Sub-Parcel A11-1 Development Area was formerly occupied by a Contractor Area. More information regarding the specific historical activities conducted in the sub-parcel can be found in the agency-approved Phase II Investigation Work Plan. All buildings were demolished, and significant vegetation was removed, prior to the start of development activities.

1.2.2. Historical Environmental Activities

Prior to demolition of structures, the Development Area was formerly occupied by the Contractor Area, which contained several features of potential concern, including an earthen oil pit, underground storage tanks (USTs), gas pumps and a pump island, unlabeled drums and containers with evidence of leaking and staining, and a small Coal Tar Area. Numerous features at risk for leaks and releases (drums, tanks, fuel pumps, etc.) were identified in specific contractor areas within various historical reports. The western portion of the Site was formerly used as a spare parts storage yard. Immediately prior to development, the Site was largely vacant with piles of stockpiled materials (soil and/or slag). A Phase I ESA was completed by Weaver Boos Consultants for the entire Sparrows Point property on May 19, 2014. The Phase I ESA identified particular features across the Tradepoint Atlantic property which presented potential risks to the environment. The results of the Phase I ESA are described in more detail in the Sub-Parcel A11-1 RADWP.

The Phase I ESA identified the following REC within the Sub-Parcel A11-1 boundaries:

- Contractor Equipment Storage (REC 16, Finding 256)

Relevant SWMUs and AOCs were also identified as located in Figure 3-1 from the DCC Report. There were no SWMUs or AOCs identified within the Sub-Parcel A11-1 boundary.

1.2.3. Phase II Investigation

A Phase II Investigation specific to soil and groundwater conditions was performed for the area surrounding Sub-Parcel A11-1 in accordance with the agency-approved Area A: Parcel A11 Phase II Investigation Work Plan (Revision 1) dated May 18, 2016. The full analytical results and conclusions of the investigation have been presented to the agencies in the Area A: Parcel A11 Phase II Investigation Report (Revision 1) dated May 22, 2020.

1.3. SITE DEVELOPMENT AND RESPONSE ACTIONS

The Site has been developed for use as a warehouse facility with exterior laydown areas. Development activities generally included grading; construction of a 79,000 square foot building; and paving of parking and laydown areas and roadways. Outside of the main development area, a temporary easement (with an area of approximately 1.3 acres within the LOD) was utilized to install a force main and pump station to the west of the main development area. The temporary utility work outside of the boundary of the Site is not intended to be the basis for the issuance of a NFA or a COC, although the scope of construction is covered by the Sub-Parcel A11-1 RADWP. Subsequent site-use would involve workers in the on-site building, and truck drivers entering and leaving the Site with goods.

The response and development actions approved for protection of human health and the environment at the Site included proper abandonment of wells and piezometers, vapor barrier installation with passive/active venting system, environmental capping, and groundwater monitoring.

2.0 RESPONSE ACTIVITIES

2.1. WELL ABANDONMENT

The 51 non-aqueous phase liquid (NAPL) screening piezometers located within Parcel A11, including numerous piezometers within, or in the immediate vicinity of, the Sub-Parcel A11-1 boundary, were properly abandoned in accordance with COMAR 26.04.04.34 through 36 between October 23 and October 31, 2018, prior to the start of development activities. In addition, three permanent wells (LF-04S and LF-05 located inside the Sub-Parcel A11-1 boundary and LF-03D located just outside the Sub-Parcel A11-1 boundary) were properly abandoned in accordance with COMAR 26.04.04.34 through 36 between October 25 and November 9, 2018 prior to the start of development activities. Permanent well LF-03S (located in close proximity to the development sub-parcel) was discovered in late April 2019 to have been abandoned or destroyed. Five additional wells that were previously unknown (Well Permits BA-92-0987 through BA-92-0991) were discovered within the Sub-Parcel A11-1 boundary during the second quarter of 2019 (see **Figure 3**). One such well was later discovered to have been destroyed, and the other four wells were properly abandoned in accordance with COMAR 26.04.04.34 through 36 on May 1, 2019. There are no remaining piezometers or wells on the sub-parcel.

Abandonment records are provided in **Appendix D**.

3.0 SITE DEVELOPMENT ACTIVITIES

This section presents a summary of the completed development work as well as materials management and other protocols that were followed during the development of Sub-Parcel A11-1 to adequately mitigate potential risks for future uses of the property. The development area is shown in **Figure 2**.

Development activities in support of the Sub-Parcel A11-1 RADWP began in April 2019 with ARCO Murray as the General Contractor. Full-time oversight was performed by an Environmental Professional (EP) provided by Hillis Carnes Engineering Associates (HCEA) during intrusive development activities to ensure compliance with environmental regulations and the development plans, including performing dust monitoring and soil screening services. The Notice of Completion of Remedial Actions letter provided by HCEA (**Appendix E**) states that the environmental cap was constructed in general accordance with the Sub-Parcel A11-1 RADWP. No notable occurrences were recorded during the development work completed under the Sub-Parcel A11-1 RADWP. Therefore, no Daily Field Reports have been included with this Completion Report. Select photos from general development activities are included in **Appendix F**.

Site development activities are discussed in the Quarterly Development Status Updates for the first quarter of 2019 through the fourth quarter of 2019 (**Appendix G**). Utility work performed between February 6, 2019 and March 11, 2019 was completed under the Northern Sewer Work Plan, which was coordinated between Tradepoint Atlantic and the MDE via email in early 2018 and approved for implementation by the MDE on March 12, 2018. A Completion Report for the Northern Sewer Line will be submitted under separate cover. In addition, it should be noted that one day of non-intrusive development work was performed in January 2020. A Quarterly Development Status Update was not prepared for the first quarter of 2020. The following sections provide information not covered in the Quarterly Development Status Updates.

3.1. PRE-CONSTRUCTION MEETING

Prior to any earthwork being conducted on-site, a pre-construction meeting was held to address proper operating procedures for working on-site and handling potentially contaminated material. Records are provided in **Appendix H**.

3.2. GRADING AND SITE PREPARATION

Slag fill from elsewhere on the Tradepoint Atlantic property was placed across the entire site as sub-base beneath capped and landscaped areas. Mass grading was performed across the entire site. Materials that did not exhibit evidence of impacts that were removed during grading activities were stockpiled on Parcel A11, outside the Sub-Parcel A11-1 development boundary. Material with

evidence of impacts was stockpiled and managed as discussed in Section 3.6. No materials left the 3,100 acre property.

3.3. UTILITY INSTALLATION

Excavated material from utility trenches that did not exhibit evidence of impacts was replaced inside utility trenches as backfill. Blast Furnace graded aggregate base (GAB) was used to backfill the utility trenches excavated during the first quarter of 2019. A section of trench was backfilled with slag impacted by naphthalene, as reported to the MDE via an email from Tradepoint Atlantic on July 18, 2018 (**Appendix B**). Trench plugs and geotextile marker fabric were installed in this area in accordance with the referenced email, which was approved by the MDE on July 25, 2019. As requested by the MDE, the locations of these trench plugs were recorded and are shown in **Appendix I**. Trench plugs were also installed in utility trenches running through areas of soil with known NAPL impacts, as specified in the RADWP.

3.4. FILL MATERIALS

The following fill materials were used during the development of Sub-Parcel A11-1:

- #57 Stone from Martin Marietta (used as site backfill), approved by the MDE for use as clean fill on either commercial or industrial land use areas via email on May 16, 2018;
- #10 Stone from Martin Marietta (used as site backfill), approved by the MDE for use as clean fill on either commercial or industrial land use areas via email on May 16, 2018;
- CR-6 Stone from Martin Marietta (used as site backfill), approved by the MDE for use as clean fill on either commercial or industrial land use areas via email on May 16, 2018;
- Clean fill from Haven Street, approved by the MDE via email on October 30, 2018; and
- Topsoil from Old Court Road, approved by the MDE via email on May 25, 2018.

Fill approval documentation is provided in **Appendix J**.

3.5. PLACEMENT OF SUB-BASE

Processed slag aggregate from elsewhere on the Tradepoint Atlantic property was brought to the Site and graded. Mass grading was performed across the entire Site.

3.6. SOIL SAMPLING AND DISPOSAL

Details regarding the sampling and disposal of excavated materials are presented in the Quarterly Status Updates for the first quarter of 2019 through the fourth quarter of 2019 (**Appendix G**).

Soils exhibiting elevated PID readings and odors were detected on several occasions (generally on the eastern portion of the sub-parcel). These soils were segregated and placed on polyethylene sheeting on Parcel A11 (outside the Sub-Parcel A11-1 boundary). The stockpiled soil

(approximately 2,300 cubic yards) was covered with polyethylene sheeting to prevent runoff during rainfall events. In addition, all soil excavated from the designated NAPL areas (as shown on Figure 16 of the Sub-Parcel A11-1 RADWP) in the eastern portion of the sub-parcel was stockpiled on polyethylene sheeting. Utility trenches in these areas were backfilled with stone, and trench plugs were installed in accordance with the Utility Excavation NAPL Contingency Plan.

The results of stockpile sample laboratory testing for all excavated materials tested during the duration of the Sub-Parcel A11-1 development are included in **Appendix K**. The materials were approved by the MDE, via email on February 23, 2021, for placement under a cap on an industrial parcel at the Sparrows Point property. Due to elevated levels of diesel range organics (DRO) and Oil & Grease, the MDE specified that the material must not be placed in an area where it will be in contact with groundwater or near utilities. The material is currently stockpiled on Parcel A11, outside the Sub-Parcel A11-1 development boundary.

3.7. DUST CONTROL

General construction operations, including removal of existing foundations or utilities, soil excavation and transport, soil grading, trenching for utilities, and cap construction activities were performed at the Site. To limit worker exposure to contaminants borne on dust and windblown particulates, dust control measures were to be implemented, if warranted when the above activities were performed. The action level of 3.0 mg/m³ was used for the purpose of determining the need for dust suppression techniques (e.g. watering and/or misting) and/or continuous monitoring during the response and development activities on Site.

During the development activities completed in support of the Sub-Parcel A11-1 RADWP, dust monitoring was performed with three MetOne E-sampler dust monitors. The dust monitors were placed daily upwind of, downwind of, and inside the active work zone. Dust readings were recorded at each monitor at a rate of once per minute. Daily summaries of 15-minute average dust readings are provided as an electronic attachment. Dust control measures were to be implemented if a sustained level above 3.0 mg/m³ was observed. Two instances where the action level of 3.0 mg/m³ were observed during construction activities. However, the instances appeared to be associated with trucks passing near the monitor and were not sustained for longer than three minutes. The Contractor utilized a water truck to mitigate dust generation during the development work operations.

3.8. WATER MANAGEMENT

During development activities in support of the Sub-Parcel A11-1 RADWP, dewatering activities involved pumping accumulated water to an on-site frac tank with primary and secondary carbon filters. An initial water sample was collected from the effluent (after treatment) prior to transporting any water to the Humphreys Creek Wastewater Treatment Plant (HCWWTP). During

active dewatering work, weekly water samples were then collected from the influent (before treatment), mid-fluent (after primary filter only), and effluent (after primary and secondary filters). The samples were analyzed for Oil & Grease, naphthalene, and benzene. Following the receipt of laboratory results, the water was trucked to the HCWWTP. The results of dewatering for Sub-Parcel A11-1 are summarized in **Table 1**. Laboratory reports for samples collected for work completed under the Sub-Parcel A11-1 RADWP are included as an electronic attachment.

3.9. HEALTH AND SAFETY

The contractor was responsible for following safety procedures, including schedule limitations, to control contact with potentially contaminated soil or groundwater. The contractor adopted Modified Level D personal protective equipment (PPE) and had an Occupational Safety and Health Administration (OSHA) Hazardous Waste Operations and Emergency Response (HAZWOPER) trained crew for intrusive activities. The acknowledgement form signed by the site contractor is provided in **Appendix L**.

3.10. NOTABLE OCCURRENCES

No notable occurrences were recorded during the development work completed under the Sub-Parcel A11-1 RADWP. Therefore, no Daily Field Reports have been included with this Completion Report.

3.11. PAVING

Figure 4 shows the distribution of hardscape capped areas within the sub-parcel. As stated in the Notice of Completion of Remedial Actions prepared by HCEA (**Appendix E**), the environmental cap installed during the Sub-Parcel A11-1 development meets the required thicknesses specified in the RADWP and Addendum.

3.12. LANDSCAPED AREAS

Figure 4 shows the distribution of landscape capped areas within the sub-parcel. As stated in the Notice of Completion of Remedial Actions (**Appendix E**), capping in landscaped areas was installed to meet the specifications established in the Sub-Parcel A11-1 RADWP. VCP approved fill was placed as fill beneath landscaped areas. As discussed above in Section 3.4 (Fill Materials), the materials used in landscaped areas were approved by the MDE (**Appendix J**).

The selected marker fabric (see **Appendix M**) meets the specifications given in the RADWP.

3.13. VAPOR BARRIER AND VENTING SYSTEM

A sub-slab vapor barrier with a passive/active venting system was installed below the building footprint in accordance with the Sub-Parcel A11-1 RADWP. Utility trenches for the venting

system conveyance piping were backfilled with slag aggregate ground to #57 size material. The venting system was installed by ARCO. The vapor barrier was installed by ARCO's mechanical subcontractor in accordance with the product manufacturer's recommendations. Periodic site visits were completed by ARM to observe the installation of the venting system and backfilling. Material specifications for the STEGO® vapor barrier products and a photograph log documenting the installation is included in **Appendix N**.

The collection of sub-slab soil gas and indoor air samples has been conducted following the development of Sub-Parcel A11-1. The results of the sampling are presented in the Post-Occupancy Assessment Reports and associated Comment Response Letter, dated April 16, 2020, September 10, 2020, and November 20, 2020, respectively.

3.14. INSTITUTIONAL CONTROLS (FUTURE LAND USE CONTROLS)

Long-term conditions related to future use of the Site will be described within the No Further Action Letter (NFA) and COC. These conditions are anticipated to include the following:

- A restriction that limits the use of the property to industrial land use.
- A restriction prohibiting the use of groundwater for any purpose at the Site and a requirement to characterize, containerize, and properly dispose of groundwater in the event of deep excavations encountering groundwater.
- Notice to MDE prior to any future soil disturbance activities at the Site below areas designated for engineering controls. This written notice will be required at least 30 days prior to any planned excavation activities at the Site that will penetrate through the cap.
- Requirement for a HASP in the event of any future excavations at the Site.
- Complete appropriate characterization and disposal of any future material excavated from beneath the cap in accordance with applicable local, state and federal requirements.
- Implementation of inspection procedures and maintenance of the containment remedies as outlined the following section.

The responsible party will file the above deed restrictions as defined by the MDE VCP in the NFA and COC. The soil disturbance and maintenance requirements will apply to the entire Site. The entire Site will be subject to the industrial use groundwater use restrictions.

3.15. POST REMEDIATION REQUIREMENTS

Post remediation requirements will include compliance with the conditions specified in the NFA, COC, and the deed restrictions recorded for the Site. Deed restrictions will be recorded within 30 days after receipt of the final NFA.

Maintenance requirements will include inspection and maintenance of landscape and hardscape capped areas to minimize degradation of the cap and exposure to the underlying soil. Specific inspection protocols and maintenance schedules will be addressed in an Institutional Controls and Operations & Maintenance Plan, specific to Sub-Parcel A11-1, to be submitted under separate cover.

The responsible party will perform cap maintenance inspections, perform maintenance of the cap, and retain cap inspection records. Areas of the cap that have degraded will be repaired in accordance with the Institutional Controls and Operations & Maintenance Plan. The MDE shall be notified within ten business days of any repairs that are the result of cap degradation. The notification will include documentation of the conditions being repaired and the location of the repair.

In addition, the MDE will be provided with a written notice at least 30 days prior to any planned excavation activities at the Site that will penetrate through the cap. Written notice of planned excavation activities will include the proposed date(s) for the excavation, location of the excavation, health and safety protocols (as required), clean fill source (as required), and proposed characterization and disposal procedures.

In addition to cap inspection and maintenance, continuing periodic groundwater and indoor air and sub-slab soil gas monitoring has been required for Sub-Parcel A11-1. The results of groundwater monitoring performed to date were presented in the Monitoring Network Letter Report for the Eastern Groundwater Delineation on Area A: Parcel A11 (dated March 5, 2020). Further monitoring will be incorporated into future site-wide groundwater monitoring plans. Sub-Slab Soil Gas and Indoor Air will be monitored in accordance with the Sub-Slab Soil Gas and Indoor Air Monitoring Plan for Area A: Sub-Parcel A11-1 dated September 13, 2019. The results of sampling completed to date are presented in the Sub-Parcel A11-1 Building Occupancy Assessment dated October 18, 2019 and in the Sub-Parcel A11-1 Post-Occupancy Sampling Letter Reports and Comment Response Letter dated April 16, 2020, September 10, 2020, and November 20, 2020, respectively.

4.0 CONCLUSION

Between February 2019 and January 2020, response and development actions were conducted as part of the redevelopment of the Site identified as Sub-Parcel A11-1. The remedial actions specified in the RADWP included: abandonment of temporary groundwater collection points and wells, vapor barrier installation; capping of building and parking areas with paving; capping of landscaped areas and utility corridors within the cap with clean fill; and implementation of groundwater monitoring and institutional controls.

A Notice of Completion of Remedial Actions, prepared by the EP, a Professional Engineer registered in Maryland, is enclosed in **Appendix E** to certify that the response actions have been completed in accordance with the requirements described in the RADWP and Addendum, and the Site is suitable for occupancy and use.

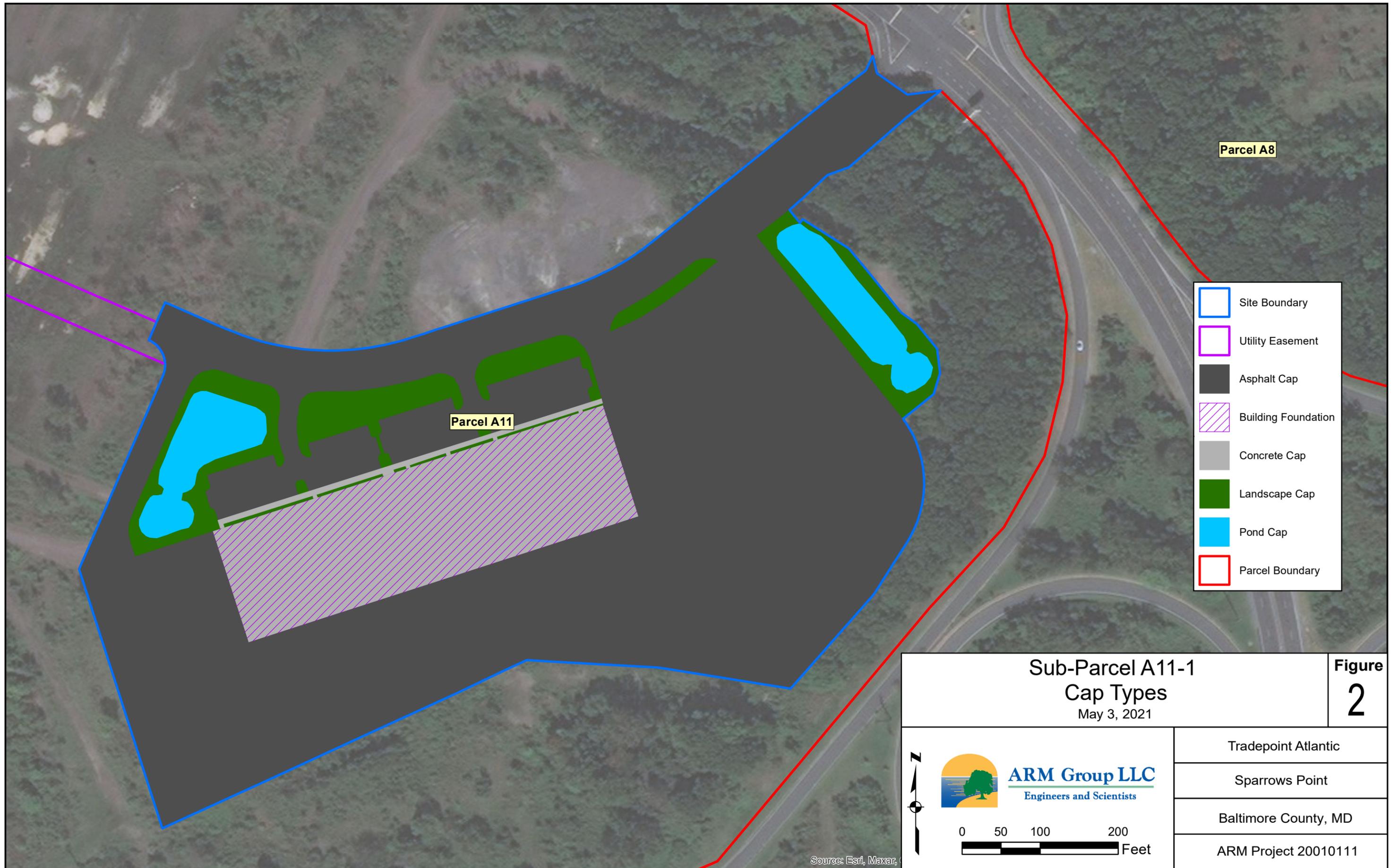
As a result of the information contained herein, it has been demonstrated that the response and development actions have been completed in accordance with the approved RADWP and Addendum. With construction of the containment remedy (caps) in conjunction with redevelopment of the Site, the applicable requirements for obtaining a NFA Letter and COC for this Site have been fulfilled. Therefore, Tradepoint Atlantic is respectfully requesting issuance of a NFA Letter for the Site at this time. It is ARM's understanding that Tradepoint Atlantic will record the NFA Letter and the deed restrictions identified in the RADWP, including the Institutional Controls and Operations & Maintenance Plan discussed in Section 3.14, within 30 days after receipt of the final NFA Letter. Proof of recordation will be submitted to MDE upon receipt from Baltimore County.

FIGURES



- Site Boundary
- Parcel Boundaries
- Sub-Parcel A11-1 Boundary
- Private Property

Tradepoint Atlantic Area A and Area B Parcels October 24, 2018		Figure 1
ARM Group Inc. Engineers and Scientists		Tradepoint Atlantic Sparrows Point Baltimore County, MD
 		Area A: Project 200101 Area B: Project 200102 A11-1: Project 20010111



Parcel A8

Parcel A11

- Site Boundary
- Utility Easement
- Asphalt Cap
- Building Foundation
- Concrete Cap
- Landscape Cap
- Pond Cap
- Parcel Boundary

Sub-Parcel A11-1

Cap Types

May 3, 2021

Figure

2



ARM Group LLC
Engineers and Scientists

0 50 100 200
Feet

Tradepoint Atlantic

Sparrows Point

Baltimore County, MD

ARM Project 20010111

Source: Esri, Maxar,



Parcel A8

Parcel A11

-  Abandoned 1992 Wells
-  Sub-Parcel A11-1 Site Boundary
-  Utility Easement
-  Parcel Boundary

Unknown Historical Wells
Permit IDs: BA-92-0987 through BA-92-0991

**Sub-Parcel A11-1
Abandoned Well Locations**

August 22, 2019

**Figure
3**



ARM Group Inc.
Engineers and Scientists

0 50 100 200
Feet

Tradepoint Atlantic

Sparrows Point

Baltimore County, MD

ARM Project 20010111

Source: Esri, DigitalGlobe,

TABLES

Table 1 - Tradepoint Atlantic - A-11 Dewatering Results (all results in mg/L)

Sample Date	Location	Oil & Grease	Benzene	Naphthalene
4/17/2019	Effluent	ND	ND	0.0016
	Mid-Fluent	ND	ND	0.0059
	Influent	NT	NT	NT
4/23/2019	Effluent	ND	ND	ND
	Mid-Fluent	ND	ND	0.011
	Influent	ND	ND	ND
4/30/2019	Effluent	ND	ND	ND
	Mid-Fluent	ND	ND	0.0031
	Influent	ND	ND	ND
5/7/2019	Effluent	ND	ND	ND
	Mid-Fluent	ND	ND	ND
	Influent	ND	ND	ND
5/13/2019	Effluent	ND	ND	ND
	Mid-Fluent	ND	ND	ND
	Influent	2.3	0.026	0.0037
5/21/2019	Effluent	ND	ND	ND
	Mid-fluent	ND	0.71	0.041
	Influent	3	9.5	2.9
5/30/2019	Effluent	ND	ND	ND
	Mid-fluent	ND	0.33	0.013
	Influent	2.5	8.3	3.2
6/6/2019	Effluent	ND	ND	ND
	Mid-Fluent	ND	0.031	ND
	Influent	ND	0.56	0.017
7/26/2019	Effluent	ND	ND	ND
	Mid-Fluent	ND	ND	ND
	Influent	3.4	2.4	1.8
7/31/2019	Effluent	ND	ND	ND
	Mid-fluent	ND	ND	ND
	Influent	2.6	3.2	1.6
9/18/2019	Effluent	ND	ND	ND
	Mid-fluent	ND	ND	ND
	Influent	2.7	0.0019	0.033

Table 1 - Tradepoint Atlantic - A-11 Dewatering Results (all results in mg/L)

Sample Date	Location	Oil & Grease	Benzene	Naphthalene
9/23/2019	Effluent	ND	ND	ND
	Mid-fluent	ND	ND	ND
	Influent	ND	0.047	0.019
9/30/2019	Effluent	ND	ND	ND
	Mid-fluent	ND	ND	ND
	Influent	3.2	0.036	0.016
10/9/2019	Effluent	ND	ND	ND
	Mid-fluent	ND	ND	ND
	Influent	ND	0.55	0.066
10/17/2019	Effluent	ND	ND	ND
	Mid-fluent	ND	ND	ND
	Influent	ND	0.001	ND
10/21/2019	Effluent	ND	ND	ND
	Mid-fluent	ND	0.042	ND
	Influent	ND	3.4	1.7
10/29/2019	Effluent	ND	ND	ND
	Mid-fluent	ND	0.015	ND
	Influent	2.2	1	0.33
11/7/2019	Effluent	ND	ND	ND
	Mid-fluent	ND	0.0025	ND
	Influent	ND	0.1	0.026
11/11/2019	Effluent	ND	ND	ND
	Mid-fluent	ND	0.0086	ND
	Influent	ND	0.033	0.0036

ND = Not Detected Above the Laboratory's Quantitative Limit

NT = Not Tested

APPENDIX A

Reference List

Sub-Parcel A11-1

- Weaver Boos Consultants (2014). *Phase I Environmental Site Assessment: Former RG Steel Facility*. Final Draft. May 19, 2014.
- ARM Group, Inc. (2016). *Phase II Investigation Work Plan, Area A: Parcel A11*. Revision 1. May 18, 2016.
- ARM Group, Inc. (2017). *Utility Excavation NAPL Contingency Plan*. Revision 4. June 19, 2017.
- ARM Group, Inc. (2018). *Phase II Investigation Report Area A: Parcel A11*. Revision 1. May 22, 2020.
- ARM Group, Inc. (2018). *Response and Development Work Plan Area A: Sub-Parcel A11-1*. Revision 1. September 26, 2018.
- ARM Group, Inc. (2019). *Response and Development Work Plan Area A: Sub-Parcel A11-1*. Revision 4. May 28, 2019.
- (Approval to proceed with development was given following review of Revision 1, and final approval of the RADWP was given following review of Revision 2.)*
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- ARM Group, Inc. (2019). *Quarterly Development Status Update: Third Quarter 2019, Area A: Sub-Parcel A11-1*. October 30, 2019.
- ARM Group, Inc. (2020). *Quarterly Development Status Update: Fourth Quarter 2019, Area A: Sub-Parcel A11-1*. January 27, 2020.
- ARM Group LLC (2020). *Post-Occupancy Assessment Report: Indoor Air & Soil Gas Sampling, Area A: Sub-Parcel A11-1*. April 16, 2020.

Reference List

Sub-Parcel A11-1

ARM Group LLC (2020). *Comment Response Letter – Post-Occupancy Assessment Report: Indoor Air & Soil Gas Sampling, Area A: Sub-Parcel A11-1*. November 20, 2020.

APPENDIX B

From: [Taylor Smith](#)
To: [Melissa Replogle Hritz](#)
Subject: FW: Risk Assessment - Northern Sewer Plans
Date: Thursday, March 4, 2021 2:22:19 PM
Attachments: [image001.png](#)
[image004.png](#)
[image005.png](#)
[image006.png](#)
[image007.png](#)
[BORING PLAN.PDF](#)
[Geotech Boring Logs \(excluding B6-2 and A11\).pdf](#)
[Fig.GW-1 - VOC Exceedances.pdf](#)
[Table 13 - Cumulative Vapor Intrusion Comparison.pdf](#)

Taylor R. Smith, P.E.
Project Engineer II

ARM Group LLC

Phone: 410-290-7775 (x 2007)
Cell: 443-340-1248

From: Taylor Smith <tsmith@armgroup.net>
Sent: Friday, January 12, 2018 3:05 PM
To: Pete Haid <phaid@tradepointatlantic.com>; James Calenda <jcalenda@enviroanalyticsgroup.com>
Cc: Neil Peters <npeters@armgroup.net>; Eric Magdar <emagdar@armgroup.net>; Michael Bender <mbender@armgroup.net>
Subject: RE: Risk Assessment - Northern Sewer Plans

Pete,

We have developed a preliminary approach for the Northern Sewer Plan project. There are a few items presented in this email for your consideration.

We agreed previously to eliminate the sewer alignments in A11 and B6-2 from the overall scope of work for this project. This has allowed us to reach a SLRA exposure duration of 80 days.

Please note that some data included in this SLRA has not yet been validated, so the overall results may change slightly but any changes wouldn't be expected to be significant (+/- 5 days)

We have Phase II soil boring and test pit information available for large portions of the project, but there are a few gaps along the alignments. The Phase II borings and test pits are shown on figures available for download:
[Phase II Boring Figures](#)

To fill in some of the gaps along the alignments, we think it would be beneficial to include a discussion of the geotechnical borings completed by Hillis-Carnes. The relevant logs are attached to this email for reference – please note that we do not have logs for B-4A, B-7, or B-8 (pictured on the attached boring plan). The positions of the geotechnical borings for which we have logs are shown on figures available for download:
[Geotechnical Boring Figures](#)

Here are a few considerations:

- The geotechnical borings will not provide a representation of risk because analytical samples were not collected. However, they are a good screening tool to show that NAPL is not likely to be encountered along the alignments.
- We are not overly concerned with the elevated PID results in some geotechnical borings.
- There were no sampling plan targets identified on the 5000, 5100, or 5500 sets of historical drawings within the gaps along the alignments. Given the biased sampling approach, we wouldn't expect soil conditions in the gaps to be any worse than the stretches where we already have data.

We are recommending that we try to convince the MDE that we can complete the RADWP using the risk assessment as is (80 days), because any additional analytical soil data obtained within the gaps would not be expected to be worse than the areas where we already have data. This approach is supported by the geotechnical borings which fill in some of our data gaps and do not indicate the likely presence of NAPL. If the agencies insist that we need more data along the gaps, we would try to complete this work ASAP and outside of the scope of a standard Work Plan so that an additional approval process would not be required. We could also argue that we only need to sample for manganese since it is the primary driver of risk for the Construction Worker.

NOTE:

We identified one significant issue which will need to be dealt with along the segment near the northern boundary of Parcel A10. There are chlorinated ethenes (primarily PCE/TCE) in groundwater below Parcel A10. These impacts are documented in the Parcel A10 Phase II Investigation Report, but this report has not yet been submitted to the agencies so they may not be aware of the PCE/TCE impacts. Although the most significant impacts are further to the south, there are still concerning levels of VOCs in groundwater at the northern end of Parcel A10. As indicated in Figure GW-1 and Table 13 (attached) the levels of PCE/TCE at location A10-027-PZ are elevated and will lead to a vapor intrusion concern, particularly since the trench worker box model is more conservative than the vapor intrusion screening levels used for indoor air. The sewer lines in the vicinity of A10-027-PZ are proposed to be installed to a depth of approximately -4 feet amsl; the static groundwater elevation is roughly 5 to 6 feet amsl. Therefore, the construction operations will need to deal with ~10 feet of contaminated groundwater, in addition to addressing inhalation risks related to these VOCs.

We will need to address both of these concerns to facilitate work in this area.

Please let us know your thoughts.

Thank you,

Taylor R. Smith

Project Engineer

ARM Group Inc.

Phone: 410-290-7775 (x2007)

Cell: 443-340-1248

From: Pete Haid [<mailto:phaid@tradepointatlantic.com>]

Sent: Thursday, January 04, 2018 5:39 PM

To: James Calenda; Taylor Smith

Cc: Neil Peters; Eric Magdar; Michael Bender

Subject: RE: Risk Assessment - Northern Sewer Plans

James/Taylor:

Please proceed with putting together a work plan that excludes A11 and B6-2. The northern sewer project has become a high priority.

I recommend that a drawing and a high level SLRA summary be put together quickly and presented to the MDE before we put too much time into a work plan. I'm concerned that we could lose time finishing a complete work plan and the MDE will come back wanting more borings or a different approach. We should try to get some kind of consensus up front if we can.

We will also have to add the B6-2 sewer section to the B6-2 work plan. I am working on getting an updated schedule.

Please let me know what you think.

Thanks.

Pete

From: Michael Bender [<mailto:mbender@armgroup.net>]
Sent: Tuesday, December 19, 2017 1:16 PM
To: Pete Haid <phaid@tradepointatlantic.com>; James Calenda <icalenda@enviroanalyticsgroup.com>
Cc: Neil Peters <npeters@armgroup.net>; Eric Magdar <emagdar@armgroup.net>; Taylor Smith <tsmith@armgroup.net>
Subject: RE: Risk Assessment - Northern Sewer Plans

Hi Pete and James,

Taylor ask me to run a risk assessment for the Northern Sewers excluding A11 and B6-2 Retail locations. I did not include the composite worker assessment as it is not relevant for this project since utility trenches need to be backfilled with approved materials.

Lead > 10,000 mg/kg: None

DRO > 6,200 mg/kg: None

GRO > 6,200 mg/kg: None

OG > 6,200 mg/kg:

- A7-001-SB-8: 14,400 mg/kg
- GRY-007-SB-1: 7,690 mg/kg

Borings with evidence of NAPL in cores:

- A10-006-SB
- A7-001-SB

Construction (250 day)

- Surface: Dermal HI of 2 (Thallium/Vanadium), Nervous HI of 4 (Manganese)
- Subsurface: Dermal HI of 2 (Thallium/Vanadium), Nervous HI of 4 (Manganese)
- Pooled: Dermal HI of 2 (Thallium/Vanadium), Nervous HI of 3 (Manganese)

The limiting surface manganese allows 80 days of intrusive work

So in summary the max allowable duration jumps from 20 days to 80 days when excluding the A11 and B6-2 locations. Removing these locations also removes most of the identified DRO/OG and NAPL issues.

Let us know if you have any questions or concerns.

Thank you,

Michael D. Bender
GIS Analyst



ARM Group Inc.
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ARM Group Inc.

www.armgroup.net

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From: Taylor Smith
Sent: Friday, December 15, 2017 12:50 PM
To: Pete Haid; James Calenda
Cc: Michael Bender; Neil Peters; Eric Magdar
Subject: Risk Assessment - Northern Sewer Plans

Hi Pete and James,

Please see the completed risk assessment below for the Northern Sewer Plans.

We used a 300 foot buffer as shown on the attached figure. Using a 400 buffer would include additional elevated naphthalene data in Parcel A11.

The initial cut is not very promising - we may need to rethink this approach somewhat.

Taylor R. Smith

Project Engineer
ARM Group Inc.
Phone: 410-290-7775 (x2007)
Cell: 443-340-1248

From: Michael Bender
Sent: Wednesday, December 13, 2017 11:39 AM
To: Taylor Smith
Subject: Northern Sewer Risk Analysis

Here's the link to the Northern Sewer Risk Analysis. I included test pits but they can easily be removed if necessary. I included non-validated database data that is supposed to be validated but hasn't been yet. So we may want to update this whenever we get that data validated. [It won't be expected to change significantly]

Multiplied the total length of the sewer and by 25 like we discussed to get the area (17.9 acres). We can discuss any issues or changes that may be wanted. [changing area would increase duration, we can play with the numbers a little bit within reason]

Lead > 10,000 mg/kg: None

DRO > 6,200 mg/kg:

- A11-057-SB-5: 9,370 mg/kg
- A11-018-SB-1: 8,610 mg/kg
- A11-018-SB-10: 7,750 mg/kg
- A11-024-SB-9: 7,640 mg/kg
- B22-152-SB-6: 6,610 mg/kg
- A11-024-SB-10: 6,290 mg/kg

GRO > 6,200 mg/kg:

- None

OG > 6,200 mg/kg:

- A11-057-SB-5: 50,600 mg/kg
- A11-018-SB-10: 35,800 mg/kg
- A11-018-SB-1: 26,600 mg/kg
- A11-018-SB-8: 26,100 mg/kg
- A11-024-SB-9: 21,300 mg/kg
- A7-001-SB-8: 14,400 mg/kg
- GRY-007-SB-1: 7,690 mg/kg
- A11-021-SB-17: 7,310 mg/kg

Borings with Evidence of NAPL in cores:

A10-006-SB
A11-003-SB
A11-018-SB

A11-057-SB
A7-001-SB
B22-116-SB
B22-119-SB
B22-152-SB
B6-056-SB

Composite Worker

- N/A

Construction (250 day)

- Surface: Dermal HI of 2 (Thallium/Vanadium), Nervous HI of 5 (Manganese)
- Subsurface: Dermal HI of 2 (Thallium/Vanadium), Respiratory HI of 4 (Naphthalene), Nervous HI of 8 (Manganese)
- Pooled: Dermal HI of 2 (Thallium/Vanadium), Respiratory HI of 2 (Naphthalene), Nervous HI of 7 (Manganese)

The limiting subsurface manganese only allows 20 days of intrusive work

From: James Calenda <jcalenda@enviroanalyticsgroup.com>
Sent: Thursday, July 25, 2019 3:27 PM
To: Neil Peters <npeters@armgroup.net>; Taylor Smith <tsmith@armgroup.net>
Subject: FW: A11-1 - Trench Backfill

FYI

From: Jennifer Sohns -MDE- <jennifer.sohns@maryland.gov>
Sent: Thursday, July 25, 2019 3:21 PM
To: Pete Haid <phaid@tradepointatlantic.com>
Cc: Barbara Brown -MDE- <barbara.brown1@maryland.gov>; Mark Mank -MDE- <mark.mank@maryland.gov>; Ruth Prince (prince.ruth@epa.gov) <prince.ruth@epa.gov>; P. G Erich Weissbart (weissbart.erich@epa.gov) <weissbart.erich@epa.gov>; James Calenda <jcalenda@enviroanalyticsgroup.com>; Matthew Newman <mnewman@tradepointatlantic.com>
Subject: Re: A11-1 - Trench Backfill

Pete,

Based on discussions at today's meeting at MDE offices and review of the attachment, MDE approves moving forward with this plan to install trench plugs on either end of the impacted slag filled utility trench. It is understood that this area is part of the planned parking lot and will be paved as per the RDWP for this parcel. Details regarding this work must be included in the Response and Development Completion Report.

Let me know if you have any questions.

Thank you,
Jennifer Sohns

On Thu, Jul 18, 2019 at 4:16 PM Pete Haid <phaid@tradepointatlantic.com> wrote:

Barbara:

Attached please find the A11-1 Drainage Area Drawing ("A11-1 Trench (Backfill) Drawing 7-17-19"). This drawing depicts the section of trench where the impacted blast furnace slag was placed. This figure also shows where a sample of the slag was taken on July 11, 2019. The slag was analyzed for naphthalene. Attached please find the results of this sampling event; the naphthalene concentration is 110 ppm.

There is an estimated 33 yd³ of impacted material.

TPA proposes to install additional trench plugs at either end of the trench section containing this material. In addition, a geotextile marker fabric will be installed over the section of trench containing this material.

Thank you for considering this proposal.

Pete

Peter Haid

Senior Director of Environmental

TRADEPOINT ATLANTIC

1600 Sparrows Point Boulevard

Baltimore, Maryland 21219

T 443.649.5055 C 732.841.7935

phaid@tradepointatlantic.com



--

Jennifer Sohns, Project Manager
Land and Materials Administration
Maryland Department of Environment - VCP
410-537-4472

[Click here](#) to complete a three question customer experience survey.

Keith Progin

From: Jennifer Sohns -MDE- <jennifer.sohns@maryland.gov>
Sent: Tuesday, February 23, 2021 2:14 PM
To: Keith Progin
Cc: Barbara Brown -MDE- (barbara.brown1@maryland.gov); Matthew Newman (mnewman@tradepointatlantic.com)
Subject: Re: TPA_A11-1_Impacted Stockpile

CAUTION: External Email.

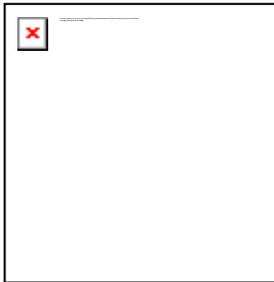
Keith,

These soils are approved for use under a cap on an industrial parcel. Because of the elevated DRO and Oil & Grease detections, the material must not be placed in an area where it will be in contact with groundwater or near utilities. Please let me know if you have any questions.

Thank you,

Because of the COVID-19 virus and the need for safety precautions, many state employees are working remotely, including myself. During this period the best way to contact me is via email or to leave a voicemail at my direct line and allow me to return your call.

In addition to a mailed hard copy, please send digital copies of reports via email, if possible.



Jennifer Sohns
Project Manager
Land Management Administration
Maryland Department of the Environment
1800 Washington Boulevard
Baltimore, Maryland 21230
jennifer.sohns@maryland.gov
410-537-4472 (O)
[Website](#) | [Facebook](#) | [Twitter](#)

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On Fri, Oct 23, 2020 at 11:23 AM Keith Progin <kprogin@hcea.com> wrote:

Barbara,

During the development activities associated with A11-1 (Aluma/BrandSafeway), approximately 2,300 cu yds of soils exhibiting odors and/or elevated PID readings were segregated and stockpiled. HCEA collected 2 composite samples and 4 grab samples from the stockpiled soil. Please see the attached package that includes the laboratory report and a comparison table.

TPA is requesting using this material as fill beneath a cap on an industrial parcel. Please advise.

Thanks!

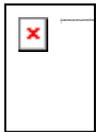
Keith Progin | Senior Environmental Project Manager

HILLIS-CARNES ENGINEERING ASSOCIATES

READ ABOUT OUR COVID-19 PREPAREDNESS [HERE](#)

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Keith Progin

From: Barbara Brown -MDE- <barbara.brown1@maryland.gov>
Sent: Thursday, March 7, 2019 3:33 PM
To: Keith Progin
Cc: Jennifer Sohns -MDE-; phaid@tradepointatlantic.com; Matthew Newman (mnewman@tradepointatlantic.com)
Subject: Re: TPA - A-11 - North Sewer Line _2-27-19 Event

Hello Keith

TPA may complete the installation of the sewer pipe, backfill the trench, all water must be pumped into frac tank and treated as outlined. The Department may required additional delineation work and/or monitoring wells in this area in the future.

If you have any questions please contact me.

Barbara Brown
MDE Project Coordinator

On Thu, Mar 7, 2019 at 2:55 PM Keith Progin <kprogin@hcea.com> wrote:

Following the initial observation of an oily substance entering the excavation of the northern sewer line at A-11 (2-27-19), the contractor over-excavated the area in which the substance appeared to originate. The contractor then ceased work in this area to allow further evaluation. HCEA used absorbent pads to remove any potential product from the excavation and continued to monitor.

Small diameter globules continued to enter the excavation. However, the globules were limited in number and the area appeared to be localized. On 3-1-19, HCEA placed absorbent pads to remove any product. After allowing the water to rest over the weekend, a relatively minor sheen was observed on the surface water on 3-4-19. On this same date, a water sample was collected and submitted to the laboratory for VOC analyses. Following the sample collection, absorbent pads were once again placed to remove any potential product. HCEA has not observed NAPL (oily substance and/or globules) entering the excavation during the week of 3/4/19.

Based on the laboratory analyses (see attached), since the source of the NAPL has been excavated and removed from the trench, and since NAPL no longer appears to be entering the excavation, HCEA is requesting that the trench be backfilled. Please see the attached photos from 3/6/19. Please advise.

Thanks!

Keith Progin | Project Manager, Environmental Division
HILLIS-CARNES ENGINEERING ASSOCIATES

From: Keith Progin
Sent: Monday, March 4, 2019 11:00 AM
To: Jennifer Sohns -MDE-
Cc: Barbara Brown -MDE-
Subject: Re: TPA - A-11 - North Sewer Line _2-27-19 Event

The contractor has stopped work in the area while we investigate. We are collecting a water sample today for analysis. Later this week we are planning to pump the water and dig back in the area of concern to see if we can remove the source.

Sent from my iPhone

On Mar 4, 2019, at 10:46 AM, Jennifer Sohns -MDE- <jennifer.sohns@maryland.gov> wrote:

Hey Keith,

What is the status of this work?

Thanks,

Jennifer

On Thu, Feb 28, 2019 at 4:01 PM Jennifer Sohns -MDE- <jennifer.sohns@maryland.gov> wrote:

Hi Keith,

I know you spoke with Barbara yesterday about what was found on A11 while installing sewer lines. Could you just add a brief write up to this email chain so I have documented for now what was done to deal with the oily water and any soil that was removed? It will of course be in the completion report but that won't be for a while so a brief write up would be helpful.

Thanks,

Jennifer

On Wed, Feb 27, 2019 at 2:10 PM Keith Progin <kprogin@hcea.com> wrote:

Per our conversation this morning, please see the attached plan showing the approximate location of the excavation with observed sheen and oily substance entering excavation. I've attached pictures of the initial observation and a follow-up picture after soil was removed.

The excavation has been monitored throughout the day and product has not been observed entering the excavation. The contractor plans on leaving the excavation open overnight and re-evaluating in the morning.

Thanks!

Keith Progin | Project Manager, Environmental Division

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--

Jennifer Sohns

Maryland Department of Environment

Land Management - VCP

410-537-4472

--

Jennifer Sohns

Maryland Department of Environment

Land Management - VCP

410-537-4472

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--

Barbara Brown
MDE-LRP-VCP Section Head
direct 410 537 3212
general 410 537 3493

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APPENDIX C



**TRADEPOINT
ATLANTIC**

1600 Sparrows Point Boulevard
Baltimore, Maryland 21219

September 20, 2018

Maryland Department of Environment
1800 Washington Boulevard
Baltimore MD, 21230

Attention: Ms. Barbara Brown

Subject: Request to Enter Temporary CHS Review
Tradepoint Atlantic Parcel A11-1

Dear Ms. Brown:

The conduct of any environmental assessment and cleanup activities on the Tradepoint Atlantic property, as well as any associated development, is subject to the requirements outlined in the following agreements:

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

On September 11, 2014, Tradepoint Atlantic submitted an application to the Maryland Department of the Environment's (Department) Voluntary Cleanup Program (VCP).

In consultation with the Department, Tradepoint Atlantic affirms that it desires to accelerate the assessment, remediation and redevelopment of certain sub-parcels within the larger site due to current market conditions. To that end, the Department and Tradepoint Atlantic agree that the Controlled Hazardous Substance (CHS) Act (Section 7-222 of the Environment Article) and the CHS Response Plan (COMAR 26.14.02) shall serve as the governing statutory and regulatory authority for completing the development activities on Parcel A11-1 and complement the statutory requirements of the Voluntary Cleanup Program (Section 7-501 of the Environment Article). Upon submission of a Site Response and Development Work Plan and completion of the remedial activities for the sub-parcel, the Department shall issue a "No Further Action" letter upon a recordation of an environmental covenant describing any necessary land use controls for the specific sub-parcel. At such time that all the sub-parcels within the larger parcel have completed remedial activities, Tradepoint Atlantic shall submit to the Department a request for issuing a Certificate of Completion (COC) as well as all pertinent information concerning completion of remedial activities conducted on the parcel. Once the VCP has completed its review of the submitted information it shall issue a COC for the entire parcel described in Tradepoint Atlantic's VCP application.



**TRADEPOINT
ATLANTIC**

1600 Sparrows Point Boulevard
Baltimore, Maryland 21219

Alternatively, TradePoint Atlantic or other entity may elect to submit an application for a specific sub-parcel and submit it to the VCP for review and acceptance. If the application is received after the cleanup and redevelopment activities described in this work plan are implemented and a No Further Action letter is issued by the Department pursuant to the CHS Act, the VCP shall prepare a No Further Requirements Determination for the sub-parcel.

If TradePoint Atlantic or other entity has not carried out cleanup and redevelopment activities described in the work plan, the cleanup and redevelopment activities may be conducted under the oversight authority of either the VCP or the CHS Act, so long as those activities comport with this work plan.

Engineering and institutional controls approved as part of this Site Response and Development Work Plan shall be described in documentation submitted to the Department demonstrating that the exposure pathways on the sub-parcel are addressed in a manner that protects public health and the environment. This information shall support TradePoint Atlantic's request for the issuance of a COC for the larger parcel.

Please do not hesitate to contact TradePoint Atlantic for further information.

Thank you,

Peter Haid

Senior Director of Environmental
TRADEPOINT ATLANTIC
1600 Sparrows Point Boulevard
Baltimore, Maryland 21219
T 443.649.5055 C 732.841.7935
phaid@tradepointatlantic.com

APPENDIX D

Well/Piezometer Abandonment Form

Well/Piezometer ID: A11-003-PZ

General Project Information: SPT

Client: EAG

Site Location: Sparrows Point, MD

Parcel ID: A11

Abandonment Date: 10/25/18

Abandonment Contractor: Allied

- Abandonment Method (circle appropriate):
1. PVC → Pulled / Split / Perforated / Left-In-Place
 2. Abandoned → Grout / Bentonite Chips

Field Equipment: Grapple 77DT, Heron O/W Probe

ARM Representative(s): M. Kedenburg

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): <u>14.8'</u>	Depth to Water (TOC): <u>4.73'</u>
Measured: 14.5' <u>14.5'</u>	Depth to NAPL (TOC): <u>no DNAPL/LNAPL</u>

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

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

Additional Comments (if any):



ARM Group Inc.
Earth Resource Engineers and Consultants
 9175 Guilford Road - Suite 310
 Columbia, Maryland 21046
 (410) 290-7775 FAX: (410) 290-7775

Well/Piezometer Abandonment Form

Well/Piezometer ID: All-014-PZ

General Project Information: SPT

Client: EAG

Site Location: Sparrows Point, MD

Parcel ID: All

Abandonment Date: 10/24/18

Abandonment Contractor: Allied

Abandonment Method (circle appropriate):

1. PVC → Pulled / Split / Perforated / Left-In-Place

2. Abandoned → Grout / Bentonite Chips

Field Equipment: Geoprobe 77DT, Heron B/W Probe

ARM Representative(s): M. Kedenburg

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): <u>27.20</u>	Depth to Water (TOC): <u>7.76'</u>
Measured: <u>23.86'</u>	Depth to NAPL (TOC): <u>No DNAPL/LNAPL</u>

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

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

Additional Comments (if any):



ARM Group Inc.
Earth Resource Engineers and Consultants
 9175 Guilford Road - Suite 310
 Columbia, Maryland 21046
 (410) 290-7775 FAX: (410) 290-7775

Well/Piezometer Abandonment Form

Well/Piezometer ID: A11-015-PZ

General Project Information: SPT

Client: EAG

Site Location: Sparrows Point, MD

Parcel ID: A11

Abandonment Date: 10/24/18

Abandonment Contractor: Allied

Abandonment Method (circle appropriate):

1. PVC → Pulled / Split / Perforated / Left-In-Place

2. Abandoned → Grout / Bentonite Chips

Field Equipment: Geoprobe 77DT, Heron O/W Probe

ARM Representative(s): Mr. Kodonov

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): <u>17.03'</u>	Depth to Water (TOC): <u>4.07'</u>
Measured: <u>14.28'</u>	Depth to NAPL (TOC): <u>NO DNAPL/LNAPL</u>

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

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

Additional Comments (if any):



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Well/Piezometer Abandonment Form

Well/Piezometer ID: A11-016AAA-PZ

General Project Information: SPT

Client: EAG

Site Location: Sparrows Point, MD

Parcel ID: A11

Abandonment Date: 10/24/18

Abandonment Contractor: Allied

Abandonment Method (circle appropriate):

1. PVC → Pulled / Split / Perforated / Left-In-Place

Abandoned → Grout / Bentonite Chips

Field Equipment: Geo probe 77DT, Heron O/W Probe

ARM Representative(s): M. Kedenburg

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 23.40'	Depth to Water (TOC): 11.84' TOC
Measured: 22.87' TOC	Depth to NAPL (TOC): No DNAPL / LNAPL

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

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

Additional Comments (if any):



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Well/Piezometer Abandonment Form

Well/Piezometer ID: A11-016BB-PZ

General Project Information: SPT

Client: EAG

Site Location: Sparrows Point, MD

Parcel ID: A11

Abandonment Date: 10/24/18

Abandonment Contractor: Allied

Abandonment Method (circle appropriate):

1. PVC → Pulled / Split / Perforated / Left-In-Place

2. Abandoned → Grout / Bentonite Chips

Field Equipment: Geoprobe 77DT, Heron O/W Probe

ARM Representative(s): M. Kedenberg

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): <u>27.56</u>	Depth to Water (TOC): <u>11.15</u>
Measured: <u>26.71</u>	Depth to NAPL (TOC): <u>No DNAPL/LNAPL</u>

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

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

Additional Comments (if any):



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Well/Piezometer Abandonment Form

Well/Piezometer ID: A11-016B-~~88~~PZ

General Project Information: SPT

Client: EAG

Site Location: Sparrows Point, MD

Parcel ID: A11

Abandonment Date: 10/23/18

Abandonment Contractor: Allied

Abandonment Method (circle appropriate):

1. PVC → Pulled / Split / Perforated / Left-In-Place

Abandoned → Grout / Bentonite Chips

Field Equipment: Geoprobe 77DT, Heron O/W Probe

ARM Representative(s): M. Kedenburg

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 46.87 16.88'	Depth to Water (TOC): 5.71' TOC
Measured: 16.62' TOC	Depth to NAPL (TOC): No DNAPL / LNAPL

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

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

Additional Comments (if any):



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Well/Piezometer Abandonment Form

Well/Piezometer ID: A11-016C-P2

General Project Information: SPT

Client: EAG

Site Location: Sparrows Point, MD

Parcel ID: A11

Abandonment Date: 10/23/18

Abandonment Contractor: Allied

Abandonment Method (circle appropriate):

1. PVC → Pulled / Split / Perforated / Left-In-Place

2. Abandoned → Grout / Bentonite Chips

Field Equipment: Geoprobe 77DT / Heron O/W Probe

ARM Representative(s): M. Keelenburg

Well Diameter: 1 inch

Depth to Bottom (TOC)		Final Gauging Prior to Abandonment:	
Reported (historical/log):	16.38'	Depth to Water (TOC):	4.34'
Measured:	16.34'	Depth to NAPL (TOC):	No DNAPL / LNAPL

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

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

Additional Comments (if any):



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Well/Piezometer Abandonment Form

Well/Piezometer ID: A11-016DD-PZ

General Project Information:

Client: EAG

Site Location: Sparrows Point, MD

Parcel ID: A11

Abandonment Date: 10/24/18

Abandonment Contractor: Allied

Abandonment Method (circle appropriate):

1. PVC → Pulled / Split / Perforated / Left-In-Place

2. Abandoned → Grout / Bentonite Chips

Field Equipment: Geoprobe 77DT, Heron O/W Probe

ARM Representative(s): M. Kedenburg

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 16.61'	Depth to Water (TOC): 7.18
Measured: 15.22	Depth to NAPL (TOC): No DNAPL / LNAPL

Please note if this abandonment is for a known NAPL delineation/monitoring area or individual NAPL screening piezometer and identify the name of the delineation area (e.g., B6-066 NAPL Area or B5-144 Screening Piezometer): A11 Napth. Delineation

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

Additional Comments (if any):



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Well/Piezometer Abandonment Form

Well/Piezometer ID: A11-016EE-PZ

General Project Information: SPT

Client: EAG

Site Location: Sparrows Point, MD

Parcel ID: A11

Abandonment Date: 10/24/18

Abandonment Contractor: Allied

Abandonment Method (circle appropriate):

1. PVC → Pulled / Split / Perforated / Left-In-Place
 2. Abandoned → Grout / Bentonite Chips

Field Equipment: Geoprobe 77 DT, Heron O/W Probe

ARM Representative(s): M. Kedenburg

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 12.90'	Depth to Water (TOC): 5.32' TOC
Measured: 13.02'	Depth to NAPL (TOC): No DNAPL/LNAPL

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

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

Additional Comments (if any):



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Well/Piezometer Abandonment Form

Well/Piezometer ID: A11-016E-PZ

General Project Information: SPT

Client: EAG

Site Location: Sparrows Point, MD

Parcel ID: A11

Abandonment Date: 10/25/19

Abandonment Contractor: Allied

Abandonment Method (circle appropriate):

1. PVC → Pulled / Split / Perforated / Left-In-Place

2. Abandoned → Grout / Bentonite Chips

Field Equipment: Eceprobe 77DT, Heron O/w Probe

ARM Representative(s): M. Kiedenberg

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): <u>17.98'</u>	Depth to Water (TOC): <u>3.88'</u>
Measured: <u>14.09' (Stickup Removed)</u>	Depth to NAPL (TOC): <u>NO NAPL / 2 NAPL</u>

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

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

Additional Comments (if any):



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Well/Piezometer Abandonment Form

Well/Piezometer ID: A11-016F-P2

General Project Information: SPT

Client: EAG

Site Location: Sparrows Point, MD

Parcel ID: A11

Abandonment Date: 10/25/18

Abandonment Contractor: Allied

Abandonment Method (circle appropriate):

- 1. PVC → Pulled / Split / Perforated / Left-In-Place
- 2. Abandoned → Grout / Bentonite Chips

Field Equipment: Geoprobe 77DT Heron O/W Probe

ARM Representative(s): M. Kedenberg

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 25.69'	Depth to Water (TOC): 7.85'
Measured: 24.89'	Depth to NAPL (TOC): No DNAPL / LNAPL

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

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

Additional Comments (if any):



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Well/Piezometer Abandonment Form

Well/Piezometer ID: A11-0165-PZ

General Project Information: SPJ

Client: EAG

Site Location: Sparrows Point, MD

Parcel ID: A11

Abandonment Date: 10/25/18

Abandonment Contractor: Allied

Abandonment Method (circle appropriate):

- 1. PVC → Pulled / Split / Perforated / Left-In-Place
- 2. Abandoned → Grout / Bentonite Chips

Field Equipment: Geoprobe 77DT, Heron O/W Probe

ARM Representative(s): M. Kedenburg

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 27.69	Depth to Water (TOC): 8.72
Measured: 27.17	Depth to NAPL (TOC): no DNAPL / LNAPL

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

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

Additional Comments (if any):



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Well/Piezometer Abandonment Form

Well/Piezometer ID: A11-016KK-PZ

General Project Information: SPT

Client: EAG

Site Location: Sparrows Point, MD

Parcel ID: A11

Abandonment Date: 10/23/18

Abandonment Contractor: Allied

Abandonment Method (circle appropriate):

1. PVC → Pulled / Split / Perforated / Left-In-Place

Abandoned → Grout / Bentonite Chips

Field Equipment: Geoprobe 77DT, Horon O/w Probe

ARM Representative(s): M. Kedenburg

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 16.48'	Depth to Water (TOC): 5.02'
Measured: 14.52'	Depth to NAPL (TOC): No DNAPL/LNAPL

Please note if this abandonment is for a known NAPL delineation/monitoring area or individual NAPL screening piezometer and identify the name of the delineation area (e.g., B6-066 NAPL Area or B5-144 Screening Piezometer): A11 North Delineation

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

Additional Comments (if any):



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Well/Piezometer Abandonment Form

Well/Piezometer ID: A11-016LL-P2

General Project Information: SPT

Client: EAG

Site Location: Sparrows Point, MD

Parcel ID: A11

Abandonment Date: 10/23/18

Abandonment Contractor: Allied

Abandonment Method (circle appropriate):

1. PVC → Pulled / Split / Perforated / Left-In-Place

Abandoned → Grout / Bentonite Chips

Field Equipment: Geoprobe 77DT, Heron O/W Probe

ARM Representative(s): M. Kedenburg

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 20.40'	Depth to Water (TOC): 5.32' TOC
Measured: 19.95'	Depth to NAPL (TOC): No DNAPL/L NAPL

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

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

Additional Comments (if any):



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Well/Piezometer Abandonment Form

Well/Piezometer ID: A11-016L-P2

General Project Information: SPT

Client: EAG

Site Location: Sparrows Point, MD

Parcel ID: A11

Abandonment Date: 10/25/18

Abandonment Contractor: Allied

Abandonment Method (circle appropriate):

1. PVC → Pulled / Split / Perforated / Left-In-Place

2. Abandoned → Grout / Bentonite Chips

Field Equipment: Geoprobe 27DJ / Heron O/W Probe

ARM Representative(s): M. Fedenberg

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 26.40	Depth to Water (TOC): 9.44
Measured: 26.22'	Depth to NAPL (TOC): No DNAPL / LNAPL

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

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

Additional Comments (if any):



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Well/Piezometer Abandonment Form

Well/Piezometer ID: All-016MM-PZ

General Project Information: SPT

Client: EAG

Site Location: Sparrows Point, MD

Parcel ID: All

Abandonment Date: 10/23/18

Abandonment Contractor: Allied

Abandonment Method (circle appropriate):

1. PVC → Pulled / Split / Perforated / Left-In-Place

2. Abandoned → Grout / Bentonite Chips

Field Equipment: Geoprobe 77DT

ARM Representative(s): M Kodenburg

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): <u>23.02'</u>	Depth to Water (TOC): <u>7.03'</u>
Measured: <u>22.88'</u>	Depth to NAPL (TOC): <u>No DNAPL/LNAPL</u>

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

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

Additional Comments (if any):



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Well/Piezometer Abandonment Form

Well/Piezometer ID: All-016NN-#2

General Project Information: SPT

Client: EAG

Site Location: Sparrows Point, MD

Parcel ID: All

Abandonment Date: 10/23/18

Abandonment Contractor: Allied

Abandonment Method (circle appropriate):

1. PVC → Pulled / Split / Perforated / Left-In-Place

2. Abandoned → Grout / Bentonite Chips

Field Equipment: Geoprobe 77DT, Heron O/W Probe

ARM Representative(s): M. Kedenburg

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): <u>16.26'</u>	Depth to Water (TOC): <u>5.19</u>
Measured: <u>16.78'</u>	Depth to NAPL (TOC): <u>No DNAPL/LNAPL</u>

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

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

Additional Comments (if any):



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Well/Piezometer Abandonment Form

Well/Piezometer ID: A11-016-PZ

General Project Information: SPT

Client: EAG

Site Location: Sparrows Point, MD

Parcel ID: A11

Abandonment Date: 10/24/18

Abandonment Contractor: Allied

Abandonment Method (circle appropriate):

1. PVC → Pulled / Split / Perforated / Left-In-Place

2. Abandoned → Grout / Bentonite Chips

Field Equipment: Geoprobe 77 DT, Heron O/w Probe

ARM Representative(s): M. Kedenburg

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 22.95'	Depth to Water (TOC): 5.66'
Measured: 22.60'	Depth to NAPL (TOC): No DNAPL/LNAPL

Please note if this abandonment is for a known NAPL delineation/monitoring area or individual NAPL screening piezometer and identify the name of the delineation area (e.g., B6-066 NAPL Area or B5-144 Screening Piezometer): 1 inch

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

Additional Comments (if any):



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Well/Piezometer Abandonment Form

Well/Piezometer ID: A11-01622-PZ

General Project Information: SPT

Client: EAG

Site Location: Sparrows Point, MD

Parcel ID: A11

Abandonment Date: 10/23/18

Abandonment Contractor: Allied

Abandonment Method (circle appropriate):

1. PVC → Pulled / Split / Perforated / Left-In-Place

Abandoned → Grout / Bentonite Chips

Field Equipment: Geoprobe 77DT, Heron O/W Probe

ARM Representative(s): M Kadenburg

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 15.70'	Depth to Water (TOC): 7.18'
Measured: 18.02'	Depth to NAPL (TOC): NO DNAPL / LNAPL

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

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

Additional Comments (if any):



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Well/Piezometer Abandonment Form

Well/Piezometer ID: A11-016R-PZ

General Project Information: SPT

Client: EAG

Site Location: Sparrows Point, MD

Parcel ID: A11

Abandonment Date: 10/23/16

Abandonment Contractor: Allied

Abandonment Method (circle appropriate):

1. PVC → Pulled / Split / Perforated / Left-In-Place

2. Abandoned → Grout / Bentonite Chips

Field Equipment: Geoprobe 77DT, Heron O/W Probe

ARM Representative(s): M. Kedenbury

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 11.79'	Depth to Water (TOC): 5.52'
Measured: 11.72' TOC	Depth to NAPL (TOC): No DNAPL/LNAPL

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

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

Additional Comments (if any):



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Well/Piezometer Abandonment Form

Well/Piezometer ID: A11-616RR-PZ

General Project Information: SPT

Client: EAG

Site Location: Sparrows Point, MD

Parcel ID: A11

Abandonment Date: 10/23/18

Abandonment Contractor: Allied

Abandonment Method (circle appropriate):

1. PVC → Rulled / Split / Perforated / Left-In-Place

2. Abandoned → Grout / Bentonite Chips

Field Equipment: Geoprobe 77DT, Heron QW Probe

ARM Representative(s): M. Kedenburg

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 18.44'	Depth to Water (TOC): 6.18' TOC
Measured: 18.10'	Depth to NAPL (TOC): No DNAPL/LNAPL

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

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

Additional Comments (if any):



ARM Group Inc.

Earth Resource Engineers and Consultants

9175 Guilford Road - Suite 310

Columbia, Maryland 21046

(410) 290-7775 FAX: (410) 290-7775

Well/Piezometer Abandonment Form

Well/Piezometer ID: A11-0165-PZ

General Project Information: SPT

Client: EAG

Site Location: Sparrows Point, MD

Parcel ID: A11

Abandonment Date: 10/23/18

Abandonment Contractor: Allred

Abandonment Method (circle appropriate):

1. PVC → Pulled / Split / Perforated / Left-In-Place

Abandoned → Grout / Bentonite Chips

Field Equipment: Geoprobe 77DT, Heron G/W Probe

ARM Representative(s): M. Kedenburg

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 16.60' TOC	Depth to Water (TOC): 5.29'
Measured: 15.44' TOC	Depth to NAPL (TOC): No DNAPL / LNAPL

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

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

Additional Comments (if any):



ARM Group Inc.

Earth Resource Engineers and Consultants

9175 Guilford Road - Suite 310

Columbia, Maryland 21046

(410) 290-7775 FAX: (410) 290-7775

Well/Piezometer Abandonment Form

Well/Piezometer ID: A11-016T-PZ

General Project Information: SPT

Client: EAG

Site Location: Sparrows Point, MD

Parcel ID: A11

Abandonment Date: 10/24/18

Abandonment Contractor: Allied

Abandonment Method (circle appropriate):

1. PVC → Pulled / Split / Perforated / Left-In-Place

~~2. Abandoned~~ → Grout / Bentonite Chips

Field Equipment: Geoprobe 77DT, Heron O/W Probe

ARM Representative(s): M. Kadenberg

Well Diameter: 1 inch

Depth to Bottom (TOC)		Final Gauging Prior to Abandonment:	
Reported (historical/log):	16.52	Depth to Water (TOC):	4.85'
Measured:	15.24'	Depth to NAPL (TOC):	NO DNAPL / LNAPL

Please note if this abandonment is for a known NAPL delineation/monitoring area or individual NAPL screening piezometer and identify the name of the delineation area (e.g., B6-066 NAPL Area or B5-144 Screening Piezometer): 1 inch

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

Additional Comments (if any):



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Well/Piezometer Abandonment Form

Well/Piezometer ID: All-016TT-PZ

General Project Information:

Client: EAG

Site Location: Sparrows Point, MD

Parcel ID: 411

Abandonment Date: 10/24/18

Abandonment Contractor: Allied

Abandonment Method (circle appropriate):

1. PVC → Pulled / Split / Perforated / Left-In-Place

2. Abandoned → Grout / Bentonite Chips

Field Equipment: Geoprobe 77 DT

ARM Representative(s): Allied

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): <u>18.19'</u>	Depth to Water (TOC): <u>7.27'</u>
Measured: <u>18.14</u>	Depth to NAPL (TOC): <u>No DNAPL/LNAPL</u>

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

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

Additional Comments (if any):



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Well/Piezometer Abandonment Form

Well/Piezometer ID: All-016VV-PZ

General Project Information: SPT

Client: EAG

Site Location: Sparrows Point, MD

Parcel ID: All

Abandonment Date: 10/23/18

Abandonment Contractor: Allied

Abandonment Method (circle appropriate):

1. PVC → Pulled / Split / Perforated / Left-In-Place
 2. Abandoned → Grout / Bentonite Chips

Field Equipment: Geoprobe 77DT

ARM Representative(s): M. Kedenburg

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): <u>17.75'</u>	Depth to Water (TOC): <u>5.04' TOC</u>
Measured: <u>17.67'</u>	Depth to NAPL (TOC): <u>NO DNAPL/LNAPL</u>

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

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

Additional Comments (if any):



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Well/Piezometer Abandonment Form

Well/Piezometer ID: A11-016WW-PZ

General Project Information: SPT

Client: EAG

Site Location: Sparrows Point, MD

Parcel ID: A11

Abandonment Date: 10/25/18

Abandonment Contractor: Alliew

Abandonment Method (circle appropriate):

1. PVC → Pulled / Split / Perforated / Left-In-Place

Abandoned → Grout / Bentonite Chips

Field Equipment: Geoprobe 77DT

ARM Representative(s): M. Kadenburg

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 21.35'	Depth to Water (TOC): 8.48'
Measured: 22.68	Depth to NAPL (TOC): No DNAPL/NAPL

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

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

Additional Comments (if any):



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Well/Piezometer Abandonment Form

Well/Piezometer ID: A11-0164-P2

General Project Information: SPT

Client: EAG

Site Location: Sparrows Point, MD

Parcel ID: A11

Abandonment Date: 10/24/18

Abandonment Contractor: Allied

Abandonment Method (circle appropriate):
 1. PVC → Pulled / Split / Perforated / Left-In-Place
 2. Abandoned → Grout / Bentonite Chips

Field Equipment: Geoprobe 77DT, Heron O/W Probe

ARM Representative(s): M Kodenburg

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 14.64'	Depth to Water (TOC): 6.59'
Measured: 14.03'	Depth to NAPL (TOC): No DNAPL/LNAPL

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

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

Additional Comments (if any):



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Well/Piezometer Abandonment Form

Well/Piezometer ID: All-017-PZ

General Project Information: SPT

Client: EAG

Site Location: Sparrows Point, MD

Parcel ID: All

Abandonment Date: 10/31/18

Abandonment Contractor: Allied

Abandonment Method (circle appropriate):

1. PVC → Split / Pulled / Perforated / Left-In-Place
2. Abandoned → Grout / Bentonite Chips

Field Equipment: Secorpe 77DJ, Solinst CRW Probe

ARM Representative(s): M. Kedenburg

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): <u>28.49</u>	Depth to Water (TOC): <u>N/A (see comments)</u>
Measured: <u>N/A (see comments)</u>	Depth to NAPL (TOC): <u>N/A (see comments)</u>

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

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

Additional Comments (if any):

Unable to gauge, hole collapsed into the pipe, bentonite was plugging the PVC



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Well/Piezometer Abandonment Form

Well/Piezometer ID: A11-018-PZ

General Project Information: SPT

Client: EAG

Site Location: Sparrows Point, MD

Parcel ID: A11

Abandonment Date: 10/31/18

Abandonment Contractor: Allied

Abandonment Method (circle appropriate):

1. PVC → Pulled / Split / Perforated / Left-In-Place
2. Abandoned → Grout / Bentonite Chips

Field Equipment: Geoprobe 77DT, Salmist O/W Probe

ARM Representative(s): M. Kedenberg

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 18.00	Depth to Water (TOC): 6.49/TOC
Measured: 14.62'	Depth to NAPL (TOC): No DNAPL / LNAPL

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

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

Additional Comments (if any):



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Well/Piezometer Abandonment Form

Well/Piezometer ID: A11-024B-PZ

General Project Information: SPT

Client: EAG

Site Location: Sparrows Point, MD

Parcel ID: A11

Abandonment Date: 10/29/18

Abandonment Contractor: Allied

Abandonment Method (circle appropriate):

1. PVC → Pulled / Split / Perforated / Left-In-Place
2. Abandoned → Grout / Bentonite Chips

Field Equipment: Geoprobe 77DT, Solinst O/W Probe

ARM Representative(s): McKedenburg

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 19.03'	Depth to Water (TOC): 11.16'
Measured: 18.80'	Depth to NAPL (TOC): No DNAPL / LNAPL

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

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

Additional Comments (if any):



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Well/Piezometer Abandonment Form

Well/Piezometer ID: ~~A11-024C-PZ~~ A11-024CC-PZ

General Project Information: SPT

Client: EAG

Site Location: Sparrows Point, MD

Parcel ID: A11

Abandonment Date: 10/29/18

Abandonment Contractor: Allied

Abandonment Method (circle appropriate):

- 1. PVC → Pulled / Split / Perforated / Left-In-Place
- 2. Abandoned → Grout / Bentonite Chips

Field Equipment: Geoprobe 77DT, Salinist O/W Probe

ARM Representative(s): M Kedenbury

Well Diameter: 1. inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 17.53'	Depth to Water (TOC): 6.57
Measured: 17.80'	Depth to NAPL (TOC): No NAPL / LNAPL

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

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

Additional Comments (if any):



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 Columbia, Maryland 21046
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Well/Piezometer Abandonment Form

Well/Piezometer ID: A11-024GG-PZ

General Project Information: SPT

Client: EAG

Site Location: Sparrows Point, MD

Parcel ID: A11

Abandonment Date: 10/29/18

Abandonment Contractor: Allied

Abandonment Method (circle appropriate):

1. PVC → Pulled / Split / Perforated / Left-In-Place
2. Abandoned → Grout / Bentonite Chips

Field Equipment: Geoprobe 77DT, Solmist O/W Probe

ARM Representative(s): M. Kedenburg

Well Diameter: _____

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 17.77	Depth to Water (TOC): 6.24'
Measured: 17.81'	Depth to NAPL (TOC): MOD NAPL / LNAPL

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

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

Additional Comments (if any):



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Well/Piezometer Abandonment Form

Well/Piezometer ID: A11-0244-PZ

General Project Information: SPT

Client: EAG

Site Location: Sparrows Point, MD

Parcel ID: A11

Abandonment Date: 10/29/19

Abandonment Contractor: Allied

Abandonment Method (circle appropriate):

- 1. PVC → Pulled / Split / Perforated / Left-In-Place
- 2. Abandoned → Grout / Bentonite Chips

Field Equipment: Geoprobe 77DT, Solinst O/W Probe

ARM Representative(s): M. Ted Leng

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 16.09'	Depth to Water (TOC): 5.47'
Measured: 13.92'	Depth to NAPL (TOC): No DNAPL/LNAPL

Please note if this abandonment is for a known NAPL delineation/monitoring area or individual NAPL screening piezometer and identify the name of the delineation area (e.g., B6-066 NAPL Area or B5-144 Screening Piezometer): A11 Napth. Well

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

Additional Comments (if any):



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Well/Piezometer Abandonment Form

Well/Piezometer ID: A11-0245-PZ

General Project Information: SPT

Client: EAG

Site Location: Sparrows Point, MD

Parcel ID: A11

Abandonment Date: 10/24/14

Abandonment Contractor: Allied

Abandonment Method (circle appropriate):

1. PVC → Pulled / Split / Perforated / Left-In-Place
2. Abandoned → Grout / Bentonite Chips

Field Equipment: Geoprobe Z7DT, Solinst O/L Probe

ARM Representative(s): M. Kadenburg

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 4 15.64	Depth to Water (TOC): 4.44'
Measured: 15.26	Depth to NAPL (TOC): No NAPL / 1.1 NAPL

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

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

Additional Comments (if any):



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Well/Piezometer Abandonment Form

Well/Piezometer ID: A11-024M-PZ

General Project Information: SPT

Client: EAG

Site Location: Sparrows Point, MD

Parcel ID: A11

Abandonment Date: 10/29/18

Abandonment Contractor: Allied

Abandonment Method (circle appropriate):

1. PVC → Pulled / Split / Perforated / Left-In-Place
2. Abandoned → Grout / Bentonite Chips

Field Equipment: Geoprobe 77DT, Solinst O/W Probe

ARM Representative(s): M. Kedenburg

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 15.85'	Depth to Water (TOC): 6.02'
Measured: 16.44'	Depth to NAPL (TOC): NoDNAPL/LNAPL

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

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

Additional Comments (if any):



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(410) 290-7775 FAX: (410) 290-7775

Well/Piezometer Abandonment Form

Well/Piezometer ID: A11-0240-PZ

General Project Information: SPT

Client: EAG

Site Location: Sparrows Point, MD

Parcel ID: A11

Abandonment Date: 10/31/18

Abandonment Contractor: Allied

Abandonment Method (circle appropriate):

1. PVC → Pulled / Split / Perforated / Left-In-Place
2. Abandoned → Grout / Bentonite Chips

Field Equipment: Geopole 77DT, solinst air probe

ARM Representative(s): M. Kedenberg

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 18.27'	Depth to Water (TOC): 4.66' TOC
Measured: 13.91' TOC	Depth to NAPL (TOC): No DNAPL / LNAPL

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

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

Additional Comments (if any):

Left part of the stickup in the ground next to the hole to wrap caution tape around in order to secure the adjacent open test pit



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Columbia, Maryland 21046

(410) 290-7775 FAX: (410) 290-7775

Well/Piezometer Abandonment Form

Well/Piezometer ID: ALL-024-PZ

General Project Information: SPT

Client: EAG

Site Location: Sparrows Point, MD

Parcel ID: A11

Abandonment Date: 10/29/18

Abandonment Contractor: Allied

- Abandonment Method (circle appropriate):
1. PVC → Pulled / Split / Perforated / Left-In-Place
 2. Abandoned → Grout / Bentonite Chips

Field Equipment: Geoprobe 770T, Solinst O/W Probe

ARM Representative(s): Mike Downing

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): <u>19.84</u>	Depth to Water (TOC): <u>3.82'</u>
Measured: <u>19.67</u>	Depth to NAPL (TOC): <u>no DNAPL / LNAPL</u>

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

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

Additional Comments (if any):



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Well/Piezometer Abandonment Form

Well/Piezometer ID: A11-0240-PZ

General Project Information: SPT

Client: EAG

Site Location: Sparrows Point, MD

Parcel ID: A11

Abandonment Date: 10/29/18

Abandonment Contractor: Allied

Abandonment Method (circle appropriate):

1. PVC → Pulled / Split / Perforated / Left-In-Place
2. Abandoned → Grout / Bentonite Chips

Field Equipment: Geoprobe 77DT, Solinst O/W Probe

ARM Representative(s): M. Redden

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 20.53'	Depth to Water (TOC): 4.54
Measured: 20.32	Depth to NAPL (TOC):

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

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

Additional Comments (if any):



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 (410) 290-7775 FAX: (410) 290-7775

Well/Piezometer Abandonment Form

Well/Piezometer ID: A11-0244-PZ

General Project Information: SPT

Client: EAG

Site Location: Sparrows Point, MD

Parcel ID: A11

Abandonment Date: 10/31/18

Abandonment Contractor: Allied

Abandonment Method (circle appropriate):

1. PVC → Pulled / Split / Perforated / Left-In-Place
2. Abandoned → Grout / Bentonite Chips

Field Equipment: Geoprobe 77DT, Solinst O/W Probe

ARM Representative(s): M. Kedenburg

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 16.07'	Depth to Water (TOC): 6.01' TOC
Measured: 15.24'	Depth to NAPL (TOC): No DNAPL LNAPL

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

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

Additional Comments (if any):



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(410) 290-7775 FAX: (410) 290-7775

Well/Piezometer Abandonment Form

Well/Piezometer ID: A11-037-P2

General Project Information: SPT

Client: EAG

Site Location: Sparrows Point, MD

Parcel ID: A11

Abandonment Date: 10/25/18

Abandonment Contractor: Allied

Abandonment Method (circle appropriate):

1. PVC → Pulled / Split / Perforated / Left-In-Place
2. Abandoned → Grout / Bentonite Chips

Field Equipment: Geoprobe 77 DT, Heron O/W Probe

ARM Representative(s): M. Kedenburg

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 26.84	Depth to Water (TOC): 10.52'
Measured: 26.84 24.59'	Depth to NAPL (TOC): No DNAPL / LNAPL

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

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

Additional Comments (if any):



ARM Group Inc.

Earth Resource Engineers and Consultants

9175 Guilford Road - Suite 310

Columbia, Maryland 21046

(410) 290-7775 FAX: (410) 290-7775

Well/Piezometer Abandonment Form

Well/Piezometer ID: A11-040A P2

General Project Information: SPT

Client: EAG

Site Location: Sparrows Point, MD

Parcel ID: A11

Abandonment Date: 10/29/18

Abandonment Contractor: Allied

Abandonment Method (circle appropriate):

1. PVC → Pulled / Split / Perforated / Left-In-Place
2. Abandoned → Grout / Bentonite Chips

Field Equipment:

ARM Representative(s): M. Kedenberg

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): <u>16.21</u>	Depth to Water (TOC): <u>3.83'</u>
Measured: <u>16.19'</u>	Depth to NAPL (TOC): <u>No DNAPL/LNAPL</u>

Please note if this abandonment is for a known NAPL delineation/monitoring area or individual NAPL screening piezometer and identify the name of the delineation area (e.g., B6-066 NAPL Area or B5-144 Screening Piezometer): A11 North Delta

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

Additional Comments (if any):



ARM Group Inc.
Earth Resource Engineers and Consultants
9175 Guilford Road - Suite 310
Columbia, Maryland 21046
(410) 290-7775 FAX: (410) 290-7775

Well/Piezometer Abandonment Form

Well/Piezometer ID: A11-040E.PZ

General Project Information: SPT

Client: EAG

Site Location: Sparrows Point, MD

Parcel ID: A11

Abandonment Date: 10/26/18

Abandonment Contractor: Allied

Abandonment Method (circle appropriate):

1. PVC → Pulled / Split / Perforated / Left-In-Place
2. Abandoned → Grout / Bentonite Chips

Field Equipment: Geoprobe 77DT, Heron o/w Probe

ARM Representative(s): M. Kedenberg

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): <u>19.13'</u>	Depth to Water (TOC): <u>6.70'</u>
Measured: <u>17.06'</u>	Depth to NAPL (TOC): <u>No DNAPL / LNAPL</u>

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

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

Additional Comments (if any):



ARM Group Inc.

Earth Resource Engineers and Consultants

9175 Guilford Road - Suite 310

Columbia, Maryland 21046

(410) 290-7775 FAX: (410) 290-7775

Well/Piezometer Abandonment Form

Well/Piezometer ID: A11-040L-PZ

General Project Information: SPT

Client: EAG

Site Location: Sparrows Point, MD

Parcel ID: A11

Abandonment Date: 10/29/18

Abandonment Contractor: Allied

Abandonment Method (circle appropriate):

1. PVC → Pulled / Split / Perforated / Left-In-Place
2. Abandoned → Grout / Bentonite Chips

Field Equipment: Geoprobe 77DT, Solinst O/W Probe

ARM Representative(s): M. Kedenburg

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 18.46'	Depth to Water (TOC): 3.76'
Measured: 17.39'	Depth to NAPL (TOC): No DNAPL/LNAPL

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

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

Additional Comments (if any):



ARM Group Inc.
Earth Resource Engineers and Consultants
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 Columbia, Maryland 21046
 (410) 290-7775 FAX: (410) 290-7775

Well/Piezometer Abandonment Form

Well/Piezometer ID: All-040-PZ

General Project Information: SPT

Client: EAG

Site Location: Sparrows Point, MD

Parcel ID: All

Abandonment Date: 10/26/18

Abandonment Contractor: Allied

Abandonment Method (circle appropriate):

1. PVC → Pulled / Split / Perforated / Left-In-Place
2. Abandoned → Grout / Bentonite Chips

Field Equipment: Geoprobe 77DT, Heron O/W Probe

ARM Representative(s): M. Kedenbury

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): <u>16.6'</u>	Depth to Water (TOC): <u>6.72</u>
Measured: <u>16.44'</u>	Depth to NAPL (TOC): <u>NO DNAPL / LNAPL</u>

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

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

Additional Comments (if any):



ARM Group Inc.

Earth Resource Engineers and Consultants

9175 Guilford Road - Suite 310

Columbia, Maryland 21046

(410) 290-7775 FAX: (410) 290-7775

Well/Piezometer Abandonment Form

Well/Piezometer ID: A11-042-PZ

General Project Information: SPT

Client: EAG

Site Location: Sparrows Point, MD

Parcel ID: A11

Abandonment Date: 10/26/18

Abandonment Contractor: Allied

Abandonment Method (circle appropriate):

1. PVC → Pulled / Split / Perforated / Left-In-Place
2. Abandoned → Grout / Bentonite Chips

Field Equipment: Geoprobe 77DT, Hclon or W Probe

ARM Representative(s): M. Kedenburg

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 38.25'	Depth to Water (TOC): 15.58'
Measured: 26.52	Depth to NAPL (TOC): No DNAPL / LNAPL

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

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

Additional Comments (if any):



ARM Group Inc.

Earth Resource Engineers and Consultants

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Columbia, Maryland 21046

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Well/Piezometer Abandonment Form

Well/Piezometer ID: A11-043-PZ

General Project Information: SPT

Client: EAG

Site Location: Sparrows Point, MD

Parcel ID: A11

Abandonment Date: 10/28/18

Abandonment Contractor: Allied

Abandonment Method (circle appropriate):

1. PVC → Pulled / Split / Perforated / Left-In-Place
2. Abandoned → Grout / Bentonite Chips

Field Equipment: Ecoprobe 771T, Heron C/W Probe

ARM Representative(s): M. Adambing

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 29.50	Depth to Water (TOC): 4.72
Measured: 29.52	Depth to NAPL (TOC): No DNAPL / LNAPL

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

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

Additional Comments (if any):



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Well/Piezometer Abandonment Form

Well/Piezometer ID: A11-045-P2

General Project Information: SPT

Client: EAG

Site Location: Sparrows Point, MD

Parcel ID: A11

Abandonment Date: 10/26/18

Abandonment Contractor: Allied

Abandonment Method (circle appropriate):

1. PVC → Pulled / Split / Perforated / Left-In-Place
2. Abandoned → Grout / Bentonite Chips

Field Equipment: Geoprobe 77DT / Heron O/W Probe

ARM Representative(s): M. Koolenberg

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 20.00	Depth to Water (TOC): 18.57'
Measured: 19.96'	Depth to NAPL (TOC): No DNAPL / LNAPL

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

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

Additional Comments (if any):



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Earth Resource Engineers and Consultants
 9175 Guilford Road - Suite 310
 Columbia, Maryland 21046
 (410) 290-7775 FAX: (410) 290-7775

Well/Piezometer Abandonment Form

Well/Piezometer ID: A11-046-PZ

General Project Information: SPT

Client: EAG

Site Location: Sparrows Point, MD

Parcel ID: A11

Abandonment Date: 10/26/18

Abandonment Contractor: Allied

Abandonment Method (circle appropriate):

1. PVC → Pulled / Split / Perforated / Left-In-Place
2. Abandoned → Grout / Bentonite Chips

Field Equipment: Geoprobe 77 DT, Heron O/W Probe

ARM Representative(s): M. Kadenburg

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 27.46'	Depth to Water (TOC): 44.19
Measured: 26.95'	Depth to NAPL (TOC): No DNAPL / LNAPL

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

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

Additional Comments (if any):



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 Columbia, Maryland 21046
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Well/Piezometer Abandonment Form

Well/Piezometer ID: 411-047-SB

General Project Information: SPT

Client: EAG

Site Location: Sparrows Point, MD

Parcel ID: 411

Abandonment Date: 10/26/18

Abandonment Contractor: Allied

Abandonment Method (circle appropriate):

1. PVC → Pulled / Split / Perforated / Left-In-Place
2. Abandoned → Grout / Bentonite Chips

Field Equipment: Greenline 77.DT, Heron O/W Probe

ARM Representative(s): M. Kedenburg

Well Diameter: 1 inch

Depth to Bottom (TOC)		Final Gauging Prior to Abandonment:	
Reported (historical/log):	<u>29.2</u>	Depth to Water (TOC):	<u>6.39'</u>
Measured:	<u>11.15'</u>	Depth to NAPL (TOC):	<u>no DNAPL / LNAPL</u>

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

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

Additional Comments (if any):



ARM Group Inc.

Earth Resource Engineers and Consultants

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Columbia, Maryland 21046

(410) 290-7775 FAX: (410) 290-7775

Well/Piezometer Abandonment Form

Well/Piezometer ID: A11-054-P2

General Project Information: SPT

Client: EAG

Site Location: Sparrows Point, MD

Parcel ID: A11

Abandonment Date: 10/26/18

Abandonment Contractor: Allied

Abandonment Method (circle appropriate):

1. PVC → Pulled / Split / Perforated / Left-In-Place
2. Abandoned → Grout / Bentonite Chips

Field Equipment: Geoprobe 77 DT, Heron O/W Probe

ARM Representative(s): M. Kedenburg

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 20.05	Depth to Water (TOC): 6.72'
Measured: 19.76	Depth to NAPL (TOC): No DNAPL/LNAPL

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

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

Additional Comments (if any):



ARM Group Inc.
Earth Resource Engineers and Consultants
 9175 Guilford Road - Suite 310
 Columbia, Maryland 21046
 (410) 290-7775 FAX: (410) 290-7775

Well/Piezometer Abandonment Form

Well/Piezometer ID: A11-061-PZ

General Project Information: SPT

Client: EAG

Site Location: Sparrows Point, MD

Parcel ID: A11

Abandonment Date: 10/29/18

Abandonment Contractor: Allied

Abandonment Method (circle appropriate):

1. PVC → Pulled / Split / Perforated / Left-In-Place
2. Abandoned → Grout / Bentonite Chips

Field Equipment: Geoprobe 77DT, Solinst O/W Probe

ARM Representative(s): M. Kormanik

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 18.56'	Depth to Water (TOC): 14.02'
Measured: 18.09'	Depth to NAPL (TOC): No DNAPL / LNAPL

Please note if this abandonment is for a known NAPL delineation/monitoring area or individual NAPL screening piezometer and identify the name of the delineation area (e.g., B6-066 NAPL Area or B5-144 Screening Piezometer): A11 North Delineation

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

Additional Comments (if any):



ARM Group Inc.

Earth Resource Engineers and Consultants
 9175 Guilford Road - Suite 310
 Columbia, Maryland 21046
 (410) 290-7775 FAX: (410) 290-7775

Well/Piezometer Abandonment Form

Well/Piezometer ID: LF-03D

General Project Information: SPT

Client: EAG

Site Location: Sparrows Point, MD

Parcel ID: A11

Abandonment Date: 11/9/18

Abandonment Contractor: Allied

Abandonment Method (circle appropriate):

1. PVC → Pulled / Split / Perforated / Left-In-Place (see comments)
2. Abandoned → Grout / Bentonite Chips

Field Equipment: Geoprobe 77DT, Heron O/W Probe, Toteuchi Skid Steer

ARM Representative(s): M. Kodenburg

Well Diameter: 2 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 64.00' TOC	Depth to Water (TOC): 14.92' JOE
Measured: 63.46' TOC	Depth to NAPL (TOC): No DNAPL/LNAPL

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

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

Additional Comments (if any):
 Split to 40' ft, drillers only had that much pipe, granted the rest in place



ARM Group Inc.
Earth Resource Engineers and Consultants
 9175 Guilford Road - Suite 310
 Columbia, Maryland 21046
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Well/Piezometer Abandonment Form

Well/Piezometer ID: LF-05

General Project Information: SPT

Client: EAG

Site Location: Sparrows Point, MD

Parcel ID: All

Abandonment Date: 10/26/18

Abandonment Contractor: Allied

Abandonment Method (circle appropriate):

- 1. PVC → Pulled / Split / Perforated / Left-In-Place
- 2. Abandoned → Grout / Bentonite Chips

Field Equipment: Geoprobe 77DT, Heron GW Probe

ARM Representative(s): M. Kedenburg

Well Diameter: 4 1/2 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 20.01	Depth to Water (TOC): 6.36'
Measured: 20.29	Depth to NAPL (TOC): No DNAPL / LNAPL

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

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

Additional Comments (if any):



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Earth Resource Engineers and Consultants
 9175 Guilford Road - Suite 310
 Columbia, Maryland 21046
 (410) 290-7775 FAX: (410) 290-7775

Well/Piezometer Abandonment Form

Well/Piezometer ID: 1 (mystery well)

General Project Information:

Client: EAG

Site Location: Sparrows Point, MD

Parcel ID: A3

Abandonment Date: 5/1/19

Abandonment Contractor: GSI

Abandonment Method (circle appropriate):

1. PVC → Pulled / Split / Perforated / Left-In-Place
2. Abandoned → Grout / Bentonite Chips

Field Equipment: Geoprobe 7822-DT

ARM Representative(s): L. Perrin

Well Diameter: 4"

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log):	Depth to Water (TOC): 5.80
Measured: 9.85	Depth to NAPL (TOC): 9.8 NO DNAPL LNAPL

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

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

Additional Comments (if any):



ARM Group Inc.
Earth Resource Engineers and Consultants
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 Columbia, Maryland 21046
 (410) 290-7775 FAX: (410) 290-7775

Well/Piezometer Abandonment Form

Well/Piezometer ID: 2 (mystery well)

General Project Information:

Client: EAG

Site Location: Sparrows Point, MD

Parcel ID: A3

Abandonment Date: 5/1/19

Abandonment Contractor: GST

Abandonment Method (circle appropriate):

1. PVC → Pulled / Split / Perforated / Left-In-Place
2. Abandoned → Grout / Bentonite Chips

Field Equipment: Geoprobe TB22DT

ARM Representative(s): L. Perrin

Well Diameter: 4"

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log):	Depth to Water (TOC): 6.53
Measured: 9.40	Depth to NAPL (TOC): NO DNAPL LNAPL

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

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

Additional Comments (if any):



ARM Group Inc.

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Columbia, Maryland 21046

(410) 290-7775 FAX: (410) 290-7775

Well/Piezometer Abandonment Form

Well/Piezometer ID: 3 (mystery well)

General Project Information:

Client: EAG

Site Location: Sparrows Point, MD

Parcel ID: A3

Abandonment Date: 5/1/19

Abandonment Contractor: GSE

Abandonment Method (circle appropriate):

- 1. PVC → Pulled / Split / Perforated / Left-In-Place
- 2. Abandoned → Grout / Bentonite Chips

missup / Destroyed

Field Equipment:

ARM Representative(s): L. Perrin

Well Diameter: 4"

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log):	Depth to Water (TOC):
Measured:	Depth to NAPL (TOC):

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

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

Additional Comments (if any):

Did not abandon



ARM Group Inc.

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Columbia, Maryland 21046

(410) 290-7775 FAX: (410) 290-7775

Well/Piezometer Abandonment Form

Well/Piezometer ID: 4 (mystery well)

General Project Information:

Client: EAG

Site Location: Sparrows Point, MD

Parcel ID: A3

Abandonment Date: 5/1/19

Abandonment Contractor: GSF

Abandonment Method (circle appropriate):

1. PVC → Pulled / Split / Perforated / Left-In-Place
2. Abandoned → Grout / Bentonite Chips

Field Equipment: Geoprobe 7822DT

ARM Representative(s): L. Perrin

Well Diameter: 4"

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log):	Depth to Water (TOC): 6.99
Measured: 9.74	Depth to NAPL (TOC): NO DNAPL/LNAPL

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

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

Additional Comments (if any):



ARM Group Inc.

Earth Resource Engineers and Consultants

9175 Guilford Road - Suite 310

Columbia, Maryland 21046

(410) 290-7775 FAX: (410) 290-7775

Well/Piezometer Abandonment Form

Well/Piezometer ID:

5 (mystery well)

General Project Information:

Client: EAG

Site Location: Sparrows Point, MD

Parcel ID: A3

Abandonment Date: 5/1/19

Abandonment Contractor: BSI

Abandonment Method (circle appropriate):

1. PVC → Pulled / Split / Perforated / Left-In-Place
2. Abandoned → Grout / Bentonite Chips

Field Equipment: Geoprobe 7822DT

ARM Representative(s): L. Ferrin

Well Diameter: 4"

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log):	Depth to Water (TOC): 6.70
Measured: 9.22	Depth to NAPL (TOC): NO DNAPL / LNAPL

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

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

Additional Comments (if any):



ARM Group Inc.

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APPENDIX E

February 19, 2021

Mr. Pete Haid
Tradepoint Atlantic
1600 Sparrows Point Boulevard
Baltimore, Maryland 21219

10975 Guilford Road, Suite A
Annapolis Junction, MD 20701
Phone (410) 880-4788
Fax (410) 880-4098
www.hcea.com

RE: Notice of Completion of Remedial Actions
Area A: Sub-Parcel A11-1
Baltimore County, Maryland
HCEA Project Number 19394A

Dear Mr. Haid:

Hillis-Carnes Engineering Associates, Inc. (HCEA) is pleased to provide this Notice of Completion of Remedial Actions (Notice) for Area A: Sub-Parcel A11-1 in the Sparrows Point area of Baltimore County, Maryland (Site).

In conjunction with HCEA's environmental services at the Site, HCEA was provided with the Response and Development Work Plan (RADWP) – Revision 3 for Area A: Sub-Parcel A11-1 (dated March 25, 2019). Based on observations made during HCEA's environmental monitoring at the Site, to the best of our knowledge, understanding, and belief, the environmental cap installed at the Site (e.g., pavement thickness, use of geotextile fabric, VCP-approved clean fill thickness) was installed in general accordance with the RADWP.

This Notice has been prepared for the exclusive use of the Client pursuant to the agreement between the Client and HCEA, dated June 28, 2019, in accordance with generally accepted industry practices. All terms and conditions set forth in the agreement are incorporated herein. No warranty, express or implied, is made herein. Use and reproduction of this Notice by any other person is unauthorized.

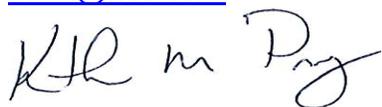
HCEA appreciates the opportunity to have been of assistance on this project. If you have any questions regarding this Notice, please feel free to contact us at 410-880-4788.

Sincerely,

HILLIS-CARNES ENGINEERING ASSOCIATES, INC.



Christopher J. Hillis, P.E.
Project Engineer
chillis@hcea.com



Keith M. Progin
Senior Environmental Project Manager
kprogin@hcea.com

Corporate Headquarters - Annapolis Junction, MD

Maryland ♦ Washington, DC ♦ Delaware ♦ Pennsylvania ♦ Virginia ♦ Caribbean

APPENDIX F

10975 Guilford Rd. Suite A
Annapolis Junction, MD 20701
Phone:410-880-4788 Fax:410-880-4098

Project No.: 17769B **Report No.:** **Date:** February 28, 2019
Project Name: SPT Northern Sewer Line **Weather/Temp:** Clear / mid 40s to mid 30s
Client: Trade Point Atlantic **Travel Time:** **hr** **Lunch Time:** **hr**
Contractor: FCL **On Site Time:** **hr** **Total Time:** 8.50 **hr**

A. Description of Work:

HCEA arrived onsite per client request for observation, and soil monitoring services.

CCS excavated in the northeast of the A11 parcel to install sanitary sewer pipe heading northeast. Removed soils were stockpiled to the side of excavation area. HCEA inspected soil excavated from the area and no instance of odors, staining, or PID readings above 10 ppm was observed. Dewatering was done into a frac tank southwest.

HCEA inspected the open trench on A11 that was observed to have oily substance entering on 2/27/19. Water in the trench was removed of substance with the use of 3m pads to determine if product was re-entering the trench.

Dixie excavated on Reservoir Road, north of the water reservoir, heading east from where excavation began north of the reservoir. Soils were placed on trucks and stockpiled on retail. Clean fill was used to backfill. HCEA inspected soil excavated from the area and no instance of odors, staining, or PID readings above 10 ppm was observed. Dewatering was done into the injection well to the east of the excavation area.

The Dixie crew working on the A2 parcel, west of the White Marsh Transportation Inc. building in order to lay sewer line heading north, did not excavate.

The Lee Foundation Co, Inc crew continued dewatering into a filter bag onto the drain to the northwest.

Tubing was attached to the PID and the end of the tubing was generally placed in the breathing zone at each excavation in which workers enter. There were no PID readings greater than 5 metered units at any location. In addition, HCEA monitored the PPE of each crew entering an excavation and all crews were wearing the appropriate Modified Level D PPE.

B. Tests Performed/Testing Equipment Used

C: Problems **Non-Compliance**

D. Referenced Plans/Drawings

Verification: _____ **Reviewed By:** KJR m Png **Technician:** Benjamin Jones

Project No.: 17769B **Report No.:** **Date:** March 1, 2019
Project Name: SPT Northern Sewer Line **Weather/Temp:** Cloudy / mid 30s
Client: Trade Point Atlantic **Travel Time:** **hr** **Lunch Time:** **hr**
Contractor: FCL **On Site Time:** **hr** **Total Time:**4.00 **hr**

A. Description of Work:

HCEA arrived onsite per client request for observation, and soil monitoring services.

CCS excavated in the northeast of the A11 parcel to install pipe heading northeast did not work due to weather.

HCEA inspected the open trench on A11 that was observed to have oily substance entering on 2/27/19. Water in the trench was again removed of substance with the use of 3m pads in order to better observe if oil was re-entering the excavation.

Dixie excavating on Reservoir road, north of the water reservoir did not work.

The Dixie crew working on the A2 parcel, west of the White Marsh Transportation Inc. building in order to lay sewer line heading north, did not work.

The Lee Foundation Co, Inc crew continued dewatering into a filter bag onto the drain to the northwest.

B. Tests Performed/Testing Equipment Used

C: Problems **Non-Compliance**

D. Referenced Plans/Drawings

Verification: _____ **Reviewed By:** *KH m Png* **Technician:** Benjamin Jones

10975 Guilford Rd. Suite A
Annapolis Junction, MD 20701
Phone:410-880-4788 Fax:410-880-4098

Project No.: 17769B	Report No.:	Date: March 5, 2019
Project Name: SPT Northern Sewer Line	Weather/Temp: Clear / mid 30s	
Client: Trade Point Atlantic	Travel Time: hr	Lunch Time: hr
Contractor: FCL	On Site Time: hr	Total Time: 9.50 hr

A. Description of Work:

HCEA arrived onsite per client request for observation, and soil monitoring services.

CCS excavated in the northeast of the A11 parcel to install pipe heading northeast. Removed soils were stockpiled to the side of excavation area. HCEA inspected soil excavated from the area and no instance of odors, staining, or PID readings above 10 ppm was observed. Dewatering was done into a frac tank southwest.

Dixie excavated on Reservoir Road, north of the water reservoir, heading east from where excavation began north of the reservoir. Soils were placed on trucks and stockpiled on retail. Clean fill was used to backfill. HCEA inspected soil excavated from the area and no instance of odors, staining, or PID readings above 10 ppm was observed. Dewatering was done into the injection well to the east of the excavation area.

The Dixie crew working on the A2 parcel, west of the White Marsh Transportation Inc. building did not excavate.

The Lee Foundation Co, Inc crew continued to backfill pump station and dewatered into a filter bag onto the drain to the northwest.

Tubing was attached to the PID and the end of the tubing was generally placed in the breathing zone at each excavation in which workers enter. There were no PID readings greater than 5 metered units at any location. In addition, HCEA monitored the PPE of each crew entering an excavation and all crews were wearing the appropriate Modified Level D PPE.

B. Tests Performed/Testing Equipment Used

C: Problems **Non-Compliance**

D. Referenced Plans/Drawings

Verification: _____ **Reviewed By:** KJR m Pyg **Technician:** Benjamin Jones

Project No.: 17769B **Report No.:** **Date:** March 8, 2019
Project Name: SPT Northern Sewer Line **Weather/Temp:** Cloudy / high to mid 30s
Client: Trade Point Atlantic **Travel Time:** **hr** **Lunch Time:** **hr**
Contractor: FCL **On Site Time:** **hr** **Total Time:** 7.75 **hr**

A. Description of Work:

HCEA arrived onsite per client request for observation, and soil monitoring services.

CCS backfilled the area that had the oily substance on 2/27/19. Prior to backfilling, HCEA inspected the trench and no evidence of an oily substance was observed entering the excavation. The excavation was also dewatered into the frac tank prior to backfilling.

Dixie crew that began excavating on Reservoir Road, north of the water reservoir, moved to a different project.

The Dixie crew working on the A2 parcel, west of the White Marsh Transportation Inc. building continued to excavate for jack and bore pit south by 695. Soils were placed north of excavation area. HCEA inspected soil excavated from the area and no instance of odors, staining, or PID readings above 10 ppm was observed. Dewatering was done into injection well to the north.

The Lee Foundation Co, Inc crew dewatered into a filter bag onto the drain to the northwest.

Tubing was attached to the PID and the end of the tubing was generally placed in the breathing zone at each excavation in which workers enter. There were no PID readings greater than 5 metered units at any location. In addition, HCEA monitored the PPE of each crew entering an excavation and all crews were wearing the appropriate Modified Level D PPE.

B. Tests Performed/Testing Equipment Used

C: Problems **Non-Compliance**

D. Referenced Plans/Drawings

Verification: _____ **Reviewed By:** KJR m Pjg **Technician:** Benjamin Jones

CRRGP F KZ'I

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Development Photograph Log
Sub-Parcel A11-1
Sparrows Point, Maryland



Photo 1: Utility installation



Photo 2: Paving in progress

Development Photograph Log
Sub-Parcel A11-1
Sparrows Point, Maryland



Photo 3: Installation of impermeable liner in stormwater basin

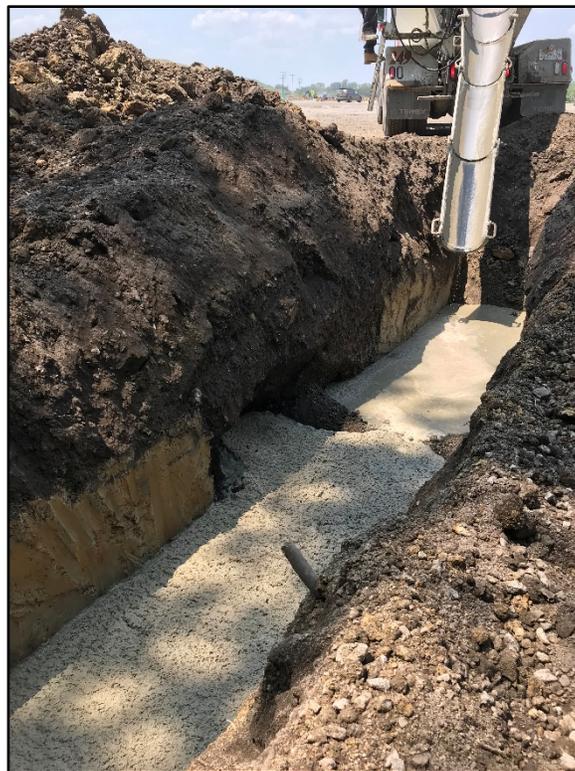


Photo 4: Trench plug construction

Development Photograph Log
Sub-Parcel A11-1
Sparrows Point, Maryland



Photo 5: Trench plug construction



Photo 6: Vapor barrier

Development Photograph Log
Sub-Parcel A11-1
Sparrows Point, Maryland



Photo 7: Vapor barrier



Photo 8: Modified Level D PPE

Development Photograph Log
Sub-Parcel A11-1
Sparrows Point, Maryland



Photo 9: Modified Level D PPE



Photo 10: Clean fill placement

Development Photograph Log
Sub-Parcel A11-1
Sparrows Point, Maryland



Photo 11: Clean fill placement



Photo 12: Clean fill depth verification

APPENDIX H



ARM Group Inc.

Engineers and Scientists

April 29, 2019

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

Re: Quarterly Development Status Update
First Quarter 2019
Area A: Sub-Parcel A11-1
Tradepoint Atlantic
Sparrows Point, MD 21219

Dear Ms. Brown,

ARM Group Inc. (ARM), on behalf of EnviroAnalytics Group (EAG), has prepared this Quarterly Development Status Update to document ongoing and completed development activities performed on Sub-Parcel A11-1 during the first quarter of 2019. The development of Sub-Parcel A11-1 is proceeding in accordance with the Response and Development Work Plan (RADWP), Revision 3, which was submitted to the agencies on March 25, 2019. The overall development of Sub-Parcel A11-1 generally includes grading, placement of subbase materials, installation of utilities, construction of a warehouse building, installation of a sub-slab vapor barrier with a passive/active sub-slab venting system, paving, landscape improvements, and the installation of stormwater management features. All development work performed on Sub-Parcel A11-1 during the first quarter of 2019 was directly related to the installation of a sewer line, which is being installed as a component of the Northern Sewer Line Plan (which was coordinated with the agencies via email in early 2018 and approved on March 12, 2018). The remaining Northern Sewer Line work performed outside the Sub-Parcel A11-1 boundary will not be addressed in Quarterly Development Status Updates but rather will be discussed in the Development Completion Report for the Northern Sewer Line.

Environmental Oversight

Full-time oversight was performed by an Environmental Professional (EP) provided by Hillis Carnes Engineering Associates (HCEA) during intrusive development activities. In addition to general oversight to ensure compliance with environmental regulations and the development plans, the EP was responsible for performing dust monitoring and soil screening services during intrusive activities.

Development Progress

Northern Sewer Line development work within Sub-Parcel A11-1 was performed between February 6, 2019 and March 11, 2019 by CCS. To date, utility excavation and installation have been performed.

Dust Monitoring

Visual dust monitoring was performed during the Northern Sewer Line installation on Sub-Parcel A11-1. No visible dust was observed in the first quarter of 2019. When dust generation was anticipated due to site conditions and planned development work, the Contractor utilized a water truck to suppress dust.

Soil Management

Blast Furnace graded aggregate base (GAB) was used to backfill the utility trenches excavated during the first quarter of 2019. The EP screened excavated material with a MultiRAE photoionization detector (PID). One instance of elevated PID readings (greater than 50 ppm) was recorded. The soils in question were segregated and placed on polyethylene sheeting. The stockpiled soil (less than 20 cubic yards) was covered with polyethylene sheeting to prevent runoff during rainfall events. No elevated PID readings, odors, or staining were detected in any of the other soils inspected. The stockpiled soil has not yet been sampled for laboratory analysis. No offsite removal of soils to Greys Landfill or elsewhere were performed.

Water Management

In February and March 2019, dewatering activities involved pumping accumulated water to an on-site frac tank with primary and secondary carbon filters. An initial water sample was collected from the effluent (after treatment) on February 7, 2019 prior to transporting any water to the Humphreys Creek Wastewater Treatment Plant (HCWWTP). Weekly water samples were then collected from both the effluent (after primary and secondary filters) and mid-fluent (after primary filter only). The samples were collected on February 12, February 19, February 26, March 4, and March 12, 2019. The samples were analyzed for Oil & Grease, naphthalene, and benzene. Following the receipt of laboratory results, the water was transported to the HCWWTP. Documentation will be provided with the Sub-Parcel A11-1 Development Completion Report.

Notable Occurrences

On February 27, 2019, an oily substance was detected in the groundwater entering the excavation of the Northern Sewer Line on Sub-Parcel A11-1. The contractor over-excavated the area in which the substance appeared to originate. The MDE was notified of the occurrence. HCEA used absorbent pads to remove any potential product from the excavation. The excavation was monitored daily and following the removal of the product with absorbent pads, the oily substance was no longer observed in the water. A water sample was collected from the excavation. and the



MDE approved the backfilling the trench. Documentation will be provided with the Sub-Parcel A11-1 Development Completion Report.

If you have questions regarding any information covered in this document, please feel free to contact ARM Group Inc. at (410) 290-7775.

Respectfully Submitted,
ARM Group Inc.



Melissa A. Replogle, E.I.T.
Staff Engineer



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





ARM Group Inc.

Engineers and Scientists

October 2, 2019

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

Re: Quarterly Development Status Update
Second Quarter 2019 – Revision 1
Area A: Sub-Parcel A11-1
Comment Response Letter
Tradepoint Atlantic
Sparrows Point, MD 21219

Dear Ms. Brown:

On behalf of EnviroAnalytics Group, LLC (EAG), ARM Group Inc. (ARM) is pleased to provide the following responses to comments provided by the Maryland Department of the Environment (MDE) via emails on August 20, 2019 and September 17, 2019 regarding the previous submission of the Sub-Parcel A11-1 Quarterly Development Status Update for the second quarter of 2019 (Revision 0 dated July 30, 2019). An updated version of the document (Revision 1) accompanies this letter. Responses to specific MDE comments are given below; the original comments are included in italics with responses following.

Responses to MDE Comments:

- 1. Can you send a figure showing where these newly discovered wells were located on the sub-parcel? I've searched our well database and determined that they were installed in October 1992 and were approximately 7' to 8' deep. Does this match what you identified? Also, please clarify if these wells were gauged prior to abandonment.*

A figure showing the locations of the five previously unknown wells has been provided as **Figure 1** included with the Quarterly Development Status Update for the 2nd Quarter of 2019 (Revision 1). Each well was 4 inches in diameter with an approximate depth of 8 feet below ground surface (bgs), which is consistent with the database records referenced in the above comment. One of the five wells was found to be missing or destroyed prior to abandonment. The other four wells were gauged prior to abandonment. No light or dense non-aqueous phase liquid (LNAPL or DNAPL) was observed in any well.

2. *Regarding the development progress, please specify what is meant by building pad construction. Is this the laying of stone/slag within the pad site?*

Building pad construction refers to the placing of slag within the building footprint.

3. *MDE must be notified prior to the installation of the vapor barrier so that we can schedule a site visit to observe the work. Also, we require notification of the vapor barrier testing so we may observe this as well.*

The vapor barrier installation was completed in the third quarter of 2019 prior to receipt of the MDE's request to observe the work via email on August 20, 2019. No vapor barrier testing was proposed under the Sub-Parcel A11-1 Response and Development Work Plan (RADWP). Additional details, photographs, and information will be provided by Tradepoint Atlantic under a separate response.

4. *Is sewer line work on the parcel complete?*

Sewer line work on the sub-parcel is not yet complete.

5. *Please submit the results (in table format) of the weekly water sampling from dewatering activities along with these quarterly reports.*

Dewatering analytical results are provided in **Table 1** included with the Quarterly Development Status Update for the 2nd Quarter of 2019 (Revision 1). Additional data will be added to this table for inclusion in future Quarterly Development Status Updates.

6. *As a follow-up to my comments on the 2nd Quarter development status update for Parcel A11-1, I'm adding a requirement to include a schedule for upcoming work to be conducted on-site within each status update. For example, the next 3rd quarter update must include a section detailing work to be done in the 4th quarter. The schedule does not need to be detailed but I am attempting to ensure that MDE does not miss any development work that we may want to observe as it is being done (ex: vapor barrier installations). This requirement will extend to all status reports, not only A11-1.*

A summary of planned activities for the next quarter will be included in future quarterly development status updates, beginning with those to be submitted for the third quarter of 2019.



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

Respectfully submitted,
ARM Group Inc.



Melissa Replogle, E.I.T.
Project Engineer



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





ARM Group Inc.

Engineers and Scientists

October 2, 2019

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

Re: Quarterly Development Status Update
Second Quarter 2019
Area A: Sub-Parcel A11-1
Tradepoint Atlantic
Sparrows Point, MD 21219

Dear Ms. Brown,

ARM Group Inc. (ARM), on behalf of EnviroAnalytics Group (EAG), has prepared this Quarterly Development Status Update to document ongoing and completed development activities performed on Sub-Parcel A11-1 during the second quarter of 2019. The development of Sub-Parcel A11-1 is proceeding in accordance with the Response and Development Work Plan (RADWP), Revision 3, which was submitted to the agencies on March 25, 2019. The overall development of Sub-Parcel A11-1 generally includes grading, placement of subbase materials, installation of utilities, construction of a warehouse building, installation of a sub-slab vapor barrier with a passive/active sub-slab venting system, paving, landscape improvements, and the installation of stormwater management features. Additional development work performed on Sub-Parcel A11-1 during the first quarter of 2019 was directly related to the installation of a sewer line, which is being installed as a component of the Northern Sewer Line Plan (which was coordinated with the agencies via email in early 2018 and approved on March 12, 2018). The remaining Northern Sewer Line work performed outside the Sub-Parcel A11-1 boundary will not be addressed in Quarterly Development Status Updates but rather will be discussed in the Development Completion Report for the Northern Sewer Line. Development work performed in the second quarter of 2019 was performed in accordance with the Sub-Parcel A11-1 RADWP.

Piezometer and Well Abandonment

The 51 NAPL screening piezometers located within Parcel A11, including numerous piezometers within, or in the immediate vicinity of, the Sub-Parcel A11-1 boundary, were properly abandoned in accordance with COMAR 26.04.04.34 through 36 between October 23 and October 31, 2018, prior to the start of development activities. In addition, three permanent

wells (LF-04S and LF-05 located inside the Sub-Parcel A11-1 boundary and LF-03D located just outside the Sub-Parcel A11-1 boundary) were properly abandoned in accordance with COMAR 26.04.04.34 through 36 between October 25 and November 9, 2018 prior to the start of development activities. Permanent well LF-03S (located in close proximity to the development sub-parcel) was discovered in late April 2019 to have been abandoned or destroyed. Five additional wells that were previously unknown (Well Permits BA-92-0987 through BA-92-0991) were discovered within the Sub-Parcel A11-1 boundary during the second quarter of 2019 (see **Figure 1**). One such well was later discovered to have been destroyed, and the other four wells were properly abandoned in accordance with COMAR 26.04.04.34 through 36 on May 1, 2019.

There are no remaining piezometers or wells on the sub-parcel. Abandonment records will be provided in the Sub-Parcel A11-1 Development Completion Report.

Environmental Oversight

Full-time oversight was performed by an Environmental Professional (EP) provided by Hillis Carnes Engineering Associates (HCEA) during intrusive development activities. In addition to general oversight to ensure compliance with environmental regulations and the development plans, the EP was responsible for performing dust monitoring and soil screening services during intrusive activities.

Development Progress

Northern Sewer Line development work within Sub-Parcel A11-1, consisting of utility excavation and installation, was performed between February 6, 2019 and March 11, 2019 by CCS. Development activities in support of the Sub-Parcel A11-1 RADWP began in April 2019 with ARCO Murray as the General Contractor. Work to date has included installation of sediment and erosion control measures; sediment basin construction; utility line excavation and installation; fill placement and mass grading; building pad construction; and installation of perforated pipe for the planned sub-slab soil gas venting system.

Dust Monitoring

Dust monitoring was performed with MetOne E-Sampler dust monitors. Dust control measures would be implemented if a sustained level above 3.0 milligrams per cubic meter (mg/m^3) was observed. During the second quarter of 2019, no exceedances of the 3.0 mg/m^3 action level were observed. When dust generation was anticipated due to site conditions and planned development work, the Contractor utilized a water truck to suppress dust.

Soil Management

Blast Furnace graded aggregate base (GAB) was used to backfill the utility trenches excavated during the first quarter of 2019. A section of trench was backfilled with slag impacted by naphthalene, as reported to the MDE via an email from Tradepoint Atlantic on July 18, 2018.



Trench plugs and geotextile marker fabric will be installed in this area in accordance with the referenced email, which was approved by the MDE on July 25, 2019. Additional details will be provided in the Sub-Parcel A11-1 Development Completion Report.

During the second quarter of 2019, slag was placed as building pad fill. The EP screened excavated material with a MultiRAE photoionization detector (PID). Material excavated from utility trenches that did not exhibit elevated PID readings or other evidence of contamination was replaced in the utility trenches as backfill. Soils exhibiting elevated PID readings and odors were detected on several occasions (generally on the eastern portion of the project). These soils were segregated and placed on polyethylene sheeting on Parcel A11 (outside the Sub-Parcel A11-1 boundary). The stockpiled soil (700 cubic yards) was covered with polyethylene sheeting to prevent runoff during rainfall events. In addition, all soil excavated from the designated NAPL areas (as shown on Figure 16 of the Sub-Parcel A11-1 RADWP) in the eastern portion of the sub-parcel were stockpiled on polyethylene sheeting. Utility trenches in these areas were backfilled either with 57 stone, and trench plugs have been installed in accordance with the Utility Excavation NAPL Contingency Plan. The stockpiled soils have not yet been sampled for laboratory analysis. No offsite removal of soils to Greys Landfill or elsewhere were performed.

Water Management

In the second quarter of 2019, dewatering activities involved pumping accumulated water to an on-site frac tank with primary and secondary carbon filters. All water was transported to the Humphreys Creek Wastewater Treatment Plant (HCWWTP) by truck. An initial water sample was collected from the effluent (after treatment) during the first quarter of 2019 prior to transporting any water to the HCWWTP. Weekly water samples were then collected from the influent (before treatment), mid-fluent (after primary filter only), and effluent (after primary and secondary filters). The samples were analyzed for Oil & Grease, naphthalene, and benzene. The results are summarized in **Table 1**. Laboratory reports will be provided with the Sub-Parcel A11-1 Development Completion Report.

If you have questions regarding any information covered in this document, please feel free to contact ARM Group Inc. at (410) 290-7775.

Respectfully Submitted,
ARM Group Inc.



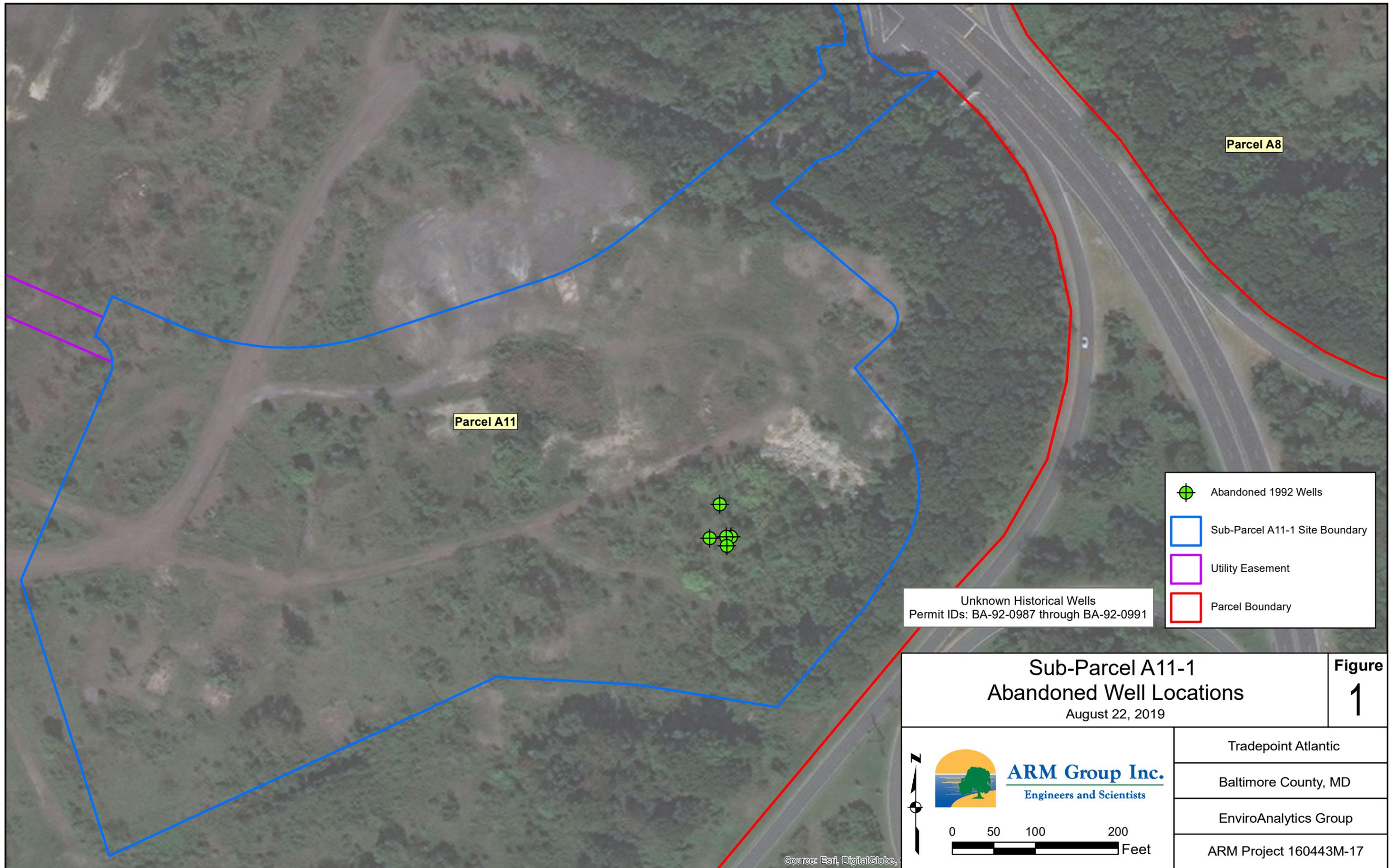
Melissa A. Replogle, E.I.T.
Project Engineer



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



FIGURES



Parcel A8

Parcel A11

-  Abandoned 1992 Wells
-  Sub-Parcel A11-1 Site Boundary
-  Utility Easement
-  Parcel Boundary

Unknown Historical Wells
Permit IDs: BA-92-0987 through BA-92-0991

Sub-Parcel A11-1
Abandoned Well Locations

August 22, 2019

Figure
1



ARM Group Inc.
Engineers and Scientists

0 50 100 200
Feet

Tradepoint Atlantic

Baltimore County, MD

EnviroAnalytics Group

ARM Project 160443M-17

Source: Esri, DigitalGlobe,

TABLES

Table 1
Sub-Parcel A11-1
Dewatering Analytical Results

Sample Type	Sample ID	Sample Date	Oil & Grease (µg/L)	Benzene (µg/L)	Naphthalene (µg/L)
Mid-fluent	M41719	4/17/2019	ND	ND	5.90
Effluent	E41719	4/17/2019	ND	ND	1.60
Influent	I42319	4/23/2019	ND	ND	ND
Mid-fluent	M42319	4/23/2019	ND	ND	11.0
Effluent	E42319	4/23/2019	ND	ND	ND
Influent	I43019	4/30/2019	ND	ND	ND
Mid-fluent	M43019	4/30/2019	ND	ND	3.10
Effluent	E43019	4/30/2019	ND	ND	ND
Influent	I5719	5/7/2019	ND	ND	ND
Mid-fluent	M5719	5/7/2019	ND	ND	ND
Effluent	E5719	5/7/2019	ND	ND	ND
Influent	I51319	5/13/2019	2,300	26.0	3.70
Mid-fluent	M51319	5/13/2019	ND	ND	ND
Effluent	E51319	5/13/2019	ND	ND	ND
Influent	I52119	5/21/2019	3,000	9,500	2,900
Mid-fluent	M52119	5/21/2019	ND	710	41.0
Effluent	E52119	5/21/2019	ND	ND	ND
Influent	I53019	5/30/2019	2,500	8,300	3,200
Mid-fluent	M53019	5/30/2019	ND	330	13.0
Effluent	E53019	5/30/2019	ND	ND	ND
Influent	I6619	6/6/2019	ND	560	17.0
Mid-fluent	M6619	6/6/2019	ND	31.0	ND
Effluent	E6619	6/6/2019	ND	ND	ND

ND = Non-detect



ARM Group Inc.

Engineers and Scientists

October 30, 2019

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

Re: Quarterly Development Status Update
Third Quarter 2019
Area A: Sub-Parcel A11-1
Tradepoint Atlantic
Sparrows Point, MD 21219

Dear Ms. Brown,

ARM Group Inc. (ARM), on behalf of EnviroAnalytics Group (EAG), has prepared this Quarterly Development Status Update to document ongoing and completed development activities performed on Sub-Parcel A11-1 during the third quarter of 2019. The development of Sub-Parcel A11-1 is proceeding in accordance with the Response and Development Work Plan (RADWP), Revision 4, which was submitted to the agencies on May 28, 2019, approved by the Maryland Department of the Environment (MDE) on June 18, 2019. A previous version of the RADWP (Revision 1) was approved conditionally by the United States Environmental Protection Agency (USEPA) and the MDE on October 15, 2018. The overall development of Sub-Parcel A11-1 generally includes grading, placement of subbase materials, installation of utilities, construction of a warehouse building, installation of a sub-slab vapor barrier with a passive/active sub-slab venting system, paving, landscape improvements, and the installation of stormwater management features. Additional development work performed on Sub-Parcel A11-1 during the first quarter of 2019 was directly related to the installation of a sewer line, which is being installed as a component of the Northern Sewer Line Plan (which was coordinated with the agencies via email in early 2018 and approved on March 12, 2018). The remaining Northern Sewer Line work performed outside the Sub-Parcel A11-1 boundary is being addressed in a separate Development Completion Report for the Northern Sewer Line. Development work performed beginning in the second quarter of 2019 was performed in accordance with the Sub-Parcel A11-1 RADWP Revision 4. Development work completed on Sub-Parcel A11-1 prior to July 1, 2019 is discussed in the previously submitted Quarterly Development Status Updates (April 29, 2019 and October 2, 2019).

Piezometer and Well Abandonment

The 51 non-aqueous phase liquid (NAPL) screening piezometers located within Parcel A11, including numerous piezometers within, or in the immediate vicinity of, the Sub-Parcel A11-1 boundary, were properly abandoned in accordance with COMAR 26.04.04.34 through 36 between October 23 and October 31, 2018, prior to the start of development activities. In addition, three permanent wells (LF-04S and LF-05 located inside the Sub-Parcel A11-1 boundary and LF-03D located just outside the Sub-Parcel A11-1 boundary) were properly abandoned in accordance with COMAR 26.04.04.34 through 36 between October 25 and November 9, 2018 prior to the start of development activities. Permanent well LF-03S (located in close proximity to the development sub-parcel) was discovered in late April 2019 to have been abandoned or destroyed. Five additional wells that were previously unknown (Well Permits BA-92-0987 through BA-92-0991) were discovered within the Sub-Parcel A11-1 boundary during the second quarter of 2019 (see **Figure 1**). One such well was later discovered to have been destroyed, and the other four wells were properly abandoned in accordance with COMAR 26.04.04.34 through 36 on May 1, 2019.

There are no remaining piezometers or wells on the sub-parcel. Abandonment records will be provided in the Sub-Parcel A11-1 Development Completion Report.

Environmental Oversight

Full-time oversight was performed by an Environmental Professional (EP) provided by Hillis Carnes Engineering Associates (HCEA) during intrusive development activities. In addition to general oversight to ensure compliance with environmental regulations and the development plans, the EP was responsible for performing dust monitoring and soil screening services during intrusive activities.

Development Progress

Northern Sewer Line development work within Sub-Parcel A11-1, consisting of utility excavation and installation, was performed between February 6, 2019 and March 11, 2019 by CCS. Development activities in support of the Sub-Parcel A11-1 RADWP began in April 2019 with ARCO Murray as the General Contractor. Work to date has included installation of sediment and erosion control measures; sediment basin construction; utility line excavation and installation; fill placement and mass grading; building pad construction; installation of perforated pipe for the sub-slab soil gas venting system, installation of the vapor barrier, building construction, placement of clean fill, and paving.

Dust Monitoring

Dust monitoring was performed with MetOne E-Sampler dust monitors. Dust control measures would be implemented if a sustained level above 3.0 milligrams per cubic meter (mg/m^3) was observed. During the third quarter of 2019, two exceedances of the 3.0 mg/m^3 action level were



observed. When dust generation was anticipated due to site conditions and planned development work, the Contractor utilized a water truck to suppress dust.

Soil Management

The EP screened excavated material with a MultiRAE photoionization detector (PID). Material excavated from utility trenches that did not exhibit elevated PID readings or other evidence of contamination was replaced in the utility trenches as backfill. Soils exhibiting elevated PID readings and odors were detected on several occasions (generally on the eastern portion of the project). These soils were segregated and placed on polyethylene sheeting on Parcel A11 (outside the Sub-Parcel A11-1 boundary). The stockpiled soil (1,200 cubic yards) was covered with polyethylene sheeting to prevent runoff during rainfall events. In addition, all soil excavated from the designated NAPL areas (as shown on Figure 16 of the Sub-Parcel A11-1 RADWP) in the eastern portion of the sub-parcel were stockpiled on polyethylene sheeting. Utility trenches in these areas were backfilled with stone, and trench plugs have been installed in accordance with the Utility Excavation NAPL Contingency Plan. The stockpiled soils have not yet been sampled for laboratory analysis. No offsite removal of soils to Greys Landfill or elsewhere were performed. Documentation for all clean fill placed during the third quarter of 2019 will be provided in the Sub-Parcel A11-1 Development Completion Report.

Trench plugs were installed surrounding the section of trench where naphthalene-impacted slag was used as backfill. As requested by the MDE, the locations of these trench plugs were recorded and will be reported in the Sub-Parcel A11-1 Development Completion Report. Trench plugs were also installed in utility trenches installed through areas of soil with known NAPL impacts as specified in the RADWP.

Water Management

In the third quarter of 2019, dewatering activities involved pumping accumulated water to an on-site frac tank with primary and secondary carbon filters. All water was transported to the Humphreys Creek Wastewater Treatment Plant (HCWWTP) by truck. An initial water sample was collected from the effluent (after treatment) during the first quarter of 2019 prior to transporting any water to the HCWWTP. During active dewatering work, weekly water samples were then collected from the influent (before treatment), mid-fluent (after primary filter only), and effluent (after primary and secondary filters). The samples were analyzed for Oil & Grease, naphthalene, and benzene. The results are summarized in **Table 1**. Laboratory reports will be provided with the Sub-Parcel A11-1 Development Completion Report.



If you have questions regarding any information covered in this document, please feel free to contact ARM Group Inc. at (410) 290-7775.

Respectfully Submitted,
ARM Group Inc.



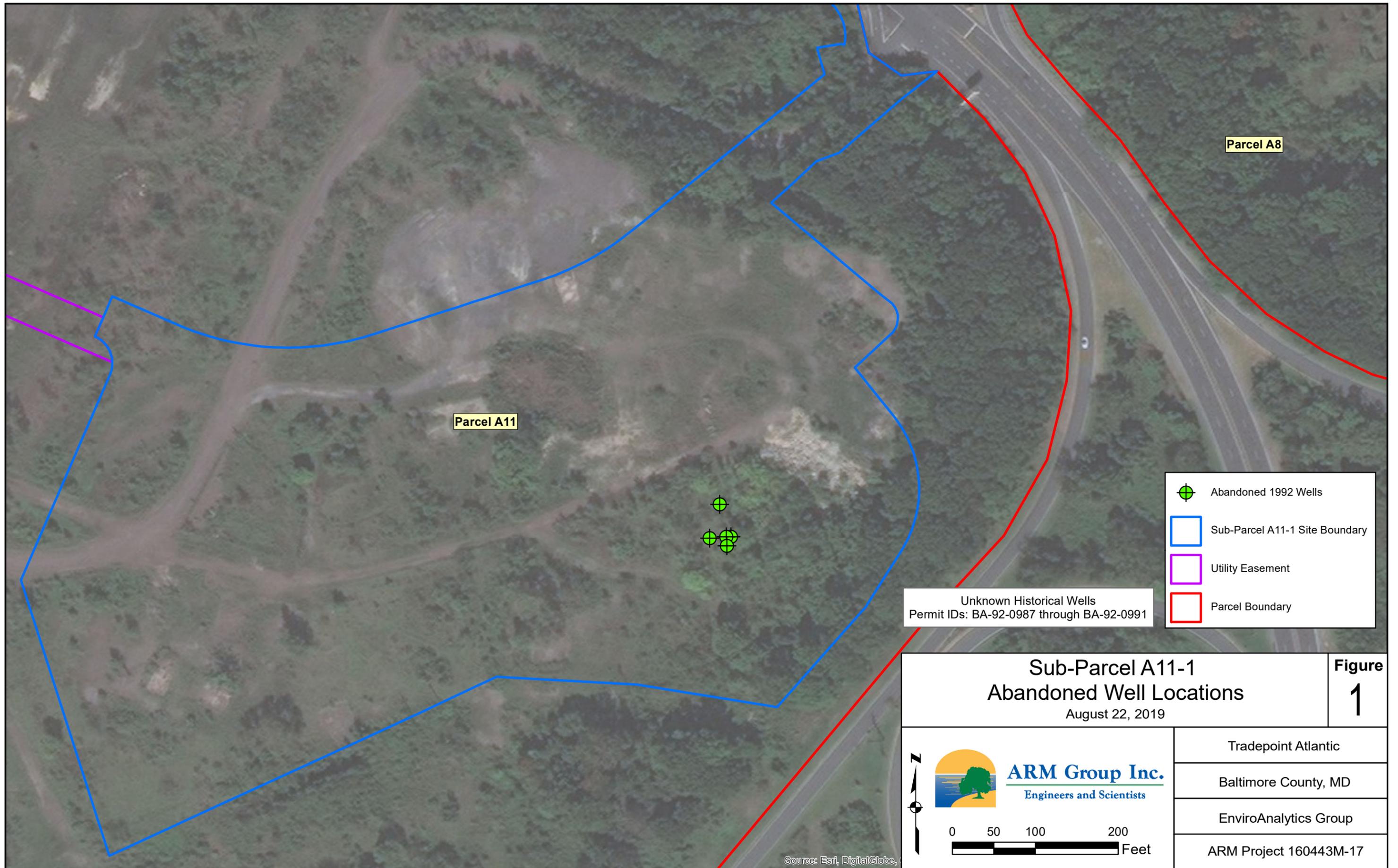
Melissa A. Replogle, E.I.T.
Project Engineer



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



FIGURES



Parcel A8

Parcel A11

-  Abandoned 1992 Wells
-  Sub-Parcel A11-1 Site Boundary
-  Utility Easement
-  Parcel Boundary

Unknown Historical Wells
Permit IDs: BA-92-0987 through BA-92-0991

**Sub-Parcel A11-1
Abandoned Well Locations**

August 22, 2019

**Figure
1**



ARM Group Inc.
Engineers and Scientists

0 50 100 200
Feet

Tradepoint Atlantic

Baltimore County, MD

EnviroAnalytics Group

ARM Project 160443M-17

Source: Esri, DigitalGlobe,

TABLES

Tradepoint Atlantic - A-11 Dewatering Results (all results in mg/L)

Sample Date	Location	Oil & Grease	Benzene	Naphthalene
2/7/2019	Effluent -Initial Test	ND	ND	0.058
	Mid-Fluent	NT	NT	NT
	Influent	NT	NT	NT
2/12/2019	Effluent	ND	ND	ND
	Mid-Fluent	ND	ND	ND
	Influent	NT	NT	NT
2/19/2019	Effluent	ND	ND	ND
	Mid-Fluent	ND	ND	ND
	Influent	NT	NT	NT
2/26/2019	Effluent	ND	ND	ND
	Mid-Fluent	ND	ND	ND
	Influent	NT	NT	NT
3/4/2019	Effluent	ND	ND	ND
	Mid-Fluent	ND	ND	ND
	Influent	NT	NT	NT
3/12/2019	Effluent	ND	ND	ND
	Mid-Fluent	ND	ND	ND
	Influent	NT	NT	NT
4/17/2019	Effluent	ND	ND	0.0016
	Mid-Fluent	ND	ND	0.0059
	Influent	NT	NT	NT
4/23/2019	Effluent	ND	ND	ND
	Mid-Fluent	ND	ND	0.011
	Influent	ND	ND	ND
4/30/2019	Effluent	ND	ND	ND
	Mid-Fluent	ND	ND	0.0031
	Influent	ND	ND	ND
5/7/2019	Effluent	ND	ND	ND
	Mid-Fluent	ND	ND	ND
	Influent	ND	ND	ND
5/13/2019	Effluent	ND	ND	ND
	Mid-Fluent	ND	ND	ND
	Influent	2.3	0.026	0.0037
5/21/2019	Effluent	ND	ND	ND
	Mid-fluent	ND	0.71	0.041
	Influent	3	9.5	2.9

5/30/2019	Effluent	ND	ND	ND
	Mid-fluent	ND	0.33	0.013
	Influent	2.5	8.3	3.2
<hr/>				
6/6/2019	Effluent	ND	ND	ND
	Mid-Fluent	ND	0.031	ND
	Influent	ND	0.56	0.017
<hr/>				
7/26/2019	Effluent	ND	ND	ND
	Mid-Fluent	ND	ND	ND
	Influent	3.4	2.4	1.8
<hr/>				
7/31/2019	Effluent	ND	ND	ND
	Mid-fluent	ND	ND	ND
	Influent	2.6	3.2	1.6
<hr/>				
9/18/2019	Effluent	ND	ND	ND
	Mid-fluent	ND	ND	ND
	Influent	2.7	0.0019	0.033
<hr/>				
9/23/2019	Effluent	ND	ND	ND
	Mid-fluent	ND	ND	ND
	Influent	ND	0.047	0.019
<hr/>				
9/30/2019	Effluent	ND	ND	ND
	Mid-fluent	ND	ND	ND
	Influent	3.2	0.036	0.016

ND = Not Detected Above the Laboratory's Quantitative Limit

NT = Not Tested



ARM Group LLC

Engineers and Scientists

January 27, 2020

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

Re: Quarterly Development Status Update
Fourth Quarter 2019
Area A: Sub-Parcel A11-1
Tradepoint Atlantic
Sparrows Point, MD 21219

Dear Ms. Brown,

On behalf of EnviroAnalytics Group, LLC (EAG), ARM Group LLC (ARM) has prepared this Quarterly Development Status Update to document ongoing and completed development activities performed on Sub-Parcel A11-1 during the fourth quarter of 2019. The development of Sub-Parcel A11-1 is proceeding in accordance with the Response and Development Work Plan (RADWP), Revision 4, which was submitted to the agencies on May 28, 2019, approved by the Maryland Department of the Environment (MDE) on June 18, 2019. A previous version of the RADWP (Revision 1) was approved conditionally by the United States Environmental Protection Agency (USEPA) and the MDE on October 15, 2018. The overall development of Sub-Parcel A11-1 generally includes grading, placement of subbase materials, installation of utilities, construction of a warehouse building, installation of a sub-slab vapor barrier with a passive/active sub-slab venting system, paving, landscape improvements, and the installation of stormwater management features. Additional development work performed on Sub-Parcel A11-1 during the first quarter of 2019 was directly related to the installation of a sewer line, which is being installed as a component of the Northern Sewer Line Plan (which was coordinated with the agencies via email in early 2018 and approved on March 12, 2018). The remaining Northern Sewer Line work performed outside the Sub-Parcel A11-1 boundary is being addressed in a separate Development Completion Report for the Northern Sewer Line. Development work performed beginning in the second quarter of 2019 was performed in accordance with the Sub-Parcel A11-1 RADWP Revision 4. Development work completed on Sub-Parcel A11-1 prior to October 1, 2019 is discussed in the previously submitted Quarterly Development Status Updates (April 29, 2019, October 2, 2019, and October 30, 2019).

Piezometer and Well Abandonment

The 51 non-aqueous phase liquid (NAPL) screening piezometers located within Parcel A11, including numerous piezometers within, or in the immediate vicinity of, the Sub-Parcel A11-1 boundary, were properly abandoned in accordance with COMAR 26.04.04.34 through 36 between October 23 and October 31, 2018, prior to the start of development activities. In addition, three permanent wells (LF-04S and LF-05 located inside the Sub-Parcel A11-1 boundary and LF-03D located just outside the Sub-Parcel A11-1 boundary) were properly abandoned in accordance with COMAR 26.04.04.34 through 36 between October 25 and November 9, 2018 prior to the start of development activities. Permanent well LF-03S (located in close proximity to the development sub-parcel) was discovered in late April 2019 to have been abandoned or destroyed. Five additional wells that were previously unknown (Well Permits BA-92-0987 through BA-92-0991) were discovered within the Sub-Parcel A11-1 boundary during the second quarter of 2019 (see **Figure 1**). One such well was later discovered to have been destroyed, and the other four wells were properly abandoned in accordance with COMAR 26.04.04.34 through 36 on May 1, 2019.

There are no remaining piezometers or wells on the sub-parcel. Abandonment records will be provided in the Sub-Parcel A11-1 Development Completion Report.

Environmental Oversight

Full-time oversight was performed by an Environmental Professional (EP) provided by Hillis Carnes Engineering Associates (HCEA) during intrusive development activities. In addition to general oversight to ensure compliance with environmental regulations and the development plans, the EP was responsible for performing dust monitoring and soil screening services during intrusive activities. Full-time EP oversight concluded on December 23, 2019 following the completion of all intrusive and capping activities. The EP continued to visit the site for the remainder of December 2019 and observed no work being performed.

Development Progress

Northern Sewer Line development work within Sub-Parcel A11-1, consisting of utility excavation and installation, was performed between February 6, 2019 and March 11, 2019 by CCS. Development activities in support of the Sub-Parcel A11-1 RADWP began in April 2019 with ARCO Murray as the General Contractor. Work to date has included installation of sediment and erosion control measures; sediment basin construction; utility line excavation and installation; fill placement and mass grading; building pad construction; installation of perforated pipe for the sub-slab soil gas venting system, installation of the vapor barrier, building construction, placement of clean fill, and paving.



Dust Monitoring

Dust monitoring was performed with MetOne E-Sampler dust monitors. Dust control measures would be implemented if a sustained level above 3.0 milligrams per cubic meter (mg/m^3) was observed. During the fourth quarter of 2019, no exceedances of the $3.0 \text{ mg}/\text{m}^3$ action level were observed. When dust generation was anticipated due to site conditions and planned development work, the Contractor utilized a water truck to suppress dust.

Soil Management

The EP screened excavated material with a MultiRAE photoionization detector (PID). Material excavated from utility trenches that did not exhibit elevated PID readings or other evidence of contamination was replaced in the utility trenches as backfill. Soils exhibiting elevated PID readings and odors were detected on one occasion (on the eastern portion of the project). The soil was segregated and placed on polyethylene sheeting on Parcel A11 (outside the Sub-Parcel A11-1 boundary). The stockpiled soil (approximately 100 cubic yards) was covered with polyethylene sheeting to prevent runoff during rainfall events. In addition, all soil excavated from the designated NAPL areas (as shown on Figure 16 of the Sub-Parcel A11-1 RADWP) in the eastern portion of the sub-parcel were stockpiled on polyethylene sheeting. Utility trenches in these areas were backfilled with stone, and trench plugs were installed in utility trenches installed through areas of soil with known NAPL impacts as specified in the RADWP. The stockpiled soils have not yet been sampled for laboratory analysis. No offsite removal of soils to Greys Landfill or elsewhere was performed. Documentation for all clean fill placed during the fourth quarter of 2019 will be provided in the Sub-Parcel A11-1 Development Completion Report.

Water Management

In the fourth quarter of 2019, dewatering activities involved pumping accumulated water to an on-site frac tank with primary and secondary carbon filters. All water was transported to the Humphreys Creek Wastewater Treatment Plant (HCWWTP) by truck. An initial water sample was collected from the effluent (after treatment) during the first quarter of 2019 prior to transporting any water to the HCWWTP. Dewatering was completed on November 5, 2019. During active dewatering work, weekly water samples were then collected from the influent (before treatment), mid-fluent (after primary filter only), and effluent (after primary and secondary filters). The samples were analyzed for Oil & Grease, naphthalene, and benzene. The results are summarized in **Table 1**. Laboratory reports will be provided with the Sub-Parcel A11-1 Development Completion Report.



If you have questions regarding any information covered in this document, please feel free to contact ARM Group LLC at (410) 290-7775.

Respectfully Submitted,
ARM Group LLC



Melissa A. Replogle, E.I.T.
Project Engineer



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



FIGURES



Parcel A8

Parcel A11

-  Abandoned 1992 Wells
-  Sub-Parcel A11-1 Site Boundary
-  Utility Easement
-  Parcel Boundary

Unknown Historical Wells
Permit IDs: BA-92-0987 through BA-92-0991

Sub-Parcel A11-1 Abandoned Well Locations

August 22, 2019

**Figure
1**



ARM Group Inc.
Engineers and Scientists

0 50 100 200
Feet

Tradepoint Atlantic

Baltimore County, MD

EnviroAnalytics Group

ARM Project 160443M-17

Source: Esri, DigitalGlobe,

TABLES

Tradeport Atlantic - A-11 Dewatering Results (all results in mg/L)

Sample Date	Location	Oil & Grease	Benzene	Naphthalene
2/7/2019	Effluent -Initial Test	ND	ND	0.058
	Mid-Fluent	NT	NT	NT
	Influent	NT	NT	NT
2/12/2019	Effluent	ND	ND	ND
	Mid-Fluent	ND	ND	ND
	Influent	NT	NT	NT
2/19/2019	Effluent	ND	ND	ND
	Mid-Fluent	ND	ND	ND
	Influent	NT	NT	NT
2/26/2019	Effluent	ND	ND	ND
	Mid-Fluent	ND	ND	ND
	Influent	NT	NT	NT
3/4/2019	Effluent	ND	ND	ND
	Mid-Fluent	ND	ND	ND
	Influent	NT	NT	NT
3/12/2019	Effluent	ND	ND	ND
	Mid-Fluent	ND	ND	ND
	Influent	NT	NT	NT
4/17/2019	Effluent	ND	ND	0.0016
	Mid-Fluent	ND	ND	0.0059
	Influent	NT	NT	NT
4/23/2019	Effluent	ND	ND	ND
	Mid-Fluent	ND	ND	0.011
	Influent	ND	ND	ND
4/30/2019	Effluent	ND	ND	ND
	Mid-Fluent	ND	ND	0.0031
	Influent	ND	ND	ND
5/7/2019	Effluent	ND	ND	ND
	Mid-Fluent	ND	ND	ND
	Influent	ND	ND	ND
5/13/2019	Effluent	ND	ND	ND
	Mid-Fluent	ND	ND	ND
	Influent	2.3	0.026	0.0037
5/21/2019	Effluent	ND	ND	ND
	Mid-fluent	ND	0.71	0.041
	Influent	3	9.5	2.9

Sample Date	Location	Oil & Grease	Benzene	Naphthalene
5/30/2019	Effluent	ND	ND	ND
	Mid-fluent	ND	0.33	0.013
	Influent	2.5	8.3	3.2
6/6/2019	Effluent	ND	ND	ND
	Mid-Fluent	ND	0.031	ND
	Influent	ND	0.56	0.017
7/26/2019	Effluent	ND	ND	ND
	Mid-Fluent	ND	ND	ND
	Influent	3.4	2.4	1.8
7/31/2019	Effluent	ND	ND	ND
	Mid-fluent	ND	ND	ND
	Influent	2.6	3.2	1.6
9/18/2019	Effluent	ND	ND	ND
	Mid-fluent	ND	ND	ND
	Influent	2.7	0.0019	0.033
9/23/2019	Effluent	ND	ND	ND
	Mid-fluent	ND	ND	ND
	Influent	ND	0.047	0.019
9/30/2019	Effluent	ND	ND	ND
	Mid-fluent	ND	ND	ND
	Influent	3.2	0.036	0.016
10/9/2019	Effluent	ND	ND	ND
	Mid-fluent	ND	ND	ND
	Influent	ND	0.55	0.066
10/17/2019	Effluent	ND	ND	ND
	Mid-fluent	ND	ND	ND
	Influent	ND	0.001	ND
10/21/2019	Effluent	ND	ND	ND
	Mid-fluent	ND	0.042	ND
	Influent	ND	3.4	1.7
10/29/2019	Effluent	ND	ND	ND
	Mid-fluent	ND	0.015	ND
	Influent	2.2	1	0.33
11/7/2019	Effluent	ND	ND	ND
	Mid-fluent	ND	0.0025	ND
	Influent	ND	0.1	0.026

Sample Date	Location	Oil & Grease	Benzene	Naphthalene
11/11/2019	Effluent	ND	ND	ND
	Mid-fluent	ND	0.0086	ND
	Influent	ND	0.033	0.0036

ND = Not Detected Above the Laboratory's Quantitative Limit

NT = Not Tested

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APPENDIX I

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Memo

To: Mr. Peter Haid – Tradepoint Atlantic
From: Mr. Keith Progin
Date: April 4, 2019
Re: Sub-Parcel A11-1 - Pre-Construction Meeting

On April 4, 2019, a pre-construction meeting for Sub-Parcel A11-1 was held at the Tradepoint office at 1600 Sparrows Point Boulevard. In attendance were:

- Mr. Matthew Newman – Tradepoint Atlantic
- Mr. John Martin – Tradepoint Atlantic
- Mr. Pete Haid – Tradepoint Atlantic
- Mr. Tom Strickland – ARCO
- Mr. Andrew Campbell – ARCO
- Mr. Jimmy Rimes - ARCO
- Mr. DJ Cox – DXI
- Mr. DJ Kellum – DXI
- Mr. Mickey Gilbert – DXI
- Mr. Craig Nicholson - DXI
- Mr. Keith Progin – Hillis-Carnes

During this meeting, the Environmental Professional roles that will be performed by Hillis-Carnes during the applicable portions of the development project were discussed. The roles generally include: a) monitoring of excavated soil; b) air monitoring for particulate dust; c) monitoring of dewatering activity; d) documentation; and e) PPE. A summary of these roles was provided to the attendees.

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APPENDIX J

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● 7 FPS, PIPE FLOW

1.By

RESERVOIR ROAD
(PUBLIC ROAD)

PENINSULA
EXPRESSWAY

SSW FACILITY
No. 1A (M-2)

Trench Plug
39.2409 Latitude
-76.4760 Longitude

Trench Plug
39.2408 Latitude
-76.4755 Longitude

TRENCH SECTION
WITH IMPACTED SLAG

Trench Plug
39.2407 Latitude
-76.4757 Longitude

99' SHEET FLOW @ 1.43%
SMOOTH SURFACE (n=0.011)

71' SHALLOW CONCENTRATED
FLOW @ 1.0%, PAVED

636' CHANNEL FLOW
● 7 FPS, PIPE FLOW

LOD (Ac.)	EX AR
14.36	

CRRGP F KZ 'M'

Keith Progin

From: Barbara Brown -MDE- <barbara.brown1@maryland.gov>
Sent: Wednesday, May 16, 2018 1:57 PM
To: Keith Progin
Cc: Jennifer Sohns -MDE- (jennifer.sohns@maryland.gov); phaid@tradeportatlantic.com
Subject: Re: SPT - Northern and Southern Sewer Clean Fill Requests

Hello Keith

The stone material from the Texas and Churchville Quarry as documented in the letters from Martin Marietta is acceptable for use at the Sparrows Point site as clean fill material on either commercial or industrial land use areas.

On Fri, May 11, 2018 at 3:09 PM, Keith Progin <kprogin@hcea.com> wrote:

Please see the attached affidavits for the proposed clean fill to be used during the northern and southern sewer lines. The material comes from Martin Marietta (formerly Blue Grass). Please let me know if this material is suitable.

Thanks!

Keith Progin | Project Manager, Environmental Division

HILLIS-CARNES ENGINEERING ASSOCIATES

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HILLIS-CARNES
ENGINEERING ASSOCIATES

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--

Barbara Brown
MDE-LRP-VCP Section Head
direct 410 537 3212
general 410 537 3493

[Click here](#) to complete a three question customer experience survey.

Daly, Kristen

From: Barbara Brown -MDE- <barbara.brown1@maryland.gov>
Sent: Tuesday, October 30, 2018 11:02 AM
To: Daly, Kristen
Cc: Keith Progin; Barbara Brocks -MDE-; Hayden, Paul; Jennifer Sohns -MDE-
Subject: Re: Haven Street soil for Tradepoint

Hello Kristen

The material sampled may be transported to Sparrows Point for use as clean fill for industrial land use. This approval is limited to the excavation area shown on the Sample Location Plan provided October 30, 2018. This approval does not include any soil encountered that exhibits petroleum odor or sheen or a PID reading above 10ppm. If this material is encountered it must be segregated with appropriate sediment control for future testing.

Please track the volume of material removed to Sparrows Point and provide this information to Ms. Barbara Brocks and me.

If you have any questions regarding this approval please contact me.

Barbara Brown

On Tue, Oct 30, 2018 at 9:57 AM, Daly, Kristen <KDaly@gtaeng.com> wrote:

Hi Barbara! I attached a figure, the prior sampling results, and the recent sampling results. The table of data attached was previously approved for acceptance into Tradepoint; the recent data was collected to confirm that the material is acceptable. The soil in question was/will be excavated to a depth of approximately 5 feet in the northern portion of the highlighted area, but appears to thin out as you move south. It's associated with the eastern railroad tracks that we removed. Several truckloads of soil were excavated and loaded last week but were turned around by Tradepoint due to the dark color; the trucks dumped it back at Haven Street and we spread it back into the excavation to avoid leaving an open hole. Let me know if you need any more info. Thanks!

Kristen Daly
Senior Project Scientist



GEO-TECHNOLOGY ASSOCIATES, INC.

1414 Key Highway
Baltimore, MD 21230

Cell: 202-680-3997

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GTA – Celebrating 30 Years of Excellence

From: Barbara Brown -MDE- <barbara.brown1@maryland.gov>

Sent: Tuesday, October 30, 2018 9:22 AM

To: Daly, Kristen <KDaly@gtaeng.com>; Keith Progin <kprogin@hcea.com>

Cc: Barbara Brocks -MDE- <barbara.brocks@maryland.gov>; Hayden, Paul <PHayden@gtaeng.com>

Subject: Re: Haven Street soil for Tradepoint

Hi Kristen

Do you have a map where soil is coming from-and depth soil was excavated and any other information from previous sampling? Is it currently in a pile or still in-situ? Fill or native material?

On Mon, Oct 29, 2018 at 5:14 PM, Daly, Kristen <KDaly@gtaeng.com> wrote:

Hi Barbara – since Barbara Brocks is out on vacation this week, we were hoping that you might be able to look over the laboratory results for a soil sample for which Tradepoint requested additional analysis and MDE approval to accept (due to its dark color). I spoke with Keith Progin with Hillis Carnes and he said he's good with the soil so long as MDE approves it. The sample is a composite taken from several actual dump truck loads, so it's representative of what we would be sending over. We estimate 150 truckloads – mostly from the eastern portion of the site where we removed some railroad tracks. Let me know if you have any questions. Thanks!

Kristen Daly
Senior Project Scientist



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Baltimore, MD 21230

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--

Barbara Brown

MDE-LRP-VCP Section Head

direct 410 537 3212

general 410 537 3493

[Click here](#) to complete a three question customer experience survey.

--

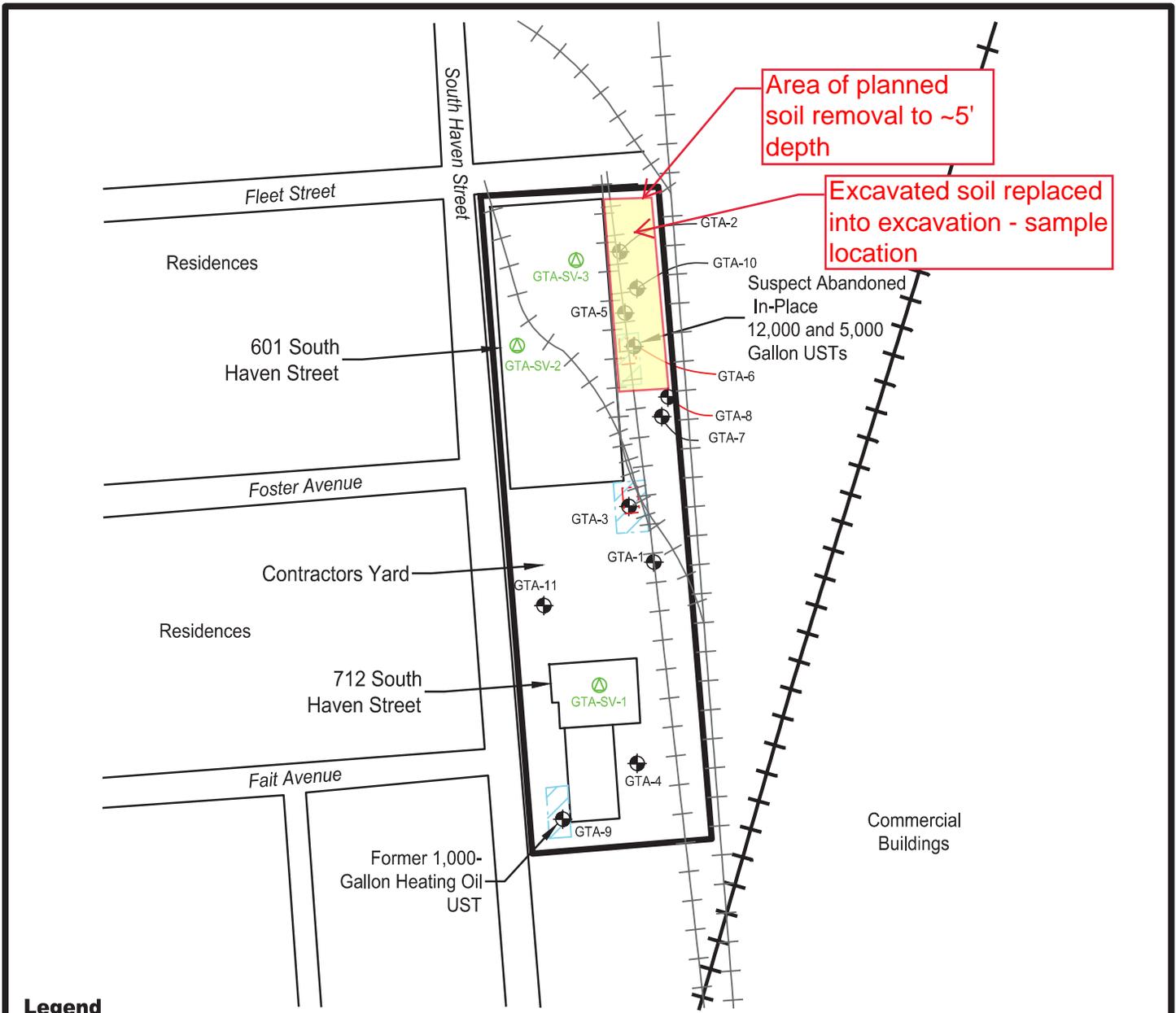
Barbara Brown

MDE-LRP-VCP Section Head

direct 410 537 3212

general 410 537 3493

[Click here](#) to complete a three question customer experience survey.

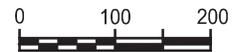


Legend

- Former Railroad Tracks
- Existing Railroad Tracks
- Building
- GTA-1 Approximate location of soil borings
- GTA-SV-1 Approximate location of soil vapor sample location points
- Approximate Location of Geophysical Survey conducted by GTA in December 2016
- Apparent Location of Geophysical Anomalies

Notes

1. Based on a 2014 aerial photograph and site observations.
2. Property boundaries and site conditions are approximate.



Approximate Scale
1 inch = 200 feet



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601 AND 715 SOUTH HAVEN STREET
 (HAVEN OVERLOOK)

BALTIMORE CITY, MARYLAND

SAMPLE LOCATION PLAN

PROJECT: 161267

DATE: JANUARY 2017

SCALE: 1" = 200'

DESIGN BY: RLM

REVIEW BY: LMD

FIGURE: 3

Table 1 Soil Analysis Summary

Sample Identification	GTA-1		GTA-2		GTA-3		GTA-4		GTA-5	GTA-5A	GTA-6	GTA-6A	GTA-7		GTA-8		GTA-9		GTA-10		GTA-11		Comparison Values	
	0-1	4-5	0-1	4-5	0-1	4-5	0-1	4-5	8-10	0-1	8-10	0-1	0-1	4-5	0-1	4-5	0-1	8-10	0-1	4-5	0-1	4-5	RCS	ATC Eastern
PAHs																								
Benzo(a)anthracene	0.210	0.430	--	--	--	--	0.460	--					--	--	0.240	--					0.480	--	0.22	NA
Benzo(a)pyrene	--	0.440	--	--	--	--	0.580	--					--	--	0.280	--					0.530	--	0.022	NA
Benzo(b)fluoranthene	--	0.380	--	--	--	--	0.370	--					--	--	0.320	--					0.490	--	0.22	NA
Benzo(g,h,i)perylene	--	0.240	--	--	--	--	0.310	--					--	--	--	--					0.260	--	230	NA
Benzo(k)fluoranthene	--	0.340	--	--	--	--	0.620	--					--	--	0.250	--					0.490	--	2.2	NA
Chrysene	--	0.430	--	--	--	--	0.450	--					--	--	0.250	--					0.470	--	22	NA
Fluoranthene	0.400	0.940	--	--	--	0.230	0.670	--					--	--	0.480	--					0.870	--	310	NA
Indeno(1,2,3-c,d)Pyrene	--	0.340	--	--	--	--	0.440	--					--	--	--	--					0.380	--	0.22	NA
Phenanthrene	--	0.630	--	--	--	--	0.320	--					--	--	--	--					0.280	--	2,300	NA
Pyrene	0.340	0.970	--	--	--	0.200	0.590	--					--	--	0.430	--					0.790	--	230	NA
Remaining PAHs	--	--	--	--	--	--	--	--					--	--	--	--					--	--	Varies	NA
VOCs																								
Acetone									0.033	0.032	0.091	--	--	--	--	--				0.047			7,000	NA
cis-1,2-Dichloroethene									--	0.018	--	--	--	--	--	--				--			78	NA
Trichloroethene									--	0.520	0.030	--	--	--	--	--				--			1.6	NA
Remaining VOCs									--	--	--	--	--	--	--	--				--			Varies	NA
TPH																								
TPH DRO										--		--							140DF	--			230	NA
TPH GRO									0.190		--								--	--			230	NA
Total Priority Pollutant Metals																								
Antimony	--	--	--	--	--	--	--	--												--	--	--	3.1	6
Arsenic	5.6	5.0	1.6	11	16	7.1	13	1.1												0.96	--	7.5	0.43/10.1*	3.6
Beryllium	--	--	--	--	--	--	--	--												--	--	--	16	0.66
Cadmium	--	--	--	--	--	--	--	--												--	--	--	3.9	0.73
Total Chromium	24	14	69	16	73	19	35	29												13	11	26	23	28
Copper	19	29	11	41	52	74	110	14												7.3	7.4	42	310	12
Lead	24	27	21	84	71	130	250	4.1												10	--	160	400	45
Mercury	0.11	--	--	0.53	0.21	0.49	0.45	--												--	--	1.1	2.3	0.51
Nickel	18	7.2	89	6.3	7.5	10	13	8.7												13	--	13	160	13
Selenium	--	--	--	--	--	--	--	--												--	--	--	39	2.2
Silver	--	--	--	--	--	--	--	--												--	--	--	39	0.94
Thallium	--	--	--	--	--	--	--	--												--	--	--	0.55	3.9
Zinc	39	48	60	86	52	81	290	12												15	--	87	2,300	63
Hexavalent Chromium																								
Hexavalent Chromium			--		--																		23	NA
Elemental Mercury																								
Elemental Mercury				0.348																		0.201	NE	NE

Notes:
 Samples collected on December 21, 2016
 Results in milligrams per kilogram (mg/kg), or parts per million (ppm)
 Only detected compounds shown
 -- = Not detected at or above the laboratory's reporting limit
 NA = Not applicable
 RCS = Maryland Department of the Environment (MDE) Residential Cleanup Standards for soil
 ATC = Anticipated Typical Concentration for soils in Eastern Maryland (MDE Interim Final Guidance Update No. 2.1, June 2008)
 DF = No. 2/diesel fuel and heavier fuel/oil pattern observed in sample
 Shaded and bold values represent exceedance of MDE RCS (and ATC, if applicable)
 PAHs = Polycyclic Aromatic Hydrocarbons
 VOCs = Volatile Organic Compounds
 TPH = Total Petroleum Hydrocarbons
 GRO = Gasoline Range Organics
 DRO = Diesel Range Organics
 * - MDE-approved Risk-based calculation value
 DF = No. 2/diesel fuel and heavier fuel/oil pattern observed in sample



Analytical Report for

GTA - Laurel

Certificate of Analysis No.: 18102322

Project Manager: Kristen Daly

Project Name : 161267

Project Location: Baltimore

Project ID : 161267



October 29, 2018

Phase Separation Science, Inc.

6630 Baltimore National Pike

Baltimore, MD 21228

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PHASE SEPARATION SCIENCE, INC.



October 29, 2018

Kristen Daly
GTA - Laurel
14280 Park Center Dr., Ste. A
Laurel, MD 20707

Reference: PSS Work Order(s) No: **18102322**
Project Name: 161267
Project Location: Baltimore
Project ID.: 161267

Dear Kristen Daly :

This report includes the analytical results from the analyses performed on the samples received under the project name referenced above and identified with the Phase Separation Science (PSS) Work Order(s) numbered **18102322**.

All work reported herein has been performed in accordance with current NELAP standards, referenced methodologies, PSS Standard Operating Procedures and the PSS Quality Assurance Manual unless otherwise noted in the Case Narrative Summary. PSS is limited in liability to the actual cost of the sample analysis done.

PSS reserves the right to return any unused samples, extracts or related solutions. Otherwise, the samples are scheduled for disposal, without any further notice, on November 27, 2018, with the exception of air canisters which are cleaned immediately following analysis. This includes any samples that were received with a request to be held but lacked a specific hold period. It is your responsibility to provide a written request defining a specific disposal date if additional storage is required. Upon receipt, the request will be acknowledged by PSS, thus extending the storage period.

This report shall not be reproduced except in full, without the written approval of an authorized PSS representative. A copy of this report will be retained by PSS for at least 5 years, after which time it will be disposed of without further notice, unless prior arrangements have been made.

We thank you for selecting Phase Separation Science, Inc. to serve your analytical needs. If you have any questions concerning this report, do not hesitate to contact us at 410-747-8770 or info@phaseonline.com.

Sincerely,

Dan Prucnal

Laboratory Manager



Sample Summary
Client Name: GTA - Laurel
Project Name: 161267

Work Order Number(s): 18102322

Project ID: 161267

The following samples were received under chain of custody by Phase Separation Science (PSS) on 10/23/2018 at 03:00 pm

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
18102322-001	GTA-WC3	SOIL	10/23/18 13:00

Please reference the Chain of Custody and Sample Receipt Checklist for specific container counts and preservatives. Any sample conditions not in compliance with sample acceptance criteria are described in Case Narrative Summary.

Notes:

1. The presence of a common laboratory contaminant such as methylene chloride may be considered a possible laboratory artifact. Where observed, appropriate consideration of data should be taken.
2. Unless otherwise noted in the case narrative, results are reported on a dry weight basis with the exception of pH, flashpoint, moisture, and paint filter test.
3. Drinking water samples collected for the purpose of compliance with SDWA may not be suitable for their intended use unless collected by a certified sampler [COMAR 26.08.05.07.C.2].
4. The analyses of 1,2-dibromo-3-chloropropane (DBCP) and 1,2-dibromoethane (EDB) by EPA 524.2 and calcium, magnesium, sodium and iron by EPA 200.8 are not currently promulgated for use in testing to meet the Safe Drinking Water Act and as such cannot be used for compliance purposes. The listings of the current promulgated methods for testing in compliance with the Safe Drinking Water Act can be found in the 40 CFR part 141.1, for the primary drinking water contaminants, and part 141.3, for the secondary drinking water contaminants.
5. Sample prepared under EPA 3550C with concentrations greater than 20 mg/Kg should employ the microtip extraction procedure if required to meet data quality objectives.
6. The analysis of acrolein by EPA 624 must be analyzed within three days of sampling unless pH is adjusted to 4-5 units [40 CFR part 136.3(e)].
7. Method 180.1, The Determination of Turbidity by Nephelometry, recommends samples over 40 NTU be diluted until the turbidity falls below 40 units. Routine samples over 40 NTU may not be diluted as long as the data quality objectives are not affected.
8. Alkalinity results analyzed by EPA 310.2 that are reported by dilution are estimated and are not in compliance with method requirements.

Standard Flags/Abbreviations:

- B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- C Results Pending Final Confirmation.
- E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- Fail The result exceeds the regulatory level for Toxicity Characteristic (TCLP) as cited in 40 CFR 261.24 Table 1.
- J The target analyte was positively identified below the reporting limit but greater than the MDL.
- MDL This is the Laboratory Method Detection Limit which is equivalent to the Limit of Detection (LOD). The LOD is an estimate of the minimum amount of a substance that an analytical process can reliably detect. This value will remain constant across multiple similar instrumentation and among different analysts. An LOD is analyte and matrix specific.
- ND Not Detected at or above the reporting limit.
- RL PSS Reporting Limit.
- U Not detected.

Certifications:

NELAP Certifications: PA 68-03330, VA 460156
State Certifications: MD 179, WV 303
Regulated Soil Permit: P330-12-00268
NSWC USCG Accepted Laboratory
LDBE MWAA LD1997-0041-2015

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18102322

GTA - Laurel, Laurel, MD

October 29, 2018

Project Name: 161267
 Project Location: Baltimore
 Project ID: 161267

Sample ID: GTA-WC3	Date/Time Sampled: 10/23/2018 13:00	PSS Sample ID: 18102322-001
Matrix: SOIL	Date/Time Received: 10/23/2018 15:00	% Solids: 87

RCRA Metals

Analytical Method: SW-846 6020 A

Preparation Method: 3050B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Arsenic	9.9	mg/kg	0.53		1	10/25/18	10/25/18 18:08	1051
Barium	110	mg/kg	2.6		1	10/25/18	10/25/18 18:08	1051
Cadmium	ND	mg/kg	2.6		1	10/25/18	10/25/18 18:08	1051
Chromium	15	mg/kg	2.6		1	10/25/18	10/25/18 18:08	1051
Lead	140	mg/kg	2.6		1	10/25/18	10/25/18 18:08	1051
Mercury	0.48	mg/kg	0.11		1	10/25/18	10/25/18 18:08	1051
Selenium	ND	mg/kg	2.6		1	10/25/18	10/25/18 18:08	1051
Silver	ND	mg/kg	2.6		1	10/25/18	10/25/18 18:08	1051

Total Petroleum Hydrocarbons - DRO

Analytical Method: SW-846 8015 C

Preparation Method: SW3550C

DF/HF - No. 2/diesel fuel and heavier fuel/oil patterns observed in sample.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
TPH-DRO (Diesel Range Organics)	18	mg/kg	12	DF	1	10/25/18	10/25/18 20:56	1059

Total Petroleum Hydrocarbons-GRO

Analytical Method: SW-846 8015C

Preparation Method: 5030

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
TPH-GRO (Gasoline Range Organics)	ND	mg/kg	0.11		1	10/25/18	10/25/18 11:47	1035

Polychlorinated Biphenyls

Analytical Method: SW-846 8082 A

Preparation Method: SW3550C

Clean up Method: SW846 3665A

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
PCB-1016	ND	mg/kg	0.057		1	10/25/18	10/26/18 11:48	1029
PCB-1221	ND	mg/kg	0.057		1	10/25/18	10/26/18 11:48	1029
PCB-1232	ND	mg/kg	0.057		1	10/25/18	10/26/18 11:48	1029
PCB-1242	ND	mg/kg	0.057		1	10/25/18	10/26/18 11:48	1029
PCB-1248	ND	mg/kg	0.057		1	10/25/18	10/26/18 11:48	1029
PCB-1254	ND	mg/kg	0.057		1	10/25/18	10/26/18 11:48	1029
PCB-1260	ND	mg/kg	0.057		1	10/25/18	10/26/18 11:48	1029

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18102322

GTA - Laurel, Laurel, MD

October 29, 2018

Project Name: 161267
 Project Location: Baltimore
 Project ID: 161267

Sample ID: GTA-WC3	Date/Time Sampled: 10/23/2018 13:00	PSS Sample ID: 18102322-001
Matrix: SOIL	Date/Time Received: 10/23/2018 15:00	% Solids: 87

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acetone	ND	mg/kg	0.023		1	10/25/18	10/25/18 12:57	1011
Benzene	ND	mg/kg	0.0059		1	10/25/18	10/25/18 12:57	1011
Bromochloromethane	ND	mg/kg	0.0059		1	10/25/18	10/25/18 12:57	1011
Bromodichloromethane	ND	mg/kg	0.0059		1	10/25/18	10/25/18 12:57	1011
Bromoform	ND	mg/kg	0.0059		1	10/25/18	10/25/18 12:57	1011
Bromomethane	ND	mg/kg	0.0059		1	10/25/18	10/25/18 12:57	1011
2-Butanone (MEK)	ND	mg/kg	0.023		1	10/25/18	10/25/18 12:57	1011
Carbon Disulfide	ND	mg/kg	0.012		1	10/25/18	10/25/18 12:57	1011
Carbon tetrachloride	ND	mg/kg	0.0059		1	10/25/18	10/25/18 12:57	1011
Chlorobenzene	ND	mg/kg	0.0059		1	10/25/18	10/25/18 12:57	1011
Chloroethane	ND	mg/kg	0.0059		1	10/25/18	10/25/18 12:57	1011
Chloroform	ND	mg/kg	0.0059		1	10/25/18	10/25/18 12:57	1011
Chloromethane	ND	mg/kg	0.0059		1	10/25/18	10/25/18 12:57	1011
Cyclohexane	ND	mg/kg	0.023		1	10/25/18	10/25/18 12:57	1011
1,2-Dibromo-3-chloropropane	ND	mg/kg	0.047		1	10/25/18	10/25/18 12:57	1011
Dibromochloromethane	ND	mg/kg	0.0059		1	10/25/18	10/25/18 12:57	1011
1,2-Dibromoethane	ND	mg/kg	0.0059		1	10/25/18	10/25/18 12:57	1011
1,2-Dichlorobenzene	ND	mg/kg	0.0059		1	10/25/18	10/25/18 12:57	1011
1,3-Dichlorobenzene	ND	mg/kg	0.0059		1	10/25/18	10/25/18 12:57	1011
1,4-Dichlorobenzene	ND	mg/kg	0.0059		1	10/25/18	10/25/18 12:57	1011
Dichlorodifluoromethane	ND	mg/kg	0.0059		1	10/25/18	10/25/18 12:57	1011
1,1-Dichloroethane	ND	mg/kg	0.0059		1	10/25/18	10/25/18 12:57	1011
1,2-Dichloroethane	ND	mg/kg	0.0059		1	10/25/18	10/25/18 12:57	1011
1,1-Dichloroethene	ND	mg/kg	0.0059		1	10/25/18	10/25/18 12:57	1011
1,2-Dichloropropane	ND	mg/kg	0.0059		1	10/25/18	10/25/18 12:57	1011
cis-1,2-Dichloroethene	ND	mg/kg	0.0059		1	10/25/18	10/25/18 12:57	1011
cis-1,3-Dichloropropene	ND	mg/kg	0.0059		1	10/25/18	10/25/18 12:57	1011
trans-1,2-Dichloroethene	ND	mg/kg	0.0059		1	10/25/18	10/25/18 12:57	1011
trans-1,3-Dichloropropene	ND	mg/kg	0.0059		1	10/25/18	10/25/18 12:57	1011
Ethylbenzene	ND	mg/kg	0.0059		1	10/25/18	10/25/18 12:57	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18102322

GTA - Laurel, Laurel, MD

October 29, 2018

Project Name: 161267
 Project Location: Baltimore
 Project ID: 161267

Sample ID: GTA-WC3	Date/Time Sampled: 10/23/2018 13:00	PSS Sample ID: 18102322-001
Matrix: SOIL	Date/Time Received: 10/23/2018 15:00	% Solids: 87

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
2-Hexanone (MBK)	ND	mg/kg	0.023		1	10/25/18	10/25/18 12:57	1011
Isopropylbenzene	ND	mg/kg	0.0059		1	10/25/18	10/25/18 12:57	1011
Methyl Acetate	ND	mg/kg	0.023		1	10/25/18	10/25/18 12:57	1011
Methylcyclohexane	ND	mg/kg	0.023		1	10/25/18	10/25/18 12:57	1011
Methylene chloride	ND	mg/kg	0.0059		1	10/25/18	10/25/18 12:57	1011
4-Methyl-2-Pentanone (MIBK)	ND	mg/kg	0.023		1	10/25/18	10/25/18 12:57	1011
Methyl-t-Butyl Ether	ND	mg/kg	0.0059		1	10/25/18	10/25/18 12:57	1011
Naphthalene	ND	mg/kg	0.0059		1	10/25/18	10/25/18 12:57	1011
Styrene	ND	mg/kg	0.0059		1	10/25/18	10/25/18 12:57	1011
1,1,2,2-Tetrachloroethane	ND	mg/kg	0.0059		1	10/25/18	10/25/18 12:57	1011
Tetrachloroethene	ND	mg/kg	0.0059		1	10/25/18	10/25/18 12:57	1011
Toluene	ND	mg/kg	0.0059		1	10/25/18	10/25/18 12:57	1011
1,2,3-Trichlorobenzene	ND	mg/kg	0.0059		1	10/25/18	10/25/18 12:57	1011
1,2,4-Trichlorobenzene	ND	mg/kg	0.0059		1	10/25/18	10/25/18 12:57	1011
1,1,1-Trichloroethane	ND	mg/kg	0.0059		1	10/25/18	10/25/18 12:57	1011
1,1,2-Trichloroethane	ND	mg/kg	0.0059		1	10/25/18	10/25/18 12:57	1011
Trichloroethene	ND	mg/kg	0.0059		1	10/25/18	10/25/18 12:57	1011
Trichlorofluoromethane	ND	mg/kg	0.0059		1	10/25/18	10/25/18 12:57	1011
1,1,2-Trichlorotrifluoroethane	ND	mg/kg	0.0059		1	10/25/18	10/25/18 12:57	1011
Vinyl Chloride	ND	mg/kg	0.0059		1	10/25/18	10/25/18 12:57	1011
m&p-Xylene	ND	mg/kg	0.012		1	10/25/18	10/25/18 12:57	1011
o-Xylene	ND	mg/kg	0.0059		1	10/25/18	10/25/18 12:57	1011

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Matrix: SOIL	Date/Time Received: 10/23/2018 15:00	% Solids: 87

TCL Semivolatile Organic Compounds

Analytical Method: SW-846 8270 C

Preparation Method: SW3550C

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acenaphthene	0.032	mg/kg	0.019		1	10/26/18	10/26/18 16:49	1055
Acenaphthylene	0.024	mg/kg	0.019		1	10/26/18	10/26/18 16:49	1055
Acetophenone	ND	mg/kg	0.19		1	10/26/18	10/26/18 16:49	1055
Anthracene	0.058	mg/kg	0.019		1	10/26/18	10/26/18 16:49	1055
Atrazine	ND	mg/kg	0.19		1	10/26/18	10/26/18 16:49	1055
Benzo(a)anthracene	0.27	mg/kg	0.019		1	10/26/18	10/26/18 16:49	1055
Benzo(a)pyrene	0.34	mg/kg	0.019		1	10/26/18	10/26/18 16:49	1055
Benzo(b)fluoranthene	0.39	mg/kg	0.019		1	10/26/18	10/26/18 16:49	1055
Benzo(g,h,i)perylene	0.21	mg/kg	0.019		1	10/26/18	10/26/18 16:49	1055
Benzo(k)fluoranthene	0.30	mg/kg	0.019		1	10/26/18	10/26/18 16:49	1055
Biphenyl (Diphenyl)	ND	mg/kg	0.19		1	10/26/18	10/26/18 16:49	1055
Butyl benzyl phthalate	ND	mg/kg	0.19		1	10/26/18	10/26/18 16:49	1055
bis(2-chloroethoxy) methane	ND	mg/kg	0.19		1	10/26/18	10/26/18 16:49	1055
bis(2-chloroethyl) ether	ND	mg/kg	0.19		1	10/26/18	10/26/18 16:49	1055
bis(2-chloroisopropyl) ether	ND	mg/kg	0.19		1	10/26/18	10/26/18 16:49	1055
bis(2-ethylhexyl) phthalate	ND	mg/kg	0.19		1	10/26/18	10/26/18 16:49	1055
4-Bromophenylphenyl ether	ND	mg/kg	0.19		1	10/26/18	10/26/18 16:49	1055
Di-n-butyl phthalate	ND	mg/kg	0.19		1	10/26/18	10/26/18 16:49	1055
Carbazole	ND	mg/kg	0.19		1	10/26/18	10/26/18 16:49	1055
Caprolactam	ND	mg/kg	0.19		1	10/26/18	10/26/18 16:49	1055
4-Chloro-3-methylphenol	ND	mg/kg	0.19		1	10/26/18	10/26/18 16:49	1055
4-Chloroaniline	ND	mg/kg	0.19		1	10/26/18	10/26/18 16:49	1055
2-Chloronaphthalene	ND	mg/kg	0.19		1	10/26/18	10/26/18 16:49	1055
2-Chlorophenol	ND	mg/kg	0.19		1	10/26/18	10/26/18 16:49	1055
4-Chlorophenyl phenyl ether	ND	mg/kg	0.19		1	10/26/18	10/26/18 16:49	1055
Chrysene	0.30	mg/kg	0.019		1	10/26/18	10/26/18 16:49	1055
Dibenz(a,h)anthracene	0.061	mg/kg	0.019		1	10/26/18	10/26/18 16:49	1055
Dibenzofuran	ND	mg/kg	0.19		1	10/26/18	10/26/18 16:49	1055
3,3-Dichlorobenzidine	ND	mg/kg	0.19		1	10/26/18	10/26/18 16:49	1055
2,4-Dichlorophenol	ND	mg/kg	0.19		1	10/26/18	10/26/18 16:49	1055

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18102322

GTA - Laurel, Laurel, MD

October 29, 2018

Project Name: 161267
 Project Location: Baltimore
 Project ID: 161267

Sample ID: GTA-WC3	Date/Time Sampled: 10/23/2018 13:00	PSS Sample ID: 18102322-001
Matrix: SOIL	Date/Time Received: 10/23/2018 15:00	% Solids: 87

TCL Semivolatile Organic Compounds

Analytical Method: SW-846 8270 C

Preparation Method: SW3550C

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Diethyl phthalate	ND	mg/kg	0.19		1	10/26/18	10/26/18 16:49	1055
Dimethyl phthalate	ND	mg/kg	0.19		1	10/26/18	10/26/18 16:49	1055
2,4-Dimethylphenol	ND	mg/kg	0.19		1	10/26/18	10/26/18 16:49	1055
4,6-Dinitro-2-methyl phenol	ND	mg/kg	0.19		1	10/26/18	10/26/18 16:49	1055
2,4-Dinitrophenol	ND	mg/kg	0.38		1	10/26/18	10/26/18 16:49	1055
2,4-Dinitrotoluene	ND	mg/kg	0.19		1	10/26/18	10/26/18 16:49	1055
2,6-Dinitrotoluene	ND	mg/kg	0.19		1	10/26/18	10/26/18 16:49	1055
Fluoranthene	0.42	mg/kg	0.019		1	10/26/18	10/26/18 16:49	1055
Fluorene	0.028	mg/kg	0.019		1	10/26/18	10/26/18 16:49	1055
Hexachlorobenzene	ND	mg/kg	0.19		1	10/26/18	10/26/18 16:49	1055
Hexachlorobutadiene	ND	mg/kg	0.19		1	10/26/18	10/26/18 16:49	1055
Hexachlorocyclopentadiene	ND	mg/kg	0.19		1	10/26/18	10/26/18 16:49	1055
Hexachloroethane	ND	mg/kg	0.19		1	10/26/18	10/26/18 16:49	1055
Indeno(1,2,3-c,d)pyrene	0.25	mg/kg	0.019		1	10/26/18	10/26/18 16:49	1055
Isophorone	ND	mg/kg	0.19		1	10/26/18	10/26/18 16:49	1055
2-Methylnaphthalene	0.024	mg/kg	0.019		1	10/26/18	10/26/18 16:49	1055
2-Methylphenol	ND	mg/kg	0.19		1	10/26/18	10/26/18 16:49	1055
3&4-Methylphenol	ND	mg/kg	0.19		1	10/26/18	10/26/18 16:49	1055
Naphthalene	0.042	mg/kg	0.019		1	10/26/18	10/26/18 16:49	1055
2-Nitroaniline	ND	mg/kg	0.19		1	10/26/18	10/26/18 16:49	1055
3-Nitroaniline	ND	mg/kg	0.19		1	10/26/18	10/26/18 16:49	1055
4-Nitroaniline	ND	mg/kg	0.19		1	10/26/18	10/26/18 16:49	1055
Nitrobenzene	ND	mg/kg	0.19		1	10/26/18	10/26/18 16:49	1055
2-Nitrophenol	ND	mg/kg	0.19		1	10/26/18	10/26/18 16:49	1055
4-Nitrophenol	ND	mg/kg	0.19		1	10/26/18	10/26/18 16:49	1055
N-Nitrosodi-n-Propylamine	ND	mg/kg	0.19		1	10/26/18	10/26/18 16:49	1055
N-Nitrosodiphenylamine	ND	mg/kg	0.19		1	10/26/18	10/26/18 16:49	1055
Di-n-octyl phthalate	ND	mg/kg	0.19		1	10/26/18	10/26/18 16:49	1055
Pentachlorophenol	ND	mg/kg	0.19		1	10/26/18	10/26/18 16:49	1055
Phenanthrene	0.22	mg/kg	0.019		1	10/26/18	10/26/18 16:49	1055

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18102322
GTA - Laurel, Laurel, MD
 October 29, 2018

Project Name: 161267
 Project Location: Baltimore
 Project ID: 161267

Sample ID: GTA-WC3	Date/Time Sampled: 10/23/2018 13:00	PSS Sample ID: 18102322-001
Matrix: SOIL	Date/Time Received: 10/23/2018 15:00	% Solids: 87

TCL Semivolatile Organic Compounds

Analytical Method: SW-846 8270 C

Preparation Method: SW3550C

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Phenol	ND	mg/kg	0.19		1	10/26/18	10/26/18 16:49	1055
Pyrene	0.44	mg/kg	0.019		1	10/26/18	10/26/18 16:49	1055
Pyridine	ND	mg/kg	0.19		1	10/26/18	10/26/18 16:49	1055
2,4,5-Trichlorophenol	ND	mg/kg	0.19		1	10/26/18	10/26/18 16:49	1055
2,4,6-Trichlorophenol	ND	mg/kg	0.19		1	10/26/18	10/26/18 16:49	1055



Case Narrative Summary

Client Name: GTA - Laurel

Project Name: 161267

Work Order Number(s): 18102322

Project ID: 161267

Any holding time exceedances, deviations from the method specifications, regulatory requirements or variations to the procedures outlined in the PSS Quality Assurance Manual are outlined below.

The analyses of chlorine, pH, dissolved oxygen, temperature and sulfite for drinking water and non-potable samples tested for compliance have a maximum holding time of 15 minutes. As such, all laboratory analyses for these analytes exceed holding times.

Matrix spike and matrix spike duplicate analyses may not be performed due to insufficient sample quantity. In these instances, a laboratory control sample and laboratory control sample duplicate are analyzed unless otherwise noted or specified in the method.

Unless otherwise noted, surrogate recoveries outside of the acceptance criteria are most often the result of sample matrix interference and/or sample dilution.

Quality control samples that display a high bias will not be narrated when sample target compounds are not detected.

Sample Receipt:

Samples were initially placed on hold by the client and subsequently logged in for volatile analyses. Sample aliquots were not stored in segregated volatile storage area during the hold period and may have been opened for other analyses.

General Comments:

Per client, analyze for DRO, GRO, VOC, SVOC, RCRA metals, and PCBs on a 2-day TAT.

Analytical:

TCL Semivolatile Organic Compounds

Batch: 158437

Benzo-b-fluoranthene and benzo-k-fluoranthene do not meet resolution criteria.

NELAP accreditation was held for all analyses performed unless noted below. See www.phaseonline.com for complete PSS scope of accreditation.



Analytical Data Package Information Summary

Work Order(s): 18102322

Report Prepared For: GTA - Laurel, Laurel, MD

Project Name: 161267

Project Manager: Kristen Daly

Method	Client Sample Id	Analysis Type	Lab Sample Id	Analyst	Mtx	Prep Batch	Analytical Batch	Sampled	Prepared	Analyzed
SM2540G	GTA-WC3	Initial	18102322-001	1061	S	158389	158389	10/23/2018	10/25/2018 14:20	10/25/2018 14:20
SW-846 6020 A	GTA-WC3	Initial	18102322-001	1051	S	73877	158412	10/23/2018	10/25/2018 10:12	10/25/2018 18:08
	73877-1-BKS	BKS	73877-1-BKS	1051	S	73877	158412	-----	10/25/2018 10:12	10/25/2018 17:12
	73877-1-BLK	BLK	73877-1-BLK	1051	S	73877	158412	-----	10/25/2018 10:12	10/25/2018 17:07
	P1-1 Wetlands S	MS	18102309-001 S	1051	S	73877	158412	10/22/2018	10/25/2018 10:12	10/25/2018 17:40
	P1-1 Wetlands SD	MSD	18102309-001 SD	1051	S	73877	158412	10/22/2018	10/25/2018 10:12	10/25/2018 17:45
SW-846 8015 C	73873-1-BKS	BKS	73873-1-BKS	1059	S	73873	158401	-----	10/25/2018 07:56	10/25/2018 16:47
	73873-1-BLK	BLK	73873-1-BLK	1059	S	73873	158401	-----	10/25/2018 07:56	10/25/2018 16:22
	73873-1-BSD	BSD	73873-1-BSD	1059	S	73873	158401	-----	10/25/2018 07:56	10/25/2018 17:12
	GTA-WC3	Initial	18102322-001	1059	S	73873	158403	10/23/2018	10/25/2018 07:56	10/25/2018 20:56
	13358-GP109-15 S	MS	18102323-020 S	1059	S	73873	158403	10/23/2018	10/25/2018 07:56	10/25/2018 16:47
	13358-GP109-15 SD	MSD	18102323-020 SD	1059	S	73873	158403	10/23/2018	10/25/2018 07:56	10/25/2018 17:12
SW-846 8015C	GTA-WC3	Initial	18102322-001	1035	S	73879	158367	10/23/2018	10/25/2018 02:38	10/25/2018 11:47
	73879-2-BKS	BKS	73879-2-BKS	1035	S	73879	158367	-----	10/25/2018 02:38	10/25/2018 05:11
	73879-2-BLK	BLK	73879-2-BLK	1035	S	73879	158367	-----	10/25/2018 02:38	10/25/2018 04:40
	GTA-7 (0-2) S	MS	18102413-001 S	1035	S	73879	158367	10/23/2018	10/25/2018 02:38	10/25/2018 13:19
	GTA-7 (0-2) SD	MSD	18102413-001 SD	1035	S	73879	158367	10/23/2018	10/25/2018 02:38	10/25/2018 13:50
SW-846 8082 A	GTA-WC3	Initial	18102322-001	1029	S	73874	158447	10/23/2018	10/25/2018 08:31	10/26/2018 11:48
	73874-1-BKS	BKS	73874-1-BKS	1029	S	73874	158447	-----	10/25/2018 08:31	10/26/2018 09:56
	73874-1-BLK	BLK	73874-1-BLK	1029	S	73874	158447	-----	10/25/2018 08:31	10/26/2018 09:29
	73874-1-BSD	BSD	73874-1-BSD	1029	S	73874	158447	-----	10/25/2018 08:31	10/26/2018 10:25
	13358-GP104-25 S	MS	18102323-009 S	1029	S	73874	158447	10/22/2018	10/25/2018 08:31	10/26/2018 10:53
	13358-GP104-25 SD	MSD	18102323-009 SD	1029	S	73874	158447	10/22/2018	10/25/2018 08:31	10/26/2018 11:21
SW-846 8260 B	GTA-WC3	Initial	18102322-001	1011	S	73895	158402	10/23/2018	10/25/2018 07:48	10/25/2018 12:57
	73895-1-BKS	BKS	73895-1-BKS	1011	S	73895	158402	-----	10/25/2018 07:48	10/25/2018 08:55
	73895-1-BLK	BLK	73895-1-BLK	1011	S	73895	158402	-----	10/25/2018 07:48	10/25/2018 10:12
	GTA-WC3 S	MS	18102322-001 S	1011	S	73895	158402	10/23/2018	10/25/2018 07:48	10/25/2018 13:19



Analytical Data Package Information Summary

Work Order(s): 18102322

Report Prepared For: GTA - Laurel, Laurel, MD

Project Name: 161267

Project Manager: Kristen Daly

Method	Client Sample Id	Analysis Type	Lab Sample Id	Analyst	Mtx	Prep Batch	Analytical Batch	Sampled	Prepared	Analyzed
SW-846 8260 B	GTA-WC3 SD	MSD	18102322-001 SD	1011	S	73895	158402	10/23/2018	10/25/2018 07:48	10/25/2018 13:41
SW-846 8270 C	GTA-WC3	Initial	18102322-001	1055	S	73903	158437	10/23/2018	10/26/2018 14:06	10/26/2018 16:49
	73903-1-BKS	BKS	73903-1-BKS	1055	S	73903	158437	-----	10/26/2018 14:06	10/26/2018 15:22
	73903-1-BLK	BLK	73903-1-BLK	1055	S	73903	158437	-----	10/26/2018 14:06	10/26/2018 14:53
	73903-1-BSD	BSD	73903-1-BSD	1055	S	73903	158437	-----	10/26/2018 14:06	10/26/2018 15:51
	GTA-WC3 S	MS	18102322-001 S	1055	S	73903	158437	10/23/2018	10/26/2018 14:06	10/26/2018 17:18
	GTA-WC3 SD	MSD	18102322-001 SD	1055	S	73903	158437	10/23/2018	10/26/2018 14:06	10/26/2018 17:47

PHASE SEPARATION SCIENCE, INC.

QC Summary 18102322

GTA - Laurel

161267

Analytical Method: SW-846 8082 A

Seq Number: 158447
PSS Sample ID: 18102322-001

Matrix: Soil

Prep Method: SW3550C
Date Prep: 10/25/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Decachlorobiphenyl	103		61-150	%	10/26/18 11:48
Tetrachloro-m-xylene	83		42-142	%	10/26/18 11:48

Analytical Method: SW-846 8015 C

Seq Number: 158403
PSS Sample ID: 18102322-001

Matrix: Soil

Prep Method: SW3550C
Date Prep: 10/25/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
o-Terphenyl	78		34-133	%	10/25/18 20:56

Analytical Method: SW-846 8270 C

Seq Number: 158437
PSS Sample ID: 18102322-001

Matrix: Soil

Prep Method: SW3550C
Date Prep: 10/26/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
2-Fluorobiphenyl	79		32-107	%	10/26/18 16:49
2-Fluorophenol	67		34-113	%	10/26/18 16:49
Nitrobenzene-d5	88		35-123	%	10/26/18 16:49
Phenol-d6	76		34-120	%	10/26/18 16:49
Terphenyl-D14	105		46-154	%	10/26/18 16:49
2,4,6-Tribromophenol	93		31-113	%	10/26/18 16:49

Analytical Method: SW-846 8015C

Seq Number: 158367
PSS Sample ID: 18102322-001

Matrix: Soil

Prep Method: SW5030
Date Prep: 10/25/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
a,a,a-Trifluorotoluene	100		81-105	%	10/25/18 11:47

Analytical Method: SW-846 8260 B

Seq Number: 158402
PSS Sample ID: 18102322-001

Matrix: Soil

Prep Method: SW5030
Date Prep: 10/25/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	98		81-146	%	10/25/18 12:57
Dibromofluoromethane	98		89-120	%	10/25/18 12:57
Toluene-D8	102		86-116	%	10/25/18 12:57

PHASE SEPARATION SCIENCE, INC.

QC Summary 18102322

GTA - Laurel

161267

F = RPD exceeded the laboratory control limits

X = Recovery of MS, MSD or both outside of QC Criteria

H= Recovery of BS,BSD or both exceeded the laboratory control limits

L = Recovery of BS,BSD or both below the laboratory control limits

PHASE SEPARATION SCIENCE, INC.

QC Summary 18102322

GTA - Laurel

161267

Analytical Method: SW-846 6020 A

Seq Number: 158412

MB Sample Id: 73877-1-BLK

Matrix: Solid

LCS Sample Id: 73877-1-BKS

Prep Method: SW3050B

Date Prep: 10/25/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Arsenic	<0.4584	18.34	17.37	95	80-120	mg/kg	10/25/18 17:12	
Barium	<2.292	18.34	17.63	96	80-120	mg/kg	10/25/18 17:12	
Cadmium	<2.292	18.34	16.69	91	80-120	mg/kg	10/25/18 17:12	
Chromium	<2.292	18.34	18.24	99	80-120	mg/kg	10/25/18 17:12	
Lead	<2.292	18.34	16.30	89	80-120	mg/kg	10/25/18 17:12	
Mercury	<0.09168	0.4584	0.4057	89	80-120	mg/kg	10/25/18 17:12	
Selenium	<2.292	18.34	17.87	97	80-120	mg/kg	10/25/18 17:12	
Silver	<2.292	18.34	18.18	99	80-120	mg/kg	10/25/18 17:12	

Analytical Method: SW-846 8082 A

Seq Number: 158447

MB Sample Id: 73874-1-BLK

Matrix: Solid

LCS Sample Id: 73874-1-BKS

Prep Method: SW3550C

Date Prep: 10/25/18

LCSD Sample Id: 73874-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
PCB-1016	<0.04946	0.4946	0.4323	87	0.4028	81	60-110	7	25	mg/kg	10/26/18 09:56	
PCB-1260	<0.04946	0.4946	0.4503	91	0.4341	88	60-98	4	25	mg/kg	10/26/18 09:56	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units	Analysis Date
Decachlorobiphenyl	107		111		109		61-150	%	10/26/18 09:56
Tetrachloro-m-xylene	78		90		79		42-142	%	10/26/18 09:56

Analytical Method: SW-846 8015 C

Seq Number: 158401

MB Sample Id: 73873-1-BLK

Matrix: Solid

LCS Sample Id: 73873-1-BKS

Prep Method: SW3550C

Date Prep: 10/25/18

LCSD Sample Id: 73873-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
TPH-DRO (Diesel Range Organics)	<9.977	33.26	26.78	81	26.15	79	54-123	2	25	mg/kg	10/25/18 16:47	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units	Analysis Date
o-Terphenyl	72		72		71		34-133	%	10/25/18 16:47

PHASE SEPARATION SCIENCE, INC.

QC Summary 18102322

GTA - Laurel

161267

Analytical Method: SW-846 8270 C

Seq Number: 158437

MB Sample Id: 73903-1-BLK

Matrix: Solid

LCS Sample Id: 73903-1-BKS

Prep Method: SW3550C

Date Prep: 10/26/18

LCSD Sample Id: 73903-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Acenaphthene	<0.01656	1.325	1.085	82	1.104	83	60-116	2	25	mg/kg	10/26/18 15:22	
Acenaphthylene	<0.01656	1.325	1.171	88	1.194	90	61-112	2	25	mg/kg	10/26/18 15:22	
Acetophenone	<0.1656	1.325	1.177	89	1.201	90	57-114	2	25	mg/kg	10/26/18 15:22	
Anthracene	<0.01656	1.325	1.310	99	1.325	99	66-115	1	25	mg/kg	10/26/18 15:22	
Atrazine	<0.1656	1.325	1.183	89	1.211	91	7-109	2	25	mg/kg	10/26/18 15:22	
Benzo(a)anthracene	<0.01656	1.325	1.298	98	1.321	99	71-113	2	25	mg/kg	10/26/18 15:22	
Benzo(a)pyrene	<0.01656	1.325	1.361	103	1.391	104	69-118	2	25	mg/kg	10/26/18 15:22	
Benzo(b)fluoranthene	<0.01656	1.325	1.281	97	1.385	104	65-126	8	25	mg/kg	10/26/18 15:22	
Benzo(g,h,i)perylene	<0.01656	1.325	1.218	92	1.243	93	69-112	2	25	mg/kg	10/26/18 15:22	
Benzo(k)fluoranthene	<0.01656	1.325	1.285	97	1.220	92	57-129	5	25	mg/kg	10/26/18 15:22	
Biphenyl (Diphenyl)	<0.1656	1.325	1.207	91	1.256	94	62-117	4	25	mg/kg	10/26/18 15:22	
Butyl benzyl phthalate	<0.1656	1.325	1.402	106	1.398	105	81-111	0	25	mg/kg	10/26/18 15:22	
bis(2-chloroethoxy) methane	<0.1656	1.325	1.124	85	1.199	90	56-119	6	25	mg/kg	10/26/18 15:22	
bis(2-chloroethyl) ether	<0.1656	1.325	1.097	83	1.131	85	55-107	3	25	mg/kg	10/26/18 15:22	
bis(2-chloroisopropyl) ether	<0.1656	1.325	1.108	84	1.130	85	44-103	2	25	mg/kg	10/26/18 15:22	
bis(2-ethylhexyl) phthalate	<0.1656	1.325	1.342	101	1.343	101	84-109	0	25	mg/kg	10/26/18 15:22	
4-Bromophenylphenyl ether	<0.1656	1.325	1.240	94	1.304	98	63-125	5	25	mg/kg	10/26/18 15:22	
Di-n-butyl phthalate	<0.1656	1.325	1.395	105	1.418	106	76-110	2	25	mg/kg	10/26/18 15:22	
Carbazole	<0.1656	1.325	1.459	110	1.501	113	58-133	3	25	mg/kg	10/26/18 15:22	
Caprolactam	<0.1656	1.325	1.288	97	1.455	109	51-122	12	25	mg/kg	10/26/18 15:22	
4-Chloro-3-methylphenol	<0.1656	1.325	1.325	100	1.395	105	74-119	5	25	mg/kg	10/26/18 15:22	
4-Chloroaniline	<0.1656	1.325	1.091	82	1.145	86	45-107	5	25	mg/kg	10/26/18 15:22	
2-Chloronaphthalene	<0.1656	1.325	1.164	88	1.172	88	56-113	1	25	mg/kg	10/26/18 15:22	
2-Chlorophenol	<0.1656	1.325	1.163	88	1.178	88	59-113	1	25	mg/kg	10/26/18 15:22	
4-Chlorophenyl phenyl ether	<0.1656	1.325	1.119	84	1.155	87	62-111	3	25	mg/kg	10/26/18 15:22	
Chrysene	<0.01656	1.325	1.205	91	1.226	92	72-114	2	25	mg/kg	10/26/18 15:22	
Dibenz(a,h)anthracene	<0.01656	1.325	1.328	100	1.318	99	72-110	1	25	mg/kg	10/26/18 15:22	
Dibenzofuran	<0.1656	1.325	1.092	82	1.122	84	62-118	3	25	mg/kg	10/26/18 15:22	
3,3-Dichlorobenzidine	<0.1656	1.325	1.386	105	1.416	106	66-141	2	25	mg/kg	10/26/18 15:22	
2,4-Dichlorophenol	<0.1656	1.325	1.228	93	1.270	95	68-118	3	25	mg/kg	10/26/18 15:22	
Diethyl phthalate	<0.1656	1.325	1.226	93	1.224	92	61-113	0	25	mg/kg	10/26/18 15:22	
Dimethyl phthalate	<0.1656	1.325	1.181	89	1.214	91	69-109	3	25	mg/kg	10/26/18 15:22	
2,4-Dimethylphenol	<0.1656	1.325	1.533	116	1.616	121	57-122	5	25	mg/kg	10/26/18 15:22	
4,6-Dinitro-2-methyl phenol	<0.1656	1.325	1.231	93	1.241	93	50-134	1	25	mg/kg	10/26/18 15:22	
2,4-Dinitrophenol	<0.3311	1.325	1.024	77	1.061	80	24-144	4	25	mg/kg	10/26/18 15:22	
2,4-Dinitrotoluene	<0.1656	1.325	1.198	90	1.201	90	61-124	0	25	mg/kg	10/26/18 15:22	
2,6-Dinitrotoluene	<0.1656	1.325	1.149	87	1.194	90	59-124	4	25	mg/kg	10/26/18 15:22	
Fluoranthene	<0.01656	1.325	1.246	94	1.233	92	69-119	1	25	mg/kg	10/26/18 15:22	
Fluorene	<0.01656	1.325	1.101	83	1.126	84	65-115	2	25	mg/kg	10/26/18 15:22	
Hexachlorobenzene	<0.1656	1.325	1.356	102	1.412	106	63-118	4	25	mg/kg	10/26/18 15:22	
Hexachlorobutadiene	<0.1656	1.325	1.229	93	1.254	94	55-120	2	25	mg/kg	10/26/18 15:22	
Hexachlorocyclopentadiene	<0.1656	1.325	1.729	130	1.760	132	29-138	2	25	mg/kg	10/26/18 15:22	
Hexachloroethane	<0.1656	1.325	1.159	87	1.207	91	54-110	4	25	mg/kg	10/26/18 15:22	
Indeno(1,2,3-c,d)pyrene	<0.01656	1.325	1.294	98	1.272	95	60-127	2	25	mg/kg	10/26/18 15:22	
Isophorone	<0.1656	1.325	1.259	95	1.285	96	57-116	2	25	mg/kg	10/26/18 15:22	
2-Methylnaphthalene	<0.01656	1.325	1.111	84	1.153	86	70-109	4	25	mg/kg	10/26/18 15:22	
2-Methylphenol	<0.1656	1.325	1.177	89	1.203	90	59-118	2	25	mg/kg	10/26/18 15:22	
3&4-Methylphenol	<0.1656	1.325	1.175	89	1.219	91	59-113	4	25	mg/kg	10/26/18 15:22	
Naphthalene	<0.01656	1.325	1.105	83	1.135	85	59-108	3	25	mg/kg	10/26/18 15:22	
2-Nitroaniline	<0.1656	1.325	1.324	100	1.322	99	51-116	0	25	mg/kg	10/26/18 15:22	
3-Nitroaniline	<0.1656	1.325	1.141	86	1.193	89	57-111	4	25	mg/kg	10/26/18 15:22	

PHASE SEPARATION SCIENCE, INC.

QC Summary 18102322

GTA - Laurel

161267

Analytical Method: SW-846 8270 C

Seq Number: 158437

MB Sample Id: 73903-1-BLK

Matrix: Solid

LCS Sample Id: 73903-1-BKS

Prep Method: SW3550C

Date Prep: 10/26/18

LCSD Sample Id: 73903-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
4-Nitroaniline	<0.1656	1.325	1.283	97	1.265	95	55-125	1	25	mg/kg	10/26/18 15:22	
Nitrobenzene	<0.1656	1.325	1.213	92	1.277	96	53-110	5	25	mg/kg	10/26/18 15:22	
2-Nitrophenol	<0.1656	1.325	1.219	92	1.281	96	58-124	5	25	mg/kg	10/26/18 15:22	
4-Nitrophenol	<0.1656	1.325	1.330	100	1.333	100	51-116	0	25	mg/kg	10/26/18 15:22	
N-Nitrosodi-n-Propylamine	<0.1656	1.325	1.231	93	1.247	94	60-98	1	25	mg/kg	10/26/18 15:22	
N-Nitrosodiphenylamine	<0.1656	1.325	1.310	99	1.348	101	65-111	3	25	mg/kg	10/26/18 15:22	
Di-n-octyl phthalate	<0.1656	1.325	1.331	100	1.348	101	69-120	1	25	mg/kg	10/26/18 15:22	
Pentachlorophenol	<0.1656	1.325	1.414	107	1.423	107	56-124	1	25	mg/kg	10/26/18 15:22	
Phenanthrene	<0.01656	1.325	1.195	90	1.253	94	67-117	5	25	mg/kg	10/26/18 15:22	
Phenol	<0.1656	1.325	1.163	88	1.189	89	58-114	2	25	mg/kg	10/26/18 15:22	
Pyrene	<0.01656	1.325	1.261	95	1.274	96	77-111	1	25	mg/kg	10/26/18 15:22	
Pyridine	<0.1656	1.325	0.9526	72	1.016	76	37-110	6	25	mg/kg	10/26/18 15:22	
2,4,5-Trichlorophenol	<0.1656	1.325	1.105	83	1.190	89	64-114	7	25	mg/kg	10/26/18 15:22	
2,4,6-Trichlorophenol	<0.1656	1.325	1.196	90	1.200	90	60-125	0	25	mg/kg	10/26/18 15:22	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units	Analysis Date
2-Fluorobiphenyl	92		88		91		32-107	%	10/26/18 15:22
2-Fluorophenol	95		86		89		34-113	%	10/26/18 15:22
Nitrobenzene-d5	110		103		108		35-123	%	10/26/18 15:22
Phenol-d6	97		93		96		34-120	%	10/26/18 15:22
Terphenyl-D14	101		105		104		46-154	%	10/26/18 15:22
2,4,6-Tribromophenol	80		97		96		31-113	%	10/26/18 15:22

PHASE SEPARATION SCIENCE, INC.

QC Summary 18102322

GTA - Laurel

161267

Analytical Method: SW-846 8270 C

Seq Number: 158437

Parent Sample Id: 18102322-001

Matrix: Soil

MS Sample Id: 18102322-001 S

Prep Method: SW3550C

Date Prep: 10/26/18

MSD Sample Id: 18102322-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Acenaphthene	0.03246	1.528	1.299	83	1.204	77	61-106	8	30	mg/kg	10/26/18 17:18	
Acenaphthylene	0.02444	1.528	1.373	88	1.283	82	60-104	7	30	mg/kg	10/26/18 17:18	
Acetophenone	<0.1911	1.528	1.286	84	1.159	76	57-103	10	30	mg/kg	10/26/18 17:18	
Anthracene	0.05804	1.528	1.580	100	1.524	96	68-110	4	30	mg/kg	10/26/18 17:18	
Atrazine	<0.1911	1.528	1.287	84	1.255	82	6-106	3	30	mg/kg	10/26/18 17:18	
Benzo(a)anthracene	0.2738	1.528	1.762	97	1.737	96	70-111	1	30	mg/kg	10/26/18 17:18	
Benzo(a)pyrene	0.3448	1.528	1.910	102	1.895	102	71-114	1	30	mg/kg	10/26/18 17:18	
Benzo(b)fluoranthene	0.3895	1.528	2.138	114	2.041	108	68-120	5	30	mg/kg	10/26/18 17:18	
Benzo(g,h,i)perylene	0.2081	1.528	1.739	100	1.681	97	64-117	3	30	mg/kg	10/26/18 17:18	
Benzo(k)fluoranthene	0.3043	1.528	1.545	81	1.662	89	60-128	7	30	mg/kg	10/26/18 17:18	
Biphenyl (Diphenyl)	<0.1911	1.528	1.387	91	1.246	82	61-107	11	30	mg/kg	10/26/18 17:18	
Butyl benzyl phthalate	<0.1911	1.528	1.534	100	1.545	101	74-111	1	30	mg/kg	10/26/18 17:18	
bis(2-chloroethoxy) methane	<0.1911	1.528	1.282	84	1.164	76	55-109	10	30	mg/kg	10/26/18 17:18	
bis(2-chloroethyl) ether	<0.1911	1.528	1.227	80	1.101	72	53-98	11	30	mg/kg	10/26/18 17:18	
bis(2-chloroisopropyl) ether	<0.1911	1.528	1.218	80	1.105	72	43-93	10	30	mg/kg	10/26/18 17:18	
bis(2-ethylhexyl) phthalate	<0.1911	1.528	1.527	100	1.515	99	75-114	1	30	mg/kg	10/26/18 17:18	
4-Bromophenylphenyl ether	<0.1911	1.528	1.538	101	1.528	100	67-114	1	30	mg/kg	10/26/18 17:18	
Di-n-butyl phthalate	<0.1911	1.528	1.549	101	1.534	101	72-106	1	30	mg/kg	10/26/18 17:18	
Carbazole	<0.1911	1.528	1.731	113	1.744	114	63-132	1	30	mg/kg	10/26/18 17:18	
Caprolactam	<0.1911	1.528	1.669	109	1.628	107	51-119	2	30	mg/kg	10/26/18 17:18	
4-Chloro-3-methylphenol	<0.1911	1.528	1.594	104	1.513	99	68-113	5	30	mg/kg	10/26/18 17:18	
4-Chloroaniline	<0.1911	1.528	1.265	83	1.146	75	45-100	10	30	mg/kg	10/26/18 17:18	
2-Chloronaphthalene	<0.1911	1.528	1.368	90	1.204	79	56-104	13	30	mg/kg	10/26/18 17:18	
2-Chlorophenol	<0.1911	1.528	1.268	83	1.150	75	60-97	10	30	mg/kg	10/26/18 17:18	
4-Chlorophenyl phenyl ether	<0.1911	1.528	1.317	86	1.255	82	61-104	5	30	mg/kg	10/26/18 17:18	
Chrysene	0.3001	1.528	1.653	89	1.673	90	72-114	1	30	mg/kg	10/26/18 17:18	
Dibenz(a,h)anthracene	0.06110	1.528	1.675	106	1.639	103	69-112	2	30	mg/kg	10/26/18 17:18	
Dibenzofuran	<0.1911	1.528	1.302	85	1.246	82	63-109	4	30	mg/kg	10/26/18 17:18	
3,3-Dichlorobenzidine	<0.1911	1.528	1.738	114	1.749	115	74-134	1	30	mg/kg	10/26/18 17:18	
2,4-Dichlorophenol	<0.1911	1.528	1.462	96	1.298	85	63-109	12	30	mg/kg	10/26/18 17:18	
Diethyl phthalate	<0.1911	1.528	1.411	92	1.364	89	60-108	3	30	mg/kg	10/26/18 17:18	
Dimethyl phthalate	<0.1911	1.528	1.397	91	1.326	87	64-104	5	30	mg/kg	10/26/18 17:18	
2,4-Dimethylphenol	<0.1911	1.528	1.833	120	1.661	109	44-107	10	30	mg/kg	10/26/18 17:18	X
4,6-Dinitro-2-methyl phenol	<0.1911	1.528	1.440	94	1.252	82	51-130	14	30	mg/kg	10/26/18 17:18	
2,4-Dinitrophenol	<0.3821	1.528	1.151	75	0.9678	63	12-150	17	30	mg/kg	10/26/18 17:18	
2,4-Dinitrotoluene	<0.1911	1.528	1.374	90	1.358	89	61-123	1	30	mg/kg	10/26/18 17:18	
2,6-Dinitrotoluene	<0.1911	1.528	1.363	89	1.292	85	58-120	5	30	mg/kg	10/26/18 17:18	
Fluoranthene	0.4208	1.528	1.759	88	1.699	84	69-114	3	30	mg/kg	10/26/18 17:18	
Fluorene	0.02826	1.528	1.319	84	1.265	81	66-106	4	30	mg/kg	10/26/18 17:18	
Hexachlorobenzene	<0.1911	1.528	1.739	114	1.629	107	63-114	7	30	mg/kg	10/26/18 17:18	
Hexachlorobutadiene	<0.1911	1.528	1.340	88	1.216	80	55-107	10	30	mg/kg	10/26/18 17:18	
Hexachlorocyclopentadiene	<0.1911	1.528	1.911	125	1.605	105	36-120	17	30	mg/kg	10/26/18 17:18	X
Hexachloroethane	<0.1911	1.528	1.268	83	1.164	76	52-99	9	30	mg/kg	10/26/18 17:18	
Indeno(1,2,3-c,d)pyrene	0.2482	1.528	1.846	105	1.892	108	63-123	2	30	mg/kg	10/26/18 17:18	
Isophorone	<0.1911	1.528	1.394	91	1.255	82	57-106	10	30	mg/kg	10/26/18 17:18	
2-Methylnaphthalene	0.02406	1.528	1.303	84	1.188	76	63-102	9	30	mg/kg	10/26/18 17:18	
2-Methylphenol	<0.1911	1.528	1.331	87	1.189	78	60-103	11	30	mg/kg	10/26/18 17:18	
3&4-Methylphenol	<0.1911	1.528	1.347	88	1.193	78	58-101	12	30	mg/kg	10/26/18 17:18	
Naphthalene	0.04201	1.528	1.292	82	1.159	73	59-97	11	30	mg/kg	10/26/18 17:18	
2-Nitroaniline	<0.1911	1.528	1.528	100	1.442	94	52-109	6	30	mg/kg	10/26/18 17:18	
3-Nitroaniline	<0.1911	1.528	1.381	90	1.332	87	59-109	4	30	mg/kg	10/26/18 17:18	

PHASE SEPARATION SCIENCE, INC.

QC Summary 18102322

GTA - Laurel

161267

Analytical Method: SW-846 8270 C

Seq Number: 158437

Parent Sample Id: 18102322-001

Matrix: Soil

MS Sample Id: 18102322-001 S

Prep Method: SW3550C

Date Prep: 10/26/18

MSD Sample Id: 18102322-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
4-Nitroaniline	<0.1911	1.528	1.340	88	1.372	90	60-121	2	30	mg/kg	10/26/18 17:18	
Nitrobenzene	<0.1911	1.528	1.386	91	1.247	82	52-100	11	30	mg/kg	10/26/18 17:18	
2-Nitrophenol	<0.1911	1.528	1.360	89	1.210	79	62-109	12	30	mg/kg	10/26/18 17:18	
4-Nitrophenol	<0.1911	1.528	1.520	99	1.449	95	48-114	5	30	mg/kg	10/26/18 17:18	
N-Nitrosodi-n-Propylamine	<0.1911	1.528	1.360	89	1.194	78	50-96	13	30	mg/kg	10/26/18 17:18	
N-Nitrosodiphenylamine	<0.1911	1.528	1.670	109	1.612	106	64-108	4	30	mg/kg	10/26/18 17:18	X
Di-n-octyl phthalate	<0.1911	1.528	1.548	101	1.523	100	69-117	2	30	mg/kg	10/26/18 17:18	
Pentachlorophenol	<0.1911	1.528	1.774	116	1.704	112	66-114	4	30	mg/kg	10/26/18 17:18	X
Phenanthrene	0.2203	1.528	1.709	97	1.671	95	67-115	2	30	mg/kg	10/26/18 17:18	
Phenol	<0.1911	1.528	1.293	85	1.148	75	55-106	12	30	mg/kg	10/26/18 17:18	
Pyrene	0.4365	1.528	1.839	92	1.849	93	67-116	1	30	mg/kg	10/26/18 17:18	
Pyridine	<0.1911	1.528	1.032	68	0.9052	59	41-92	13	30	mg/kg	10/26/18 17:18	
2,4,5-Trichlorophenol	<0.1911	1.528	1.416	93	1.323	87	65-107	7	30	mg/kg	10/26/18 17:18	
2,4,6-Trichlorophenol	<0.1911	1.528	1.428	93	1.284	84	62-114	11	30	mg/kg	10/26/18 17:18	

Surrogate	MS Result	MS Flag	MSD Result	MSD Flag	Limits	Units	Analysis Date
2-Fluorobiphenyl	87		81		32-107	%	10/26/18 17:18
2-Fluorophenol	79		73		34-113	%	10/26/18 17:18
Nitrobenzene-d5	99		92		35-123	%	10/26/18 17:18
Phenol-d6	86		81		34-120	%	10/26/18 17:18
Terphenyl-D14	102		105		46-154	%	10/26/18 17:18
2,4,6-Tribromophenol	95		95		31-113	%	10/26/18 17:18

Analytical Method: SW-846 8015C

Seq Number: 158367

MB Sample Id: 73879-2-BLK

Matrix: Solid

LCS Sample Id: 73879-2-BKS

Prep Method: SW5030

Date Prep: 10/25/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
TPH-GRO (Gasoline Range Organic)	<0.10	5.0	5.0	100	65-139	mg/kg	10/25/18 05:11	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units	Analysis Date
a,a,a-Trifluorotoluene	100		120	*	81-105	%	10/25/18 05:11

PHASE SEPARATION SCIENCE, INC.

QC Summary 18102322

GTA - Laurel

161267

Analytical Method: SW-846 8260 B

Seq Number: 158402

MB Sample Id: 73895-1-BLK

Matrix: Solid

LCS Sample Id: 73895-1-BKS

Prep Method: SW5030

Date Prep: 10/25/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Acetone	<0.019	0.057	0.045	79	66-136	mg/kg	10/25/18 08:55	
Benzene	<0.0048	0.057	0.054	95	79-131	mg/kg	10/25/18 08:55	
Bromochloromethane	<0.0048	0.057	0.058	102	82-124	mg/kg	10/25/18 08:55	
Bromodichloromethane	<0.0048	0.057	0.059	104	81-128	mg/kg	10/25/18 08:55	
Bromoform	<0.0048	0.057	0.061	107	75-128	mg/kg	10/25/18 08:55	
Bromomethane	<0.0048	0.057	0.057	100	71-135	mg/kg	10/25/18 08:55	
2-Butanone (MEK)	<0.019	0.057	0.054	95	63-135	mg/kg	10/25/18 08:55	
Carbon Disulfide	<0.0095	0.057	0.055	96	73-134	mg/kg	10/25/18 08:55	
Carbon tetrachloride	<0.0048	0.057	0.059	104	73-130	mg/kg	10/25/18 08:55	
Chlorobenzene	<0.0048	0.057	0.054	95	80-126	mg/kg	10/25/18 08:55	
Chloroethane	<0.0048	0.057	0.053	93	77-133	mg/kg	10/25/18 08:55	
Chloroform	<0.0048	0.057	0.053	93	79-125	mg/kg	10/25/18 08:55	
Chloromethane	<0.0048	0.057	0.053	93	73-127	mg/kg	10/25/18 08:55	
Cyclohexane	<0.019	0.057	0.052	91	70-126	mg/kg	10/25/18 08:55	
1,2-Dibromo-3-chloropropane	<0.038	0.057	0.063	111	61-127	mg/kg	10/25/18 08:55	
Dibromochloromethane	<0.0048	0.057	0.052	91	82-123	mg/kg	10/25/18 08:55	
1,2-Dibromoethane	<0.0048	0.057	0.054	95	73-122	mg/kg	10/25/18 08:55	
1,2-Dichlorobenzene	<0.0048	0.057	0.061	107	64-125	mg/kg	10/25/18 08:55	
1,3-Dichlorobenzene	<0.0048	0.057	0.058	102	65-125	mg/kg	10/25/18 08:55	
1,4-Dichlorobenzene	<0.0048	0.057	0.058	102	81-122	mg/kg	10/25/18 08:55	
Dichlorodifluoromethane	<0.0048	0.057	0.066	116	62-134	mg/kg	10/25/18 08:55	
1,1-Dichloroethane	<0.0048	0.057	0.054	95	80-128	mg/kg	10/25/18 08:55	
1,2-Dichloroethane	<0.0048	0.057	0.055	96	81-124	mg/kg	10/25/18 08:55	
1,1-Dichloroethene	<0.0048	0.057	0.057	100	75-124	mg/kg	10/25/18 08:55	
1,2-Dichloropropane	<0.0048	0.057	0.054	95	77-134	mg/kg	10/25/18 08:55	
cis-1,2-Dichloroethene	<0.0048	0.057	0.055	96	79-122	mg/kg	10/25/18 08:55	
cis-1,3-Dichloropropene	<0.0048	0.057	0.060	105	71-123	mg/kg	10/25/18 08:55	
trans-1,2-Dichloroethene	<0.0048	0.057	0.056	98	79-127	mg/kg	10/25/18 08:55	
trans-1,3-Dichloropropene	<0.0048	0.057	0.056	98	68-126	mg/kg	10/25/18 08:55	
Ethylbenzene	<0.0048	0.057	0.056	98	77-123	mg/kg	10/25/18 08:55	
2-Hexanone (MBK)	<0.019	0.057	0.055	96	58-136	mg/kg	10/25/18 08:55	
Isopropylbenzene	<0.0048	0.057	0.056	98	78-134	mg/kg	10/25/18 08:55	
Methyl Acetate	<0.019	0.057	0.050	88	76-127	mg/kg	10/25/18 08:55	
Methylcyclohexane	<0.019	0.057	0.054	95	73-124	mg/kg	10/25/18 08:55	
Methylene chloride	<0.0048	0.057	0.053	93	75-117	mg/kg	10/25/18 08:55	
4-Methyl-2-Pentanone (MIBK)	<0.019	0.057	0.057	100	67-130	mg/kg	10/25/18 08:55	
Methyl-t-Butyl Ether	<0.0048	0.057	0.055	96	72-124	mg/kg	10/25/18 08:55	
Naphthalene	<0.0048	0.057	0.071	125	27-128	mg/kg	10/25/18 08:55	
Styrene	<0.0048	0.057	0.059	104	71-125	mg/kg	10/25/18 08:55	
1,1,2,2-Tetrachloroethane	<0.0048	0.057	0.058	102	76-130	mg/kg	10/25/18 08:55	
Tetrachloroethene	<0.0048	0.057	0.064	112	72-129	mg/kg	10/25/18 08:55	
Toluene	<0.0048	0.057	0.059	104	76-132	mg/kg	10/25/18 08:55	
1,2,3-Trichlorobenzene	<0.0048	0.057	0.078	137	35-131	mg/kg	10/25/18 08:55	H
1,2,4-Trichlorobenzene	<0.0048	0.057	0.069	121	67-114	mg/kg	10/25/18 08:55	H
1,1,1-Trichloroethane	<0.0048	0.057	0.058	102	77-129	mg/kg	10/25/18 08:55	
1,1,2-Trichloroethane	<0.0048	0.057	0.059	104	77-132	mg/kg	10/25/18 08:55	
Trichloroethene	<0.0048	0.057	0.057	100	78-129	mg/kg	10/25/18 08:55	
Trichlorofluoromethane	<0.0048	0.057	0.060	105	73-135	mg/kg	10/25/18 08:55	
1,1,2-Trichlorotrifluoroethane	<0.0048	0.057	0.058	102	73-129	mg/kg	10/25/18 08:55	
Vinyl Chloride	<0.0048	0.057	0.059	104	76-138	mg/kg	10/25/18 08:55	
m&p-Xylene	<0.0095	0.11	0.11	100	79-121	mg/kg	10/25/18 08:55	

PHASE SEPARATION SCIENCE, INC.

QC Summary 18102322

GTA - Laurel
161267

Analytical Method: SW-846 8260 B

Seq Number: 158402

MB Sample Id: 73895-1-BLK

Matrix: Solid

LCS Sample Id: 73895-1-BKS

Prep Method: SW5030

Date Prep: 10/25/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
o-Xylene	<0.0048	0.057	0.058	102	75-124	mg/kg	10/25/18 08:55	
Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units	Analysis Date	
4-Bromofluorobenzene	100		100		81-146	%	10/25/18 08:55	
Dibromofluoromethane	98		100		89-120	%	10/25/18 08:55	
Toluene-D8	104		106		86-116	%	10/25/18 08:55	

PHASE SEPARATION SCIENCE, INC.

QC Summary 18102322

GTA - Laurel

161267

Analytical Method: SW-846 8260 B

Seq Number: 158402

Parent Sample Id: 18102322-001

Matrix: Soil

MS Sample Id: 18102322-001 S

Prep Method: SW5030

Date Prep: 10/25/18

MSD Sample Id: 18102322-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Acetone	<0.024	0.072	0.047	65	0.045	66	28-167	4	30	mg/kg	10/25/18 13:19	
Benzene	<0.0060	0.072	0.059	82	0.053	78	51-125	11	30	mg/kg	10/25/18 13:19	
Bromochloromethane	<0.0060	0.072	0.062	86	0.051	75	45-126	19	30	mg/kg	10/25/18 13:19	
Bromodichloromethane	<0.0060	0.072	0.062	86	0.054	79	38-133	14	30	mg/kg	10/25/18 13:19	
Bromoform	<0.0060	0.072	0.064	89	0.052	76	28-135	21	30	mg/kg	10/25/18 13:19	
Bromomethane	<0.0060	0.072	0.064	89	0.056	82	54-120	13	30	mg/kg	10/25/18 13:19	
2-Butanone (MEK)	<0.024	0.072	0.054	75	0.055	81	23-149	2	30	mg/kg	10/25/18 13:19	
Carbon Disulfide	<0.012	0.072	0.050	69	0.039	57	43-126	25	30	mg/kg	10/25/18 13:19	
Carbon tetrachloride	<0.0060	0.072	0.071	99	0.062	91	31-142	14	30	mg/kg	10/25/18 13:19	
Chlorobenzene	<0.0060	0.072	0.057	79	0.044	65	38-128	26	30	mg/kg	10/25/18 13:19	
Chloroethane	<0.0060	0.072	0.059	82	0.053	78	59-122	11	30	mg/kg	10/25/18 13:19	
Chloroform	<0.0060	0.072	0.058	81	0.051	75	50-121	13	30	mg/kg	10/25/18 13:19	
Chloromethane	<0.0060	0.072	0.058	81	0.051	75	58-115	13	30	mg/kg	10/25/18 13:19	
Cyclohexane	<0.024	0.072	0.059	82	0.053	78	39-124	11	30	mg/kg	10/25/18 13:19	
1,2-Dibromo-3-chloropropane	<0.048	0.072	0.062	86	0.054	79	13-144	14	30	mg/kg	10/25/18 13:19	
Dibromochloromethane	<0.0060	0.072	0.057	79	0.047	69	34-134	19	30	mg/kg	10/25/18 13:19	
1,2-Dibromoethane	<0.0060	0.072	0.055	76	0.044	65	28-133	22	30	mg/kg	10/25/18 13:19	
1,2-Dichlorobenzene	<0.0060	0.072	0.053	74	0.041	60	12-131	26	30	mg/kg	10/25/18 13:19	
1,3-Dichlorobenzene	<0.0060	0.072	0.052	72	0.038	56	13-130	31	30	mg/kg	10/25/18 13:19	F
1,4-Dichlorobenzene	<0.0060	0.072	0.049	68	0.036	53	18-133	31	30	mg/kg	10/25/18 13:19	F
Dichlorodifluoromethane	<0.0060	0.072	0.081	113	0.072	106	41-128	12	30	mg/kg	10/25/18 13:19	
1,1-Dichloroethane	<0.0060	0.072	0.062	86	0.053	78	55-123	16	30	mg/kg	10/25/18 13:19	
1,2-Dichloroethane	<0.0060	0.072	0.057	79	0.051	75	46-129	11	30	mg/kg	10/25/18 13:19	
1,1-Dichloroethene	<0.0060	0.072	0.065	90	0.055	81	48-124	17	30	mg/kg	10/25/18 13:19	
1,2-Dichloropropane	<0.0060	0.072	0.059	82	0.051	75	51-126	15	30	mg/kg	10/25/18 13:19	
cis-1,2-Dichloroethene	<0.0060	0.072	0.055	76	0.047	69	39-124	16	30	mg/kg	10/25/18 13:19	
cis-1,3-Dichloropropene	<0.0060	0.072	0.056	78	0.047	69	18-135	17	30	mg/kg	10/25/18 13:19	
trans-1,2-Dichloroethene	<0.0060	0.072	0.054	75	0.045	66	44-125	18	30	mg/kg	10/25/18 13:19	
trans-1,3-Dichloropropene	<0.0060	0.072	0.049	68	0.039	57	16-135	23	30	mg/kg	10/25/18 13:19	
Ethylbenzene	<0.0060	0.072	0.060	83	0.047	69	34-128	24	30	mg/kg	10/25/18 13:19	
2-Hexanone (MBK)	<0.024	0.072	0.059	82	0.056	82	10-152	5	30	mg/kg	10/25/18 13:19	
Isopropylbenzene	<0.0060	0.072	0.061	85	0.048	71	42-125	24	30	mg/kg	10/25/18 13:19	
Methyl Acetate	<0.024	0.072	0.060	83	0.055	81	50-141	9	30	mg/kg	10/25/18 13:19	
Methylcyclohexane	<0.024	0.072	0.058	81	0.050	74	27-133	15	30	mg/kg	10/25/18 13:19	
Methylene chloride	<0.0060	0.072	0.060	83	0.050	74	48-115	18	30	mg/kg	10/25/18 13:19	
4-Methyl-2-Pentanone (MIBK)	<0.024	0.072	0.062	86	0.059	87	21-146	5	30	mg/kg	10/25/18 13:19	
Methyl-t-Butyl Ether	<0.0060	0.072	0.063	88	0.060	88	37-128	5	30	mg/kg	10/25/18 13:19	
Naphthalene	<0.0060	0.072	0.043	60	0.043	63	1-132	0	30	mg/kg	10/25/18 13:19	
Styrene	<0.0060	0.072	0.054	75	0.044	65	16-134	20	30	mg/kg	10/25/18 13:19	
1,1,2,2-Tetrachloroethane	<0.0060	0.072	0.065	90	0.054	79	41-136	18	30	mg/kg	10/25/18 13:19	
Tetrachloroethene	<0.0060	0.072	0.068	94	0.056	82	36-128	19	30	mg/kg	10/25/18 13:19	
Toluene	<0.0060	0.072	0.061	85	0.052	76	45-127	16	30	mg/kg	10/25/18 13:19	
1,2,3-Trichlorobenzene	<0.0060	0.072	0.039	54	0.038	56	1-130	3	30	mg/kg	10/25/18 13:19	
1,2,4-Trichlorobenzene	<0.0060	0.072	0.038	53	0.033	49	1-138	14	30	mg/kg	10/25/18 13:19	
1,1,1-Trichloroethane	<0.0060	0.072	0.068	94	0.059	87	53-122	14	30	mg/kg	10/25/18 13:19	
1,1,2-Trichloroethane	<0.0060	0.072	0.062	86	0.056	82	47-130	10	30	mg/kg	10/25/18 13:19	
Trichloroethene	<0.0060	0.072	0.057	79	0.047	69	44-127	19	30	mg/kg	10/25/18 13:19	
Trichlorofluoromethane	<0.0060	0.072	0.073	101	0.065	96	57-120	12	30	mg/kg	10/25/18 13:19	
1,1,2-Trichlorotrifluoroethane	<0.0060	0.072	0.069	96	0.060	88	51-125	14	30	mg/kg	10/25/18 13:19	
Vinyl Chloride	<0.0060	0.072	0.066	92	0.055	81	50-140	18	30	mg/kg	10/25/18 13:19	
m&p-Xylene	<0.012	0.14	0.11	79	0.093	66	34-129	17	30	mg/kg	10/25/18 13:19	

PHASE SEPARATION SCIENCE, INC.

QC Summary 18102322

GTA - Laurel

161267

Analytical Method: SW-846 8260 B

Seq Number: 158402

Parent Sample Id: 18102322-001

Matrix: Soil

MS Sample Id: 18102322-001 S

Prep Method: SW5030

Date Prep: 10/25/18

MSD Sample Id: 18102322-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
o-Xylene	<0.0060	0.072	0.060	83	0.052	76	27-130	14	30	mg/kg	10/25/18 13:19	

Surrogate	MS Result	MS Flag	MSD Result	MSD Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	100		94		81-146	%	10/25/18 13:19
Dibromofluoromethane	98		104		89-120	%	10/25/18 13:19
Toluene-D8	106		110		86-116	%	10/25/18 13:19

F = RPD exceeded the laboratory control limits

X = Recovery of MS, MSD or both outside of QC Criteria

H = Recovery of BS, BSD or both exceeded the laboratory control limits

L = Recovery of BS, BSD or both below the laboratory control limits



Phase Separation Science, Inc

Sample Receipt Checklist

Work Order # 18102322 **Received By** Thomas Wingate
Client Name GTA - Laurel **Date Received** 10/23/2018 03:00:00 PM
Project Name 161267 **Delivered By** Client
Project Number 161267 **Tracking No** Not Applicable
Disposal Date 11/27/2018 **Logged In By** Thomas Wingate
Shipping Container(s)
No. of Coolers 1

Ice Present
Custody Seal(s) Intact? N/A Temp (deg C) 5.6
Seal(s) Signed / Dated? N/A Temp Blank Present No

Documentation

COC agrees with sample labels? Yes Sampler Name Steve Strausbaugh
Chain of Custody Yes MD DW Cert. No. N/A

Sample Container

Appropriate for Specified Analysis? Yes Custody Seal(s) Intact? Not Applicable
Intact? Yes Seal(s) Signed / Dated Not Applicable
Labeled and Labels Legible? Yes

Total No. of Samples Received 1

Total No. of Containers Received 4

Preservation

Total Metals (pH<2) N/A
Dissolved Metals, filtered within 15 minutes of collection (pH<2) N/A
Orthophosphorus, filtered within 15 minutes of collection N/A
Cyanides (pH>12) N/A
Sulfide (pH>9) N/A
TOC, DOC (field filtered), COD, Phenols (pH<2) N/A
TOX, TKN, NH3, Total Phos (pH<2) N/A
VOC, BTEX (VOA Vials Rcvd Preserved) (pH<2) N/A
Do VOA vials have zero headspace? N/A
624 VOC (Rcvd at least one unpreserved VOA vial) N/A
524 VOC (Rcvd with trip blanks) (pH<2) N/A

Comments: (Any "No" response must be detailed in the comments section below.)

For any improper preservation conditions, list sample ID, preservative added (reagent ID number) below as well as documentation of any client notification as well as client instructions. Samples for pH, chlorine and dissolved oxygen should be analyzed as soon as possible, preferably in the field at the time of sampling. Samples which require thermal preservation shall be considered acceptable when received at a temperature above freezing to 6°C. Samples that are hand delivered on the day that they are collected may not meet these criteria but shall be considered acceptable if there is evidence that the chilling process has begun such as arrival on ice.

Samples were initially placed on hold by the client and subsequently logged in for volatile analyses. Sample aliquots were not stored in segregated volatile storage area during the hold period and may have been opened for other analyses.

Samples Inspected/Checklist Completed By:

Thomas Wingate

Date: 10/23/2018

PM Review and Approval:

Amber Confer

Date: 10/25/2018

Keith Progin

From: Barbara Brown -MDE- <barbara.brown1@maryland.gov>
Sent: Friday, May 25, 2018 4:31 PM
To: Keith Progin; Pete Haid
Cc: Jennifer Sohns -MDE- (jennifer.sohns@maryland.gov)
Subject: Re: SPT Topsoil Sampling Plan - Old Court Road

Hello Keith

The sample results look good for clean topsoil for industrial and commercial use.

So they may transport to SPT..however, the pile should be identified, marked and placed in such a way that there is no cross contamination from underlying material and with proper sediment control and dust management.

On Fri, May 25, 2018 at 4:17 PM, Keith Progin <kprogin@hcea.com> wrote:

Please see the attached laboratory report for the top soil samples collected at Old Court Road. Our original Work Plan called for the collection of four composite samples from an approximate 6,000 yard stockpile. Upon arriving on-site, I was informed that a second topsoil stockpile had been generated totaling approximately 8,000 yards. TS-1 through TS-4 were collected from the 8,000 yard stockpile and TS-5 through TS-8 were collected from the original 6,000 yard stockpile.

Dixie is proposing transporting the two topsoil stockpiles for use at SPT. Unfortunately, they have an immediate need for topsoil. Please advise.

Thanks and have a great holiday weekend!

Keith Progin | Project Manager, Environmental Division
HILLIS-CARNES ENGINEERING ASSOCIATES

Cell (443) 250-9467
Phone +1 (410) 880-4788 X1145
Fax +1 (410) 880-4098

From: Barbara Brown -MDE- [mailto:barbara.brown1@maryland.gov]
Sent: Friday, May 11, 2018 11:27 AM
To: Keith Progin
Cc: Jennifer Sohns -MDE- (jennifer.sohns@maryland.gov)
Subject: Re: SPT Topsoil Sampling Plan - Old Court Road

Hi Keith

You may proceed with the work plan with the addition of herb/pesticides for two of the composites...

Barbara Brown

On Wed, Apr 18, 2018 at 3:52 PM, Keith Progin <kprogin@hcea.com> wrote:

Dixie has requested transporting approximately 4,000 yards of topsoil to SPT that has been generated at the Old Court Crossing Residential Development at 3209 Old Court Road in Pikesville, Maryland. Please see the attached work plan and aerial photograph. Please advise.

Thanks!

Keith Progin | Project Manager, Environmental Division

HILLIS-CARNES ENGINEERING ASSOCIATES

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Annapolis Junction, MD 20701
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Website www.hcea.com



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ENGINEERING ASSOCIATES

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--

Barbara Brown

MDE-LRP-VCP Section Head

direct 410 537 3212

general 410 537 3493

[Click here](#) to complete a three question customer experience survey.

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Barbara Brown

MDE-LRP-VCP Section Head

direct 410 537 3212

general 410 537 3493

[Click here](#) to complete a three question customer experience survey.

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APPENDIX L

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15 June 2020

Keith Progin
Hillis-Carnes Engineering Associates
10975 Guilford Rd
Annapolis Junction, MD 20701
RE: TPA A11

Enclosed are the results of analyses for samples received by the laboratory on 06/09/20 15:06.

Maryland Spectral Services, Inc. is a TNI 2009 Standard accredited laboratory and as such, all analyses performed at Maryland Spectral Services included in this report are 2009 TNI certified except as indicated at the end of this report. Please visit our website at www.mdspectral.com for a complete listing of our TNI 2009 Standard accreditations.

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

Sincerely,



Will Brewington
President

Analytical Results

Project: TPA A11

Project Number: 17769C
Project Manager: Keith Progin

Reported:
06/15/20 15:42

Client Sample ID	Alternate Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
WS		0060915-01	Soil	06/09/20 13:30	06/09/20 15:06
WS-A		0060915-02	Soil	06/09/20 13:30	06/09/20 15:06
WS-B		0060915-03	Soil	06/09/20 13:30	06/09/20 15:06
ES-N		0060915-04	Soil	06/09/20 14:00	06/09/20 15:06
ES-NA		0060915-05	Soil	06/09/20 14:00	06/09/20 15:06
ES-NB		0060915-06	Soil	06/09/20 14:00	06/09/20 15:06
ES-S		0060915-07	Soil	06/09/20 14:30	06/09/20 15:06
ES-SA		0060915-08	Soil	06/09/20 14:30	06/09/20 15:06
ES-SB		0060915-09	Soil	06/09/20 14:30	06/09/20 15:06



Will Brewington, President

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Analytical Results

Project: TPA A11

Project Number: 17769C
Project Manager: Keith Progin

Reported:
06/15/20 15:42

WS

0060915-01 (Soil)
Sample Date: 06/09/20

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Detection Limit (LOD)	Dilution	Prepared	Analyzed	Analyst
Volatiles Organics by EPA 8260B (GC/MS) Prepared by 5030-GCMS									
Acetone	ND		ug/kg dry	11.6	11.6	1	06/10/20	06/10/20 15:25	GM
tert-Amyl alcohol (TAA)	ND		ug/kg dry	58.1	58.1	1	06/10/20	06/10/20 15:25	GM
tert-Amyl methyl ether (TAME)	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 15:25	GM
Benzene	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 15:25	GM
Bromobenzene	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 15:25	GM
Bromochloromethane	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 15:25	GM
Bromodichloromethane	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 15:25	GM
Bromoform	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 15:25	GM
Bromomethane	ND		ug/kg dry	5.8	5.8	1	06/10/20	06/10/20 15:25	GM
tert-Butanol (TBA)	ND		ug/kg dry	58.1	58.1	1	06/10/20	06/10/20 15:25	GM
2-Butanone (MEK)	ND		ug/kg dry	11.6	11.6	1	06/10/20	06/10/20 15:25	GM
n-Butylbenzene	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 15:25	GM
sec-Butylbenzene	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 15:25	GM
tert-Butylbenzene	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 15:25	GM
Carbon disulfide	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 15:25	GM
Carbon tetrachloride	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 15:25	GM
Chlorobenzene	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 15:25	GM
Chloroethane	ND		ug/kg dry	5.8	5.8	1	06/10/20	06/10/20 15:25	GM
Chloroform	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 15:25	GM
Chloromethane	ND		ug/kg dry	5.8	5.8	1	06/10/20	06/10/20 15:25	GM
2-Chlorotoluene	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 15:25	GM
4-Chlorotoluene	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 15:25	GM
1,2-Dibromo-3-chloropropane	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 15:25	GM
Dibromochloromethane	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 15:25	GM
1,2-Dibromoethane (EDB)	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 15:25	GM
Dibromomethane	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 15:25	GM
1,2-Dichlorobenzene	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 15:25	GM
1,3-Dichlorobenzene	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 15:25	GM
1,4-Dichlorobenzene	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 15:25	GM
Dichlorodifluoromethane	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 15:25	GM
1,1-Dichloroethane	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 15:25	GM
1,2-Dichloroethane	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 15:25	GM
1,1-Dichloroethene	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 15:25	GM

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Analytical Results

Project: TPA A11

Project Number: 17769C
Project Manager: Keith Progin

Reported:
06/15/20 15:42

WS

0060915-01 (Soil)
Sample Date: 06/09/20

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Detection Limit (LOD)	Dilution	Prepared	Analyzed	Analyst
Volatile Organics by EPA 8260B (GC/MS) Prepared by 5030-GCMS (continued)									
cis-1,2-Dichloroethene	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 15:25	GM
trans-1,2-Dichloroethene	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 15:25	GM
Dichlorofluoromethane	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 15:25	GM
1,2-Dichloropropane	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 15:25	GM
1,3-Dichloropropane	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 15:25	GM
2,2-Dichloropropane	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 15:25	GM
1,1-Dichloropropene	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 15:25	GM
cis-1,3-Dichloropropene	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 15:25	GM
trans-1,3-Dichloropropene	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 15:25	GM
Diisopropyl ether (DIPE)	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 15:25	GM
Ethyl tert-butyl ether (ETBE)	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 15:25	GM
Ethylbenzene	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 15:25	GM
Hexachlorobutadiene	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 15:25	GM
2-Hexanone	ND		ug/kg dry	11.6	11.6	1	06/10/20	06/10/20 15:25	GM
Isopropylbenzene (Cumene)	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 15:25	GM
4-Isopropyltoluene	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 15:25	GM
Methyl tert-butyl ether (MTBE)	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 15:25	GM
4-Methyl-2-pentanone	ND		ug/kg dry	11.6	11.6	1	06/10/20	06/10/20 15:25	GM
Methylene chloride	ND		ug/kg dry	23.3	23.3	1	06/10/20	06/10/20 15:25	GM
Naphthalene	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 15:25	GM
n-Propylbenzene	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 15:25	GM
Styrene	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 15:25	GM
1,1,1,2-Tetrachloroethane	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 15:25	GM
1,1,1,2,2-Tetrachloroethane	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 15:25	GM
Tetrachloroethene	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 15:25	GM
Toluene	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 15:25	GM
1,2,3-Trichlorobenzene	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 15:25	GM
1,2,4-Trichlorobenzene	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 15:25	GM
1,1,1-Trichloroethane	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 15:25	GM
1,1,2-Trichloroethane	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 15:25	GM
Trichloroethene	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 15:25	GM
Trichlorofluoromethane (Freon 11)	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 15:25	GM
1,2,3-Trichloropropane	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 15:25	GM

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Analytical Results

Project: TPA A11

Project Number: 17769C
Project Manager: Keith Progin

Reported:
06/15/20 15:42

WS

0060915-01 (Soil)
Sample Date: 06/09/20

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Detection Limit (LOD)	Dilution	Prepared	Analyzed	Analyst
Volatiles by EPA 8260B (GC/MS) Prepared by 5030-GCMS (continued)									
1,2,4-Trimethylbenzene	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 15:25	GM
1,3,5-Trimethylbenzene	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 15:25	GM
Vinyl chloride	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 15:25	GM
o-Xylene	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 15:25	GM
m- & p-Xylenes	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 15:25	GM
Surrogate: 1,2-Dichloroethane-d4		70-130		94 %	06/10/20		06/10/20 15:25		
Surrogate: Toluene-d8		75-120		102 %	06/10/20		06/10/20 15:25		
Surrogate: 4-Bromofluorobenzene		65-120		104 %	06/10/20		06/10/20 15:25		
PERCENT SOLIDS BY ASTM D2216-05 Prepared by Percent Solids									
Percent Solids	86		%			1	06/10/20	06/11/20 09:29	MH
POLYCHLORINATED BIPHENYLS BY EPA 8082A (GC/ECD) Prepared by 3540-GC(Soxhlet) CIPestPCB									
Aroclor-1016	ND		ug/kg dry	96.5	96.5	1	06/09/20	06/10/20 13:52	SJA
Aroclor-1221	ND		ug/kg dry	198	198	1	06/09/20	06/10/20 13:52	SJA
Aroclor-1232	ND		ug/kg dry	96.5	96.5	1	06/09/20	06/10/20 13:52	SJA
Aroclor-1242	ND		ug/kg dry	96.5	96.5	1	06/09/20	06/10/20 13:52	SJA
Aroclor-1248	ND		ug/kg dry	96.5	96.5	1	06/09/20	06/10/20 13:52	SJA
Aroclor-1254	ND		ug/kg dry	96.5	96.5	1	06/09/20	06/10/20 13:52	SJA
Aroclor-1260	ND		ug/kg dry	96.5	96.5	1	06/09/20	06/10/20 13:52	SJA
Aroclor-1262	ND		ug/kg dry	96.5	96.5	1	06/09/20	06/10/20 13:52	SJA
Aroclor-1268	ND		ug/kg dry	96.5	96.5	1	06/09/20	06/10/20 13:52	SJA
Surrogate: Tetrachloro-m-xylene		40-150		72 %	06/09/20		06/10/20 13:52		
Surrogate: Decachlorobiphenyl		40-150		62 %	06/09/20		06/10/20 13:52		



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Analytical Results

Project: TPA A11

Project Number: 17769C
Project Manager: Keith Progin

Reported:
06/15/20 15:42

WS

0060915-01 (Soil)
Sample Date: 06/09/20

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Detection Limit (LOD)	Dilution	Prepared	Analyzed	Analyst
TOTAL METALS ANALYSIS BY EPA 3050B/6020A Prepared by 3050B-Metals Digestion									
Antimony	0.693		mg/kg dry	0.291	0.291	1	06/09/20	06/10/20 13:25	KD
Arsenic	6.60		mg/kg dry	0.291	0.291	1	06/09/20	06/10/20 13:25	KD
Beryllium	0.483		mg/kg dry	0.291	0.291	1	06/09/20	06/10/20 13:25	KD
Cadmium	0.359		mg/kg dry	0.291	0.291	1	06/09/20	06/10/20 13:25	KD
Chromium	132		mg/kg dry	0.291	0.291	1	06/09/20	06/10/20 13:25	KD
Copper	48.8		mg/kg dry	0.291	0.291	1	06/09/20	06/10/20 13:25	KD
Lead	49.1		mg/kg dry	0.291	0.291	1	06/09/20	06/10/20 13:25	KD
Manganese	2970		mg/kg dry	14.5	14.5	50	06/09/20	06/10/20 13:42	KD
Mercury	0.0784		mg/kg dry	0.0145	0.0145	1	06/09/20	06/10/20 13:25	KD
Nickel	20.9		mg/kg dry	0.291	0.291	1	06/09/20	06/10/20 13:25	KD
Selenium	0.914		mg/kg dry	0.291	0.291	1	06/09/20	06/10/20 13:25	KD
Silver	ND		mg/kg dry	0.291	0.291	1	06/09/20	06/10/20 13:25	KD
Thallium	ND		mg/kg dry	0.291	0.291	1	06/09/20	06/10/20 13:25	KD
Zinc	120		mg/kg dry	1.45	1.45	1	06/09/20	06/10/20 13:25	KD
HEXANE EXTRACTABLE MATERIALS BY EPA 9071B-MODIFIED Prepared by 9071/1664									
Oil and Grease	884		mg/kg dry	93.0	93.0	1	06/10/20	06/12/20 10:53	WEG
EPA 7196A Performed at Pace Analytical Services, LLC - Pace Analytical Lo									
Chromium, Hexavalent	ND	M1, M6	mg/kg dry	1.2	0.23	1	06/11/20	06/11/20 10:47	KM1



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Analytical Results

Project: TPA A11

Project Number: 17769C
Project Manager: Keith Progin

Reported:
06/15/20 15:42

WS-A

0060915-02 (Soil)
Sample Date: 06/09/20

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Detection Limit (LOD)	Dilution	Prepared	Analyzed	Analyst
<u>GASOLINE RANGE ORGANICS BY EPA 5030/8015C Prepared by 5030-GC</u>									
Gasoline-Range Organics	ND		mg/kg dry	0.12	0.12	1	06/10/20	06/10/20 14:38	GM
<u>DIESEL RANGE ORGANICS BY EPA 3540/8015C Prepared by 3540-GC(Soxhlet)</u>									
Diesel-Range Organics	320		mg/kg dry	188	188	20	06/09/20	06/10/20 17:05	SJA
Surrogate: o-Terphenyl		70-130		%	06/09/20		06/10/20 17:05		S-01
<u>PERCENT SOLIDS BY ASTM D2216-05 Prepared by Percent Solids</u>									
Percent Solids	85		%			1	06/10/20	06/11/20 09:29	MH



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Analytical Results

Project: TPA A11

Project Number: 17769C
Project Manager: Keith Progin

Reported:
06/15/20 15:42

WS-B

0060915-03 (Soil)
Sample Date: 06/09/20

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Detection Limit (LOD)	Dilution	Prepared	Analyzed	Analyst
GASOLINE RANGE ORGANICS BY EPA 5030/8015C Prepared by 5030-GC									
Gasoline-Range Organics	ND		mg/kg dry	0.11	0.11	1	06/10/20	06/10/20 15:09	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C Prepared by 3540-GC(Soxhlet)									
Diesel-Range Organics	151		mg/kg dry	18.0	18.0	2	06/09/20	06/10/20 17:29	SJA
Surrogate: o-Terphenyl		70-130		83 %	06/09/20		06/10/20 17:29		
PERCENT SOLIDS BY ASTM D2216-05 Prepared by Percent Solids									
Percent Solids	89		%			1	06/10/20	06/11/20 09:29	MH



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Analytical Results

Project: TPA A11

Project Number: 17769C
Project Manager: Keith Progin

Reported:
06/15/20 15:42

ES-N

0060915-04 (Soil)
Sample Date: 06/09/20

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Detection Limit (LOD)	Dilution	Prepared	Analyzed	Analyst
Volatiles Organics by EPA 8260B (GC/MS) Prepared by 5030-GCMS									
Acetone	ND		ug/kg dry	11.5	11.5	1	06/10/20	06/10/20 15:53	GM
tert-Amyl alcohol (TAA)	ND		ug/kg dry	57.5	57.5	1	06/10/20	06/10/20 15:53	GM
tert-Amyl methyl ether (TAME)	ND		ug/kg dry	5.7	2.3	1	06/10/20	06/10/20 15:53	GM
Benzene	ND		ug/kg dry	5.7	2.3	1	06/10/20	06/10/20 15:53	GM
Bromobenzene	ND		ug/kg dry	5.7	2.3	1	06/10/20	06/10/20 15:53	GM
Bromochloromethane	ND		ug/kg dry	5.7	2.3	1	06/10/20	06/10/20 15:53	GM
Bromodichloromethane	ND		ug/kg dry	5.7	2.3	1	06/10/20	06/10/20 15:53	GM
Bromoform	ND		ug/kg dry	5.7	2.3	1	06/10/20	06/10/20 15:53	GM
Bromomethane	ND		ug/kg dry	5.7	5.7	1	06/10/20	06/10/20 15:53	GM
tert-Butanol (TBA)	ND		ug/kg dry	57.5	57.5	1	06/10/20	06/10/20 15:53	GM
2-Butanone (MEK)	ND		ug/kg dry	11.5	11.5	1	06/10/20	06/10/20 15:53	GM
n-Butylbenzene	ND		ug/kg dry	5.7	2.3	1	06/10/20	06/10/20 15:53	GM
sec-Butylbenzene	ND		ug/kg dry	5.7	2.3	1	06/10/20	06/10/20 15:53	GM
tert-Butylbenzene	ND		ug/kg dry	5.7	2.3	1	06/10/20	06/10/20 15:53	GM
Carbon disulfide	ND		ug/kg dry	5.7	2.3	1	06/10/20	06/10/20 15:53	GM
Carbon tetrachloride	ND		ug/kg dry	5.7	2.3	1	06/10/20	06/10/20 15:53	GM
Chlorobenzene	ND		ug/kg dry	5.7	2.3	1	06/10/20	06/10/20 15:53	GM
Chloroethane	ND		ug/kg dry	5.7	5.7	1	06/10/20	06/10/20 15:53	GM
Chloroform	ND		ug/kg dry	5.7	2.3	1	06/10/20	06/10/20 15:53	GM
Chloromethane	ND		ug/kg dry	5.7	5.7	1	06/10/20	06/10/20 15:53	GM
2-Chlorotoluene	ND		ug/kg dry	5.7	2.3	1	06/10/20	06/10/20 15:53	GM
4-Chlorotoluene	ND		ug/kg dry	5.7	2.3	1	06/10/20	06/10/20 15:53	GM
1,2-Dibromo-3-chloropropane	ND		ug/kg dry	5.7	2.3	1	06/10/20	06/10/20 15:53	GM
Dibromochloromethane	ND		ug/kg dry	5.7	2.3	1	06/10/20	06/10/20 15:53	GM
1,2-Dibromoethane (EDB)	ND		ug/kg dry	5.7	2.3	1	06/10/20	06/10/20 15:53	GM
Dibromomethane	ND		ug/kg dry	5.7	2.3	1	06/10/20	06/10/20 15:53	GM
1,2-Dichlorobenzene	ND		ug/kg dry	5.7	2.3	1	06/10/20	06/10/20 15:53	GM
1,3-Dichlorobenzene	ND		ug/kg dry	5.7	2.3	1	06/10/20	06/10/20 15:53	GM
1,4-Dichlorobenzene	ND		ug/kg dry	5.7	2.3	1	06/10/20	06/10/20 15:53	GM
Dichlorodifluoromethane	ND		ug/kg dry	5.7	2.3	1	06/10/20	06/10/20 15:53	GM
1,1-Dichloroethane	ND		ug/kg dry	5.7	2.3	1	06/10/20	06/10/20 15:53	GM
1,2-Dichloroethane	ND		ug/kg dry	5.7	2.3	1	06/10/20	06/10/20 15:53	GM
1,1-Dichloroethene	ND		ug/kg dry	5.7	2.3	1	06/10/20	06/10/20 15:53	GM

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Analytical Results

Project: TPA A11

Project Number: 17769C
Project Manager: Keith Progin

Reported:
06/15/20 15:42

ES-N

0060915-04 (Soil)
Sample Date: 06/09/20

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Detection Limit (LOD)	Dilution	Prepared	Analyzed	Analyst
Volatile Organics by EPA 8260B (GC/MS) Prepared by 5030-GCMS (continued)									
cis-1,2-Dichloroethene	ND		ug/kg dry	5.7	2.3	1	06/10/20	06/10/20 15:53	GM
trans-1,2-Dichloroethene	ND		ug/kg dry	5.7	2.3	1	06/10/20	06/10/20 15:53	GM
Dichlorofluoromethane	ND		ug/kg dry	5.7	2.3	1	06/10/20	06/10/20 15:53	GM
1,2-Dichloropropane	ND		ug/kg dry	5.7	2.3	1	06/10/20	06/10/20 15:53	GM
1,3-Dichloropropane	ND		ug/kg dry	5.7	2.3	1	06/10/20	06/10/20 15:53	GM
2,2-Dichloropropane	ND		ug/kg dry	5.7	2.3	1	06/10/20	06/10/20 15:53	GM
1,1-Dichloropropene	ND		ug/kg dry	5.7	2.3	1	06/10/20	06/10/20 15:53	GM
cis-1,3-Dichloropropene	ND		ug/kg dry	5.7	2.3	1	06/10/20	06/10/20 15:53	GM
trans-1,3-Dichloropropene	ND		ug/kg dry	5.7	2.3	1	06/10/20	06/10/20 15:53	GM
Diisopropyl ether (DIPE)	ND		ug/kg dry	5.7	2.3	1	06/10/20	06/10/20 15:53	GM
Ethyl tert-butyl ether (ETBE)	ND		ug/kg dry	5.7	2.3	1	06/10/20	06/10/20 15:53	GM
Ethylbenzene	ND		ug/kg dry	5.7	2.3	1	06/10/20	06/10/20 15:53	GM
Hexachlorobutadiene	ND		ug/kg dry	5.7	2.3	1	06/10/20	06/10/20 15:53	GM
2-Hexanone	ND		ug/kg dry	11.5	11.5	1	06/10/20	06/10/20 15:53	GM
Isopropylbenzene (Cumene)	ND		ug/kg dry	5.7	2.3	1	06/10/20	06/10/20 15:53	GM
4-Isopropyltoluene	ND		ug/kg dry	5.7	2.3	1	06/10/20	06/10/20 15:53	GM
Methyl tert-butyl ether (MTBE)	ND		ug/kg dry	5.7	2.3	1	06/10/20	06/10/20 15:53	GM
4-Methyl-2-pentanone	ND		ug/kg dry	11.5	11.5	1	06/10/20	06/10/20 15:53	GM
Methylene chloride	ND		ug/kg dry	23.0	23.0	1	06/10/20	06/10/20 15:53	GM
Naphthalene	ND		ug/kg dry	5.7	2.3	1	06/10/20	06/10/20 15:53	GM
n-Propylbenzene	ND		ug/kg dry	5.7	2.3	1	06/10/20	06/10/20 15:53	GM
Styrene	ND		ug/kg dry	5.7	2.3	1	06/10/20	06/10/20 15:53	GM
1,1,1,2-Tetrachloroethane	ND		ug/kg dry	5.7	2.3	1	06/10/20	06/10/20 15:53	GM
1,1,2,2-Tetrachloroethane	ND		ug/kg dry	5.7	2.3	1	06/10/20	06/10/20 15:53	GM
Tetrachloroethene	ND		ug/kg dry	5.7	2.3	1	06/10/20	06/10/20 15:53	GM
Toluene	ND		ug/kg dry	5.7	2.3	1	06/10/20	06/10/20 15:53	GM
1,2,3-Trichlorobenzene	ND		ug/kg dry	5.7	2.3	1	06/10/20	06/10/20 15:53	GM
1,2,4-Trichlorobenzene	ND		ug/kg dry	5.7	2.3	1	06/10/20	06/10/20 15:53	GM
1,1,1-Trichloroethane	ND		ug/kg dry	5.7	2.3	1	06/10/20	06/10/20 15:53	GM
1,1,2-Trichloroethane	ND		ug/kg dry	5.7	2.3	1	06/10/20	06/10/20 15:53	GM
Trichloroethene	ND		ug/kg dry	5.7	2.3	1	06/10/20	06/10/20 15:53	GM
Trichlorofluoromethane (Freon 11)	ND		ug/kg dry	5.7	2.3	1	06/10/20	06/10/20 15:53	GM
1,2,3-Trichloropropane	ND		ug/kg dry	5.7	2.3	1	06/10/20	06/10/20 15:53	GM

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Analytical Results

Project: TPA A11

Project Number: 17769C
Project Manager: Keith Progin

Reported:
06/15/20 15:42

ES-N

0060915-04 (Soil)
Sample Date: 06/09/20

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Detection Limit (LOD)	Dilution	Prepared	Analyzed	Analyst
Volatiles by EPA 8260B (GC/MS) Prepared by 5030-GCMS (continued)									
1,2,4-Trimethylbenzene	ND		ug/kg dry	5.7	2.3	1	06/10/20	06/10/20 15:53	GM
1,3,5-Trimethylbenzene	ND		ug/kg dry	5.7	2.3	1	06/10/20	06/10/20 15:53	GM
Vinyl chloride	ND		ug/kg dry	5.7	2.3	1	06/10/20	06/10/20 15:53	GM
o-Xylene	ND		ug/kg dry	5.7	2.3	1	06/10/20	06/10/20 15:53	GM
m- & p-Xylenes	ND		ug/kg dry	5.7	2.3	1	06/10/20	06/10/20 15:53	GM
Surrogate: 1,2-Dichloroethane-d4		70-130		91 %	06/10/20		06/10/20 15:53		
Surrogate: Toluene-d8		75-120		99 %	06/10/20		06/10/20 15:53		
Surrogate: 4-Bromofluorobenzene		65-120		102 %	06/10/20		06/10/20 15:53		
PERCENT SOLIDS BY ASTM D2216-05 Prepared by Percent Solids									
Percent Solids	87		%			1	06/10/20	06/11/20 09:29	MH
POLYCHLORINATED BIPHENYLS BY EPA 8082A (GC/ECD) Prepared by 3540-GC(Soxhlet) CIPestPCB									
Aroclor-1016	ND		ug/kg dry	95.4	95.4	1	06/09/20	06/10/20 14:18	SJA
Aroclor-1221	ND		ug/kg dry	195	195	1	06/09/20	06/10/20 14:18	SJA
Aroclor-1232	ND		ug/kg dry	95.4	95.4	1	06/09/20	06/10/20 14:18	SJA
Aroclor-1242	ND		ug/kg dry	95.4	95.4	1	06/09/20	06/10/20 14:18	SJA
Aroclor-1248	ND		ug/kg dry	95.4	95.4	1	06/09/20	06/10/20 14:18	SJA
Aroclor-1254	ND		ug/kg dry	95.4	95.4	1	06/09/20	06/10/20 14:18	SJA
Aroclor-1260	ND		ug/kg dry	95.4	95.4	1	06/09/20	06/10/20 14:18	SJA
Aroclor-1262	ND		ug/kg dry	95.4	95.4	1	06/09/20	06/10/20 14:18	SJA
Aroclor-1268	ND		ug/kg dry	95.4	95.4	1	06/09/20	06/10/20 14:18	SJA
Surrogate: Tetrachloro-m-xylene		40-150		73 %	06/09/20		06/10/20 14:18		
Surrogate: Decachlorobiphenyl		40-150		81 %	06/09/20		06/10/20 14:18		



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Analytical Results

Project: TPA A11

Project Number: 17769C
Project Manager: Keith Progin

Reported:
06/15/20 15:42

ES-N

0060915-04 (Soil)
Sample Date: 06/09/20

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Detection Limit (LOD)	Dilution	Prepared	Analyzed	Analyst
TOTAL METALS ANALYSIS BY EPA 3050B/6020A Prepared by 3050B-Metals Digestion									
Antimony	ND		mg/kg dry	0.287	0.287	1	06/09/20	06/10/20 13:28	KD
Arsenic	3.93		mg/kg dry	0.287	0.287	1	06/09/20	06/10/20 13:28	KD
Beryllium	1.04		mg/kg dry	0.287	0.287	1	06/09/20	06/10/20 13:28	KD
Cadmium	0.415		mg/kg dry	0.287	0.287	1	06/09/20	06/10/20 13:28	KD
Chromium	172		mg/kg dry	14.4	14.4	50	06/09/20	06/10/20 13:44	KD
Copper	26.2		mg/kg dry	0.287	0.287	1	06/09/20	06/10/20 13:28	KD
Lead	43.7		mg/kg dry	0.287	0.287	1	06/09/20	06/10/20 13:28	KD
Manganese	3330		mg/kg dry	14.4	14.4	50	06/09/20	06/10/20 13:44	KD
Mercury	0.101		mg/kg dry	0.0144	0.0144	1	06/09/20	06/10/20 13:28	KD
Nickel	13.7		mg/kg dry	0.287	0.287	1	06/09/20	06/10/20 13:28	KD
Selenium	1.66		mg/kg dry	0.287	0.287	1	06/09/20	06/10/20 13:28	KD
Silver	ND		mg/kg dry	0.287	0.287	1	06/09/20	06/10/20 13:28	KD
Thallium	ND		mg/kg dry	0.287	0.287	1	06/09/20	06/10/20 13:28	KD
Zinc	177		mg/kg dry	1.44	1.44	1	06/09/20	06/10/20 13:28	KD
HEXANE EXTRACTABLE MATERIALS BY EPA 9071B-MODIFIED Prepared by 9071/1664									
Oil and Grease	1120		mg/kg dry	92.0	92.0	1	06/10/20	06/12/20 10:53	WEG
EPA 7196A Performed at Pace Analytical Services, LLC - Pace Analytical Lo									
Chromium, Hexavalent	ND		mg/kg dry	1.1	0.22	1	06/11/20	06/11/20 10:47	KM1



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Analytical Results

Project: TPA A11

Project Number: 17769C
Project Manager: Keith Progin

Reported:
06/15/20 15:42

ES-NA

0060915-05 (Soil)
Sample Date: 06/09/20

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Detection Limit (LOD)	Dilution	Prepared	Analyzed	Analyst
GASOLINE RANGE ORGANICS BY EPA 5030/8015C Prepared by 5030-GC									
Gasoline-Range Organics	ND		mg/kg dry	0.12	0.12	1	06/10/20	06/10/20 15:40	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C Prepared by 3540-GC(Soxhlet)									
Diesel-Range Organics	1600		mg/kg dry	471	471	50	06/09/20	06/10/20 17:54	SJA
Surrogate: o-Terphenyl		70-130		%	06/09/20		06/10/20 17:54		S-01
PERCENT SOLIDS BY ASTM D2216-05 Prepared by Percent Solids									
Percent Solids	85		%			1	06/10/20	06/11/20 09:29	MH



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Analytical Results

Project: TPA A11

Project Number: 17769C
Project Manager: Keith Progin

Reported:
06/15/20 15:42

ES-NB

0060915-06 (Soil)
Sample Date: 06/09/20

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Detection Limit (LOD)	Dilution	Prepared	Analyzed	Analyst
GASOLINE RANGE ORGANICS BY EPA 5030/8015C Prepared by 5030-GC									
Gasoline-Range Organics	ND		mg/kg dry	0.12	0.12	1	06/10/20	06/10/20 16:12	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C Prepared by 3540-GC(Soxhlet)									
Diesel-Range Organics	74.7		mg/kg dry	19.8	19.8	2	06/09/20	06/10/20 18:19	SJA
Surrogate: o-Terphenyl		70-130		87 %	06/09/20		06/10/20 18:19		
PERCENT SOLIDS BY ASTM D2216-05 Prepared by Percent Solids									
Percent Solids	81		%			1	06/10/20	06/11/20 09:29	MH



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Analytical Results

Project: TPA A11

Project Number: 17769C
Project Manager: Keith Progin

Reported:
06/15/20 15:42

ES-S

0060915-07 (Soil)
Sample Date: 06/09/20

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Detection Limit (LOD)	Dilution	Prepared	Analyzed	Analyst
Volatiles Organics by EPA 8260B (GC/MS) Prepared by 5030-GCMS									
Acetone	ND		ug/kg dry	11.6	11.6	1	06/10/20	06/10/20 16:20	GM
tert-Amyl alcohol (TAA)	ND		ug/kg dry	58.1	58.1	1	06/10/20	06/10/20 16:20	GM
tert-Amyl methyl ether (TAME)	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 16:20	GM
Benzene	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 16:20	GM
Bromobenzene	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 16:20	GM
Bromochloromethane	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 16:20	GM
Bromodichloromethane	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 16:20	GM
Bromoform	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 16:20	GM
Bromomethane	ND		ug/kg dry	5.8	5.8	1	06/10/20	06/10/20 16:20	GM
tert-Butanol (TBA)	ND		ug/kg dry	58.1	58.1	1	06/10/20	06/10/20 16:20	GM
2-Butanone (MEK)	ND		ug/kg dry	11.6	11.6	1	06/10/20	06/10/20 16:20	GM
n-Butylbenzene	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 16:20	GM
sec-Butylbenzene	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 16:20	GM
tert-Butylbenzene	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 16:20	GM
Carbon disulfide	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 16:20	GM
Carbon tetrachloride	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 16:20	GM
Chlorobenzene	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 16:20	GM
Chloroethane	ND		ug/kg dry	5.8	5.8	1	06/10/20	06/10/20 16:20	GM
Chloroform	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 16:20	GM
Chloromethane	ND		ug/kg dry	5.8	5.8	1	06/10/20	06/10/20 16:20	GM
2-Chlorotoluene	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 16:20	GM
4-Chlorotoluene	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 16:20	GM
1,2-Dibromo-3-chloropropane	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 16:20	GM
Dibromochloromethane	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 16:20	GM
1,2-Dibromoethane (EDB)	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 16:20	GM
Dibromomethane	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 16:20	GM
1,2-Dichlorobenzene	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 16:20	GM
1,3-Dichlorobenzene	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 16:20	GM
1,4-Dichlorobenzene	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 16:20	GM
Dichlorodifluoromethane	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 16:20	GM
1,1-Dichloroethane	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 16:20	GM
1,2-Dichloroethane	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 16:20	GM
1,1-Dichloroethene	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 16:20	GM

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Analytical Results

Project: TPA A11

Project Number: 17769C
Project Manager: Keith Progin

Reported:
06/15/20 15:42

ES-S

0060915-07 (Soil)
Sample Date: 06/09/20

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Detection Limit (LOD)	Dilution	Prepared	Analyzed	Analyst
Volatile Organics by EPA 8260B (GC/MS) Prepared by 5030-GCMS (continued)									
cis-1,2-Dichloroethene	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 16:20	GM
trans-1,2-Dichloroethene	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 16:20	GM
Dichlorofluoromethane	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 16:20	GM
1,2-Dichloropropane	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 16:20	GM
1,3-Dichloropropane	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 16:20	GM
2,2-Dichloropropane	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 16:20	GM
1,1-Dichloropropene	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 16:20	GM
cis-1,3-Dichloropropene	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 16:20	GM
trans-1,3-Dichloropropene	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 16:20	GM
Diisopropyl ether (DIPE)	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 16:20	GM
Ethyl tert-butyl ether (ETBE)	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 16:20	GM
Ethylbenzene	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 16:20	GM
Hexachlorobutadiene	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 16:20	GM
2-Hexanone	ND		ug/kg dry	11.6	11.6	1	06/10/20	06/10/20 16:20	GM
Isopropylbenzene (Cumene)	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 16:20	GM
4-Isopropyltoluene	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 16:20	GM
Methyl tert-butyl ether (MTBE)	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 16:20	GM
4-Methyl-2-pentanone	ND		ug/kg dry	11.6	11.6	1	06/10/20	06/10/20 16:20	GM
Methylene chloride	ND		ug/kg dry	23.3	23.3	1	06/10/20	06/10/20 16:20	GM
Naphthalene	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 16:20	GM
n-Propylbenzene	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 16:20	GM
Styrene	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 16:20	GM
1,1,1,2-Tetrachloroethane	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 16:20	GM
1,1,2,2-Tetrachloroethane	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 16:20	GM
Tetrachloroethene	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 16:20	GM
Toluene	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 16:20	GM
1,2,3-Trichlorobenzene	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 16:20	GM
1,2,4-Trichlorobenzene	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 16:20	GM
1,1,1-Trichloroethane	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 16:20	GM
1,1,2-Trichloroethane	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 16:20	GM
Trichloroethene	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 16:20	GM
Trichlorofluoromethane (Freon 11)	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 16:20	GM
1,2,3-Trichloropropane	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 16:20	GM

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Analytical Results

Project: TPA A11

Project Number: 17769C
Project Manager: Keith Progin

Reported:
06/15/20 15:42

ES-S

0060915-07 (Soil)
Sample Date: 06/09/20

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Detection Limit (LOD)	Dilution	Prepared	Analyzed	Analyst
Volatiles by EPA 8260B (GC/MS) Prepared by 5030-GCMS (continued)									
1,2,4-Trimethylbenzene	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 16:20	GM
1,3,5-Trimethylbenzene	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 16:20	GM
Vinyl chloride	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 16:20	GM
o-Xylene	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 16:20	GM
m- & p-Xylenes	ND		ug/kg dry	5.8	2.3	1	06/10/20	06/10/20 16:20	GM
Surrogate: 1,2-Dichloroethane-d4		70-130		93 %	06/10/20		06/10/20 16:20		
Surrogate: Toluene-d8		75-120		100 %	06/10/20		06/10/20 16:20		
Surrogate: 4-Bromofluorobenzene		65-120		101 %	06/10/20		06/10/20 16:20		
PERCENT SOLIDS BY ASTM D2216-05 Prepared by Percent Solids									
Percent Solids	86		%			1	06/10/20	06/11/20 09:29	MH
POLYCHLORINATED BIPHENYLS BY EPA 8082A (GC/ECD) Prepared by 3540-GC(Soxhlet) CIPestPCB									
Aroclor-1016	ND		ug/kg dry	96.5	96.5	1	06/09/20	06/10/20 15:11	SJA
Aroclor-1221	ND		ug/kg dry	198	198	1	06/09/20	06/10/20 15:11	SJA
Aroclor-1232	ND		ug/kg dry	96.5	96.5	1	06/09/20	06/10/20 15:11	SJA
Aroclor-1242	ND		ug/kg dry	96.5	96.5	1	06/09/20	06/10/20 15:11	SJA
Aroclor-1248	ND		ug/kg dry	96.5	96.5	1	06/09/20	06/10/20 15:11	SJA
Aroclor-1254	ND		ug/kg dry	96.5	96.5	1	06/09/20	06/10/20 15:11	SJA
Aroclor-1260	ND		ug/kg dry	96.5	96.5	1	06/09/20	06/10/20 15:11	SJA
Aroclor-1262	ND		ug/kg dry	96.5	96.5	1	06/09/20	06/10/20 15:11	SJA
Aroclor-1268	ND		ug/kg dry	96.5	96.5	1	06/09/20	06/10/20 15:11	SJA
Surrogate: Tetrachloro-m-xylene		40-150		73 %	06/09/20		06/10/20 15:11		
Surrogate: Decachlorobiphenyl		40-150		67 %	06/09/20		06/10/20 15:11		

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Will Brewington, President

All analyses performed at Maryland Spectral Services included in the report are TNI certified except as indicated at the end of the report

Analytical Results

Project: TPA A11

Project Number: 17769C
Project Manager: Keith Progin

Reported:
06/15/20 15:42

ES-S

0060915-07 (Soil)
Sample Date: 06/09/20

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Detection Limit (LOD)	Dilution	Prepared	Analyzed	Analyst
TOTAL METALS ANALYSIS BY EPA 3050B/6020A Prepared by 3050B-Metals Digestion									
Antimony	0.695		mg/kg dry	0.291	0.291	1	06/09/20	06/10/20 13:30	KD
Arsenic	6.46		mg/kg dry	0.291	0.291	1	06/09/20	06/10/20 13:30	KD
Beryllium	0.740		mg/kg dry	0.291	0.291	1	06/09/20	06/10/20 13:30	KD
Cadmium	0.401		mg/kg dry	0.291	0.291	1	06/09/20	06/10/20 13:30	KD
Chromium	55.9		mg/kg dry	0.291	0.291	1	06/09/20	06/10/20 13:30	KD
Copper	43.5		mg/kg dry	0.291	0.291	1	06/09/20	06/10/20 13:30	KD
Lead	50.9		mg/kg dry	0.291	0.291	1	06/09/20	06/10/20 13:30	KD
Manganese	1520		mg/kg dry	5.81	5.81	20	06/09/20	06/10/20 13:47	KD
Mercury	0.0533		mg/kg dry	0.0145	0.0145	1	06/09/20	06/10/20 13:30	KD
Nickel	21.3		mg/kg dry	0.291	0.291	1	06/09/20	06/10/20 13:30	KD
Selenium	1.58		mg/kg dry	0.291	0.291	1	06/09/20	06/10/20 13:30	KD
Silver	ND		mg/kg dry	0.291	0.291	1	06/09/20	06/10/20 13:30	KD
Thallium	ND		mg/kg dry	0.291	0.291	1	06/09/20	06/10/20 13:30	KD
Zinc	144		mg/kg dry	1.45	1.45	1	06/09/20	06/10/20 13:30	KD
HEXANE EXTRACTABLE MATERIALS BY EPA 9071B-MODIFIED Prepared by 9071/1664									
Oil and Grease	1340		mg/kg dry	93.0	93.0	1	06/10/20	06/12/20 10:53	WEG
EPA 7196A Performed at Pace Analytical Services, LLC - Pace Analytical Lo									
Chromium, Hexavalent	ND		mg/kg dry	1.2	0.23	1	06/11/20	06/11/20 10:47	KM1



Will Brewington, President

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Analytical Results

Project: TPA A11

Project Number: 17769C
Project Manager: Keith Progin

Reported:
06/15/20 15:42

ES-SA

0060915-08 (Soil)
Sample Date: 06/09/20

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Detection Limit (LOD)	Dilution	Prepared	Analyzed	Analyst
GASOLINE RANGE ORGANICS BY EPA 5030/8015C Prepared by 5030-GC									
Gasoline-Range Organics	ND		mg/kg dry	0.12	0.12	1	06/10/20	06/10/20 16:43	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C Prepared by 3540-GC(Soxhlet)									
Diesel-Range Organics	120		mg/kg dry	47.1	47.1	5	06/09/20	06/10/20 18:44	SJA
Surrogate: o-Terphenyl			70-130	84 %	06/09/20		06/10/20 18:44		
PERCENT SOLIDS BY ASTM D2216-05 Prepared by Percent Solids									
Percent Solids	85		%			1	06/10/20	06/11/20 09:29	MH

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Analytical Results

Project: TPA A11

Project Number: 17769C
Project Manager: Keith Progin

Reported:
06/15/20 15:42

ES-SB

0060915-09 (Soil)
Sample Date: 06/09/20

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Detection Limit (LOD)	Dilution	Prepared	Analyzed	Analyst
GASOLINE RANGE ORGANICS BY EPA 5030/8015C Prepared by 5030-GC									
Gasoline-Range Organics	ND		mg/kg dry	0.12	0.12	1	06/10/20	06/10/20 17:14	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C Prepared by 3540-GC(Soxhlet)									
Diesel-Range Organics	631		mg/kg dry	195	195	20	06/09/20	06/10/20 19:08	SJA
Surrogate: o-Terphenyl		70-130		%	06/09/20		06/10/20 19:08		S-01
PERCENT SOLIDS BY ASTM D2216-05 Prepared by Percent Solids									
Percent Solids	82			%		1	06/10/20	06/11/20 09:29	MH



Will Brewington, President

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All analyses performed at Maryland Spectral Services included in the report are TNI certified except as indicated at the end of the report

Analytical Results

1500 Caton Center Dr Suite G
Baltimore MD 21227
410-247-7600
www.mdspectral.com

Project: TPA A11

Project Number: 17769C
Project Manager: Keith Progin

Reported:
06/15/20 15:42

Maryland Spectral Services does not maintain certification for the following analytical parameters:

Maryland Spectral Services

Matrix , Method , Analyte _____

Soil | 8260 (Full List) | Hexachlorobutadiene



Will Brewington, President

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

All analyses performed at Maryland Spectral Services included in the report are TNI certified except as indicated at the end of the report

Analytical Results

Project: TPA A11

Project Number: 17769C
Project Manager: Keith Progin

Notes and Definitions

S-FAIL	Surrogate recovery was outside of established QC limits
S-01	The surrogate recovery for this sample is not available due to sample dilution required from high analyte concentration and/or matrix interference.
QM-4X	The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.
QM-06	Due to noted non-homogeneity of the QC sample matrix, the MS/MSD or MS/DUP did not provide reliable results for accuracy and precision. Sample results for the QC batch were accepted based on LCS percent recoveries.
M6	Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
J	Detected but below the reporting limit; therefore, result is an estimated concentration (CLP J-Flag).
E	The concentration indicated for this analyte is an estimated value above the calibration range of the instrument. This value is considered an estimate (CLP E-flag).
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
%-Solids	Percent Solids is a supportive test and as such does not require accreditation



Will Brewington, President

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Company Name:		Project Manager:		Analysis Requested		CHAIN-OF-CUSTODY RECORD			
Hillis-Larnes (HCCA)		Keith Progin		Hexavalent Chromium		Maryland Spectral Services, Inc.			
Project Name:		Project ID:		TPH-DRD		1500 Caton Center Drive, Suite G			
TPA A11		17769C		TPH-GRD		Baltimore, MD 21227			
Sampler(s):		P.O. Number:		VOCs		410-247-7600 • Fax 410-247-7602			
Nick Spella				O.I.B. Grease		reporting@mdspectral.com			
Field Sample ID	Date	Time	DW	Water	Soil	Other	Preservative	Field Notes	MSS Lab ID
WS	6/12/20	1:30p		X					0060915-01
WS-A				X					-02
WS-B				X					-03
ES-N		2:00p		X	X				-04
ES-NA				X					-05
ES-NB				X					-06
ES-S		2:30p		X	X	X			-07
ES-SA				X					-08
ES-SB				X					-09

Reinquired by: (Signature) <i>Nick Spella</i> (Printed)	Date/Time 6/12/20	Received by: (Signature) <i>Rachel Horner</i> (Printed)
Reinquired by: (Signature) <i>Nick Spella</i> (Printed)	Date/Time 6/19/20	Received by: (Signature) <i>Rachel Horner</i> (Printed)
Reinquired by: (Signature) <i>Nick Spella</i> (Printed)	Date/Time 15:06	Received by: (Signature) <i>Rachel Horner</i> (Printed)

Lab Use:	Temp: 6.0°C
<input checked="" type="checkbox"/> Received on Ice	<input checked="" type="checkbox"/> Received same day
<input checked="" type="checkbox"/> Received same day	

Sample Disposal:	Turn Around Time:
<input type="checkbox"/> Return to Client	Normal (Day) 5 Day
<input type="checkbox"/> Disposal by lab	<input type="checkbox"/> 5 day
<input type="checkbox"/> Archive for ___ days	<input type="checkbox"/> 4 day
	<input type="checkbox"/> 3 day
	<input type="checkbox"/> Rush (2 day)
	<input type="checkbox"/> Next Day
	<input type="checkbox"/> Other: _____
	<input type="checkbox"/> Specific Due Date: _____

Delivery Method:	Special Instructions/QC Requirements & Comments:
<input type="checkbox"/> Courier	
<input type="checkbox"/> Client	
<input type="checkbox"/> UPS	
<input type="checkbox"/> FedEx	
<input type="checkbox"/> USPS	
<input type="checkbox"/> Other: _____	

SUBCONTRACT ORDER
Maryland Spectral Services
0060915

WO#: 70133975

 70133975

RECEIVING LABORATORY:

Pace Labs-NY
575 Broad Hollow Rd
Melville, NY 11747
Phone: (631) 694-3040
Fax:

SENDING LABORATORY:

Maryland Spectral Services
1500 Caton Center Dr. Suite G
Halethorpe, MD 21227
Phone: 410.247.7600
Project Manager: Cory Koons
Reports Email: Reporting@mdspectral.com

Laboratory ID Comments

Due 4:00 PM 06/16/20

Sample ID: 0060915-01 WS Soil Sampled:06/09/20 13:30

7199- (Chromium6)

Containers Supplied:
Glass Jar, 4 oz (C)

Sample ID: 0060915-04 ES-N Soil Sampled:06/09/20 14:00

7199- (Chromium6)

Containers Supplied:
Glass Jar, 4 oz (C)

Sample ID: 0060915-07 ES-S Soil Sampled:06/09/20 14:30

7199- (Chromium6)

Containers Supplied:
Glass Jar, 4 oz (C)

16:53
 Received By: *[Signature]* Date: 6/9/20
 Received By: *GMPB/PACE* Date: 6/9/20 17:00
 Received By: *[Signature]* Date: 6/10/20 11:00
 Received By: *GMPB/PACE* Date: 6/9/20 18:30
 Received By: *[Signature]* Date: 6/9/20 18:30

APPENDIX M

Modified Level D Contractor Certification

Ground Intrusive Work

In accordance with the *Response and Development Work Plan (RDWP) for Area A: Sub-Parcel A11-1, Revision 3* dated March 25, 2019, Section 3.2.3, *Summary of Results*, Occupational Safety and Health Administration (OSHA) Hazardous Waste Operations and Emergency Response (HAZWOPER) training was required for all employees completing ground intrusive work. Employees were using Modified Level D personal protective equipment (PPE) or equivalent elevated PPE as required by Site conditions. Modified Level D is defined below. For this project the contractor adopted Modified Level D PPE and had a HAZWOPER trained crew upon commencement of work (Day 1).

Project Statement:

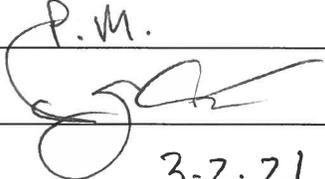
Prior to the start of the project DXI as well as their subcontractors adopted Modified Level D as the baseline PPE for all personnel involved in ground intrusive work. Modified Level D was used from Day 1 of the project by all personnel involved in ground intrusive work. Personnel and contractors involved in ground intrusive work were all HAZWOPER trained.

Statement Certification:

Company: DXI Construction

Name: P.J. Cox

Title: P.M.

Signature: 

Date: 3-2-21

Modified Level D PPE

Modified Level D PPE will include, at a minimum, overalls such as polyethylene-coated Tyvek or clean washable cloth overalls, latex (or similar) disposable gloves (when working in wet/chemical surroundings) or work gloves, steel-toe/steel-shank high ankle work boots with taped chemical-protective over-boots (as necessary), dust mask, hard hat, safety glasses with side shields, and hearing protection (as necessary). If chemical-protective over-boots create increased slip/trip/fall hazardous, then standard leather or rubber work boots could be used, but visible soils from the sides and bottoms of the boots must be removed upon exiting the Exclusion Zone.

APPENDIX N

N080N

TECHNICAL DATA SHEET

NONWOVEN GEOTEXTILE

N080N is a polypropylene, needle punched nonwoven geotextile for use in drainage and separation applications. It has been stabilized to resist degradation due to ultraviolet exposure and is resistant to commonly encountered mildew, insects and soil chemicals, and is non-biodegradable.

SPECIFICATIONS:

The N080N polypropylene nonwoven fabric will utilize the following characteristics:

PROPERTY	TEST METHOD	MIN. AVG. ROLL VALUE
Grab Tensile Strength ¹	ASTM D4632	205 lbs
Grab Tensile Elongation	ASTM D4632	50%
CBR Puncture	ASTM D6241	525 lbs
Trapezoid Tear Strength	ASTM D4533	80 lbs
UV Resistance @ 500 hrs	ASTMD4355	70%
Apparent Opening Size (AOS)	ASTM D4751	80 US Sieve
Permittivity (sec ⁻¹)	ASTM D4491	1.3 (sec ⁻¹)
Flow Rate	ASTM D4491	90 gpm/ft ²

Values quoted above are the result of multiple tests conducted at an independent testing facility. N080N meets or exceeds values listed.

¹Values apply to both machine and cross-machine directions

PACKAGING:

Roll Width	12.5 ft.	15 ft.
Roll Length	360 ft.	300 ft.
Roll Area	500 yd ²	500 yd ²

Disclaimer: ACF Environmental assumes no liability for the completeness or accuracy of this information or the ultimate use of this information. This document should not be construed as engineering advice. Always consult the project engineer for project specific requirements. The end user assumes sole responsibility for the use of this information and product.



“ACF Environmental is certified and successfully complies with AASHTO’s NTPEP Geotextiles Technical Committee Work Plan”

APPENDIX O



STEGO® WRAP VAPOR BARRIER

A STEGO INDUSTRIES, LLC INNOVATION | VAPOR RETARDERS 07 26 00, 03 30 00 | VERSION: JULY 20, 2018

1. PRODUCT NAME

STEGO WRAP VAPOR BARRIER

2. MANUFACTURER

Stego Industries, LLC
 216 Avenida Fabricante, Suite 101
 San Clemente, CA 92672
 Sales, Technical Assistance
 Ph: (877) 464-7834
 contact@stegoindustries.com
 www.stegoindustries.com



3. PRODUCT DESCRIPTION

USES: Stego Wrap Vapor Barrier is used as a below-slab vapor barrier.

COMPOSITION: Stego Wrap Vapor Barrier is a multi-layer plastic extrusion manufactured with only high grade prime, virgin, polyolefin resins.

ENVIRONMENTAL FACTORS: Stego Wrap Vapor Barrier can be used in systems for the control of soil gases (radon, methane), soil poisons (oil by-products) and sulfates.

4. TECHNICAL DATA

TABLE 1: PHYSICAL PROPERTIES OF STEGO WRAP VAPOR BARRIER

PROPERTY	TEST	RESULTS
Under Slab Vapor Retarders	ASTM E1745 Class A, B & C- Standard Specification for Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs	Exceeds Class A, B & C
Water Vapor Permeance	ASTM F1249 – Test Method for Water Vapor Transmission Rate Through Plastic Film and Sheeting Using a Modulated Infrared Sensor	0.0086 perms
Permeance After Conditioning [ASTM E1745 Sections 7.1.2 - 7.1.5]	ASTM E154 Section 8, F1249 – Permeance after wetting, drying, and soaking ASTM E154 Section 11, F1249 – Permeance after heat conditioning ASTM E154 Section 12, F1249 – Permeance after low temperature conditioning ASTM E154 Section 13, F1249 – Permeance after soil organism exposure	0.0098 perms 0.0091 perms 0.0097 perms 0.0095 perms
Methane Transmission Rate	ASTM D1434 – Standard Test Method for Determining Gas Permeability Characteristics of Plastic Film and Sheeting	192.8 GTR* (mL(STP)/m ² *day)
Radon Diffusion Coefficient	K124/02/95	8.8 x 10 ⁻¹² m ² /second
Puncture Resistance	ASTM D1709 – Test Method for Impact Resistance of Plastic Film by Free-Falling Dart Method	2,266 grams
Tensile Strength	ASTM D882 – Test Method for Tensile Properties of Thin Plastic Sheeting	70.6 lbf/in
Thickness		15 mil
Roll Dimensions		width x length: 14' x 140' area: 1,960 ft ²
Roll Weight		140 lb

Note: perm unit = grains/(ft²*hr*in-Hg)

*GTR = Gas Transmission Rate

STEGO® WRAP VAPOR BARRIER

A STEGO INDUSTRIES, LLC INNOVATION | VAPOR RETARDERS 07 26 00, 03 30 00 | VERSION: JULY 20, 2018

5. INSTALLATION

UNDER SLAB: Unroll Stego Wrap Vapor Barrier over an aggregate, sand or tamped earth base. Overlap all seams a minimum of 6 inches and tape using Stego® Tape or Stego® Crete Claw® Tape. All penetrations must be sealed using a combination of Stego Wrap and Stego Accessories.

For additional information, please refer to Stego's complete installation instructions.

6. AVAILABILITY & COST

Stego Wrap Vapor Barrier is available through our network of building supply distributors. For current cost information, contact your local Stego distributor or Stego Industries' Sales Representative.

7. WARRANTY

Stego Industries, LLC believes to the best of its knowledge, that specifications and recommendations herein are accurate and reliable. However, since site conditions are not within its control, Stego Industries does not guarantee results from the use of the information provided herein. Stego Industries, LLC does offer a limited warranty on Stego Wrap. Please see www.stegoindustries.com/legal.

8. MAINTENANCE

None required.

9. TECHNICAL SERVICES

Technical advice, custom CAD drawings, and additional information can be obtained by contacting Stego Industries or by visiting the website.

Email: contact@stegoindustries.com

Contact Number: (877) 464-7834

Website: www.stegoindustries.com

10. FILING SYSTEMS

- www.stegoindustries.com



(877) 464-7834 | www.stegoindustries.com

DATA SHEETS ARE SUBJECT TO CHANGE. FOR MOST CURRENT VERSION, VISIT WWW.STEGOINDUSTRIES.COM

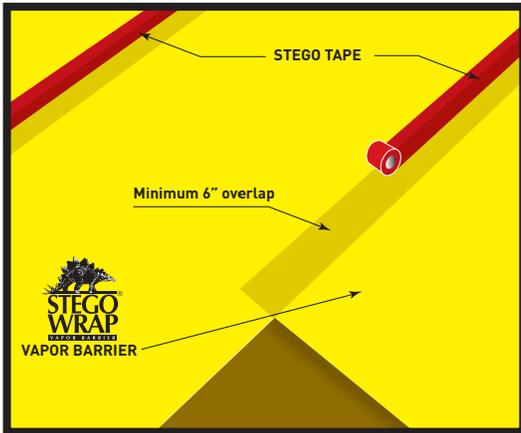


STEGO® WRAP VAPOR BARRIER/RETARDER INSTALLATION INSTRUCTIONS

IMPORTANT: Please read these installation instructions completely, prior to beginning any Stego Wrap installation. The following installation instructions are based on ASTM E1643 - Standard Practice for Selection, Design, Installation, and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs. If project specifications call for compliance with ASTM E1643, then be sure to review the specific installation sections outlined in the standard along with the techniques referenced in these instructions.

UNDER-SLAB INSTRUCTIONS:

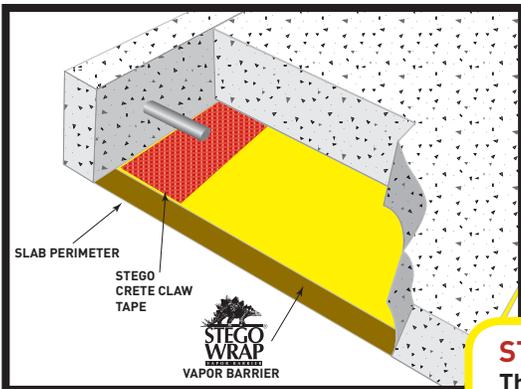
FIGURE 1: UNDER-SLAB INSTALLATION



1. Stego Wrap can be installed over an aggregate, sand, or tamped earth base. It is not necessary to have a cushion layer or sand base, as Stego Wrap is tough enough to withstand rugged construction environments.
2. Unroll Stego Wrap over the area where the slab is to be placed. Stego Wrap should completely cover the concrete placement area. All joints/seams both lateral and butt should be overlapped a minimum of 6" and taped using Stego® Tape.

NOTE: The area of adhesion should be free from dust, dirt, moisture, and frost to allow maximum adhesion of the pressure-sensitive tape.
3. ASTM E1643 requires sealing the perimeter of the slab. *Extend vapor retarder over footings and seal to foundation wall, grade beam, or slab at an elevation consistent with the top of the slab or terminate at impediments such as waterstops or dowels.* Consult the structural engineer of record before proceeding.

FIGURE 2a: SEAL TO SLAB AT PERIMETER



SEAL TO SLAB AT PERIMETER:*

NOTE: Clean the surface of Stego Wrap to ensure that the area of adhesion is free from dust, dirt, moisture, and frost to allow maximum adhesion of the pressure-sensitive adhesive.

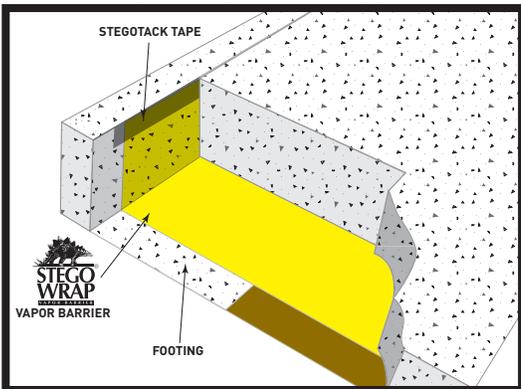
- a. Install Stego® Crete Claw® Tape on the entire perimeter edge of Stego Wrap.
- b. Prior to the placement of concrete, ensure that the top of Stego Crete Claw Tape is free of dirt, debris, or mud to maximize the bond to the concrete.

STEGO LABOR SAVER!

This method not only complies with ASTM E1643, but it also:

- reduces labor compared to other perimeter sealing techniques.
- can be used even without an existing wall or footing, unlike alternatives.

FIGURE 2b: SEAL TO PERIMETER WALL



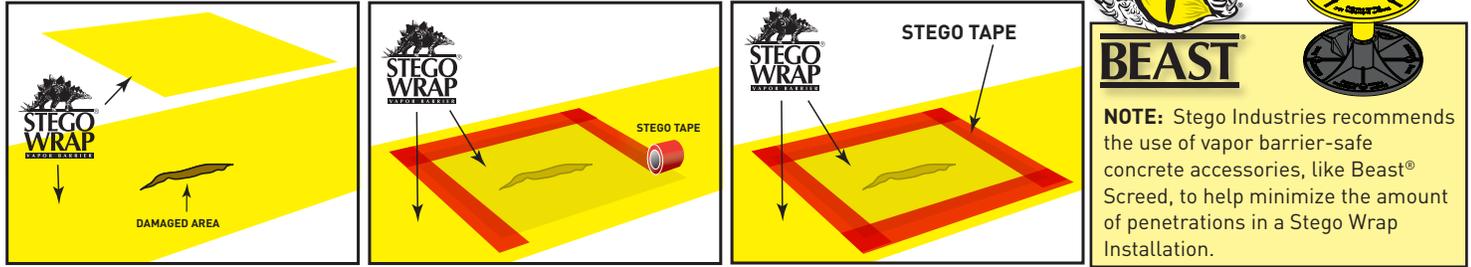
OR SEAL TO PERIMETER WALL WITH STEGOTACK® TAPE:*

- a. Make sure area of adhesion is free of dust, dirt, debris, moisture, and frost to allow maximum adhesion.
- b. Remove release liner on one side and stick to desired surface.
- c. When ready to apply Stego Wrap, remove the exposed release liner and press Stego Wrap firmly against StegoTack Tape to secure.

* If ASTM E1643 is specified, consult with project architect and structural engineer to determine which perimeter seal technique should be employed for the project.

- In the event that Stego Wrap is damaged during or after installation, repairs must be made. For holes, cut a piece of Stego Wrap to a size and shape that covers any damage by a minimum overlap of 6" in all directions. Clean all adhesion areas of dust, dirt, moisture, and frost. Tape down all edges using Stego Tape (See Figure 3).

FIGURE 3: SEALING DAMAGED AREAS



- IMPORTANT: ALL PENETRATIONS MUST BE SEALED.** All pipe, ducting, rebar, wire penetrations and block outs should be sealed using Stego Wrap, Stego Tape and/or Stego Mastic (See Figure 4a). If penetrations are encased in other materials, such as expansive materials like foam, unless otherwise specified, Stego Wrap should be sealed to the underlying penetration directly.

FIGURE 4a: PIPE PENETRATION SEALING



STEGO WRAP PIPE PENETRATION REPAIR DETAIL:

- 1: Install Stego Wrap around pipe penetrations by slitting/cutting material as needed. Try to minimize the void space created.
- 2: If Stego Wrap is close to pipe and void space is minimized then seal around pipe penetration with Stego Tape and/or Stego Mastic. (See Figure 4a)
- 3: If detail patch is needed to minimize void space around penetration, then cut a detail patch to a size and shape that creates a 6" overlap on all edges around the void space at the base of the pipe. Stego Pre-Cut Pipe Boots are also available to speed up the installation.
- 4: Cut an "X" the size of the pipe diameter in the center of the pipe boot and slide tightly over pipe.
- 5: Tape down all sides of the pipe boot with Stego Tape.
- 6: Seal around the base of the pipe using Stego Tape and/or Stego Mastic. (See Figure 4b)

FIGURE 4b: DETAIL PATCH FOR PIPE PENETRATION SEALING

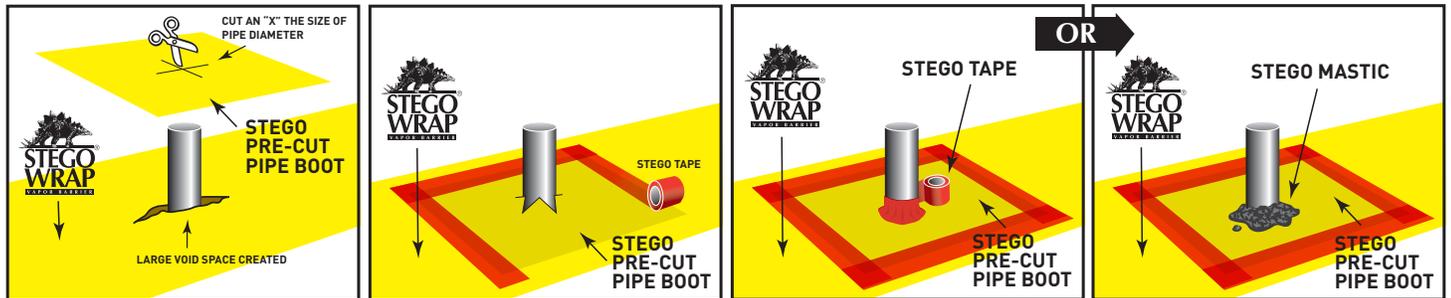
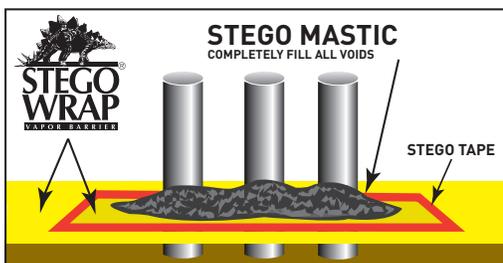


FIGURE 5: MULTIPLE PIPE PENETRATION SEALING



MULTIPLE PIPE PENETRATION SEALING:

Multiple pipe penetrations in close proximity and very small pipes may be sealed using Stego Wrap and Stego Mastic for ease of installation (See Figure 5).

NOTE: Stego Industries, LLC's ("Stego") installation instructions are based on ASTM E1643 - *Standard Practice for Selection, Design, Installation, and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs*. These instructions are meant to be used as a guide, and do not take into account specific job site situations. Consult local building codes and regulations along with the building owner or owner's representative before proceeding. If you have any questions regarding the above mentioned installation instructions or Stego products, please call us at 877-464-7834 for technical assistance. While Stego employees and representatives may provide technical assistance regarding the utility of a specific installation practice or Stego product, they are not authorized to make final design decisions.

Vapor Barrier Installation Photos
Sub-Parcel A11-1
Sparrows Point, Maryland



Vapor Barrier Installation Photos
Sub-Parcel A11-1
Sparrows Point, Maryland



Vapor Barrier Installation Photos
Sub-Parcel A11-1
Sparrows Point, Maryland

