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August 1, 2019

Ms. Betsey McKeown
Public Works
City of Annapolis
145 Gorman Street
Annapolis, MD 21401

RE: Limited Subsurface Investigation
City of Annapolis Public Works
935 Spa Road
Annapolis, MD
HCEA Project 19416A

Ms. McKeown:

On behalf of the City of Annapolis (Client), Hillis-Carnes Engineering Associates, Inc. (HCEA) has conducted a Limited Subsurface Investigation at the above-referenced property, hereafter referred to as the "Site". HCEA's methodologies, findings, and resulting conclusions regarding this investigation are included in the attached report.

We appreciate the opportunity to be of service to you for this project. If you have any questions regarding information in this report or if we can be of further assistance, please contact the undersigned at (410) 880-4788.

Very truly yours,
HILLIS-CARNES ENGINEERING ASSOCIATES, INC.

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1.0 GENERAL INFORMATION

1.1 Site Location and Identification

The Site is located on the east side of Spa Road and south of Spa Creek Trail in Annapolis, Anne Arundel County, Maryland.

During this Limited Subsurface Investigation (refer to Section 1.2), the Client provided HCEA with a Site plan. Based on the Site plan, HCEA utilized the Maryland State Department of Assessments and Taxation (SDAT) Real Property System to obtain on-site addresses. According to SDAT, the Site is owned by Annapolis City Mayor & Alderman and consists of one (1) approximate 15-acre parcel located on Spa Road with no associated mailing address number. SDAT also indicates that a primary structure was built on the Site in 1950 and 20,128-square feet of above grade living area is present; however, the Site buildings were demolished prior to the completion of this investigation. The legal description is denoted as “15 Acres, Spa Road Incinerator Plant, Annapolis”.

1.2 Background Information

The majority of the Site is occupied by an athletic field. In addition, structures formerly associated with the City of Annapolis Public Works were formerly located on the Site prior to recent demolition. According to the Client, fly ash was historically used to backfill portions of the Site. The Client has requested this investigation to evaluate the subsurface conditions at the Site due to the potential residential development of the Site.

1.3 Proposed Future Use

According to the Client, future development plans for the Site include the construction of a residential community. The future on-site residences will presumably utilize municipal water utilities and will presumably not include basements. Plans for the redevelopment of the Site are not finalized.

2.0 SCOPE OF WORK

The Limited Subsurface Investigation was conducted in accordance with the scope of work included in HCEA's Proposal Number P190815HCI, dated July 8, 2019, as authorized by the Client on July 9, 2019.

The scope of work for the Phase II ESA is as follows.

- **Project Preparation**

A HCEA Environmental Project Manager was assigned to this project to manage and coordinate all tasks described in this report.

HCEA notified Miss Utility to locate public utilities on the Site.

- **Subsurface Investigation**

<u>Soil Borings (Direct Push Rig) and Associated Soil Screening and Sampling</u>

Subsurface conditions were evaluated through direct-push sampling techniques performed in accordance with industry standards and according to the outlined scope of work. Subsurface soils were collected at 5-foot intervals by hydraulically driving a 2.25-inch diameter probe. After the drive rod was removed from every interval, the liner containing the resulting soil column was removed and the soil was inspected and field screened, as described later in this report. In addition, as described later in this report, certain soil samples obtained during the field activities were collected for laboratory analyses.

HCEA advanced a total of eight (8) probe locations on the Site, described as follows:

- Athletic Field on central portion of the Site: six (6) probes to approximately 15 feet below ground surface (bgs);
- The vicinity of the demolished Site building along Spa Road: one (1) probe to approximately 15 feet bgs; and
- Management area on the southern portion of the Site: one (1) probe to auger refusal approximately 14 feet bgs.

The exact quantities, locations and depths of the probes were determined in the field, based on the discretion of the Environmental Project Manager, and were dependent upon subsurface conditions and safety considerations.

The soils encountered during the drilling were inspected in the field (e.g., for odors, staining and free liquids) and were screened in the field for volatile organic compounds (VOCs) with the utilization of a properly calibrated photoionization detector (PID). All screened soil observed during the subsurface investigation indicated PID readings of zero (0) parts per million by volume (ppm-v). Groundwater was not encountered during drilling activities.

One soil sample was collected from each of the eight (8) soil borings obtained during the advancement of the probes and were analyzed by the laboratory follows: Total Petroleum Hydrocarbons – Gasoline Range Organics (TPH-GRO) via EPA Method 8015, Total Petroleum Hydrocarbons – Diesel Range Organics (TPH-DRO) via EPA Method 8015, Volatile Organic Compounds (VOCs) via EPA Method

8260, Polychlorinated biphenyls (PCBs) by EPA Method 8082, Total Metals via EPA Method 6020, Semi-VOCs via EPA Method 8270, Total Cyanide, and Dioxins and Furans by Isotope Dilution.

The selection of the soil samples for laboratory analyses were at the discretion of the on-site Environmental Project Manager and on the findings of the field activities (e.g., evidence of environmental impact).

Investigatory Derived Wastes

Investigation Derived Wastes (IDW) generated during this project included soil cuttings from the direct push drilling activity. The soil cuttings were placed back into the probe locations.

Quality Assurance/Quality Control

The outer rods and the "shoe" of the leading rod were cleaned prior to use and between boring depths/locations to prevent cross-contamination and disposable liners were used at each location/sampling interval. In addition, at each sampling location a pair of clean, disposable gloves were utilized to collect and containerize the sample for laboratory analysis.

Samples collected for laboratory analyses were placed in clean laboratory-provided containers with Teflon-lined lids, labeled, placed on ice in a cooler, and delivered promptly to the laboratory. All appropriate chain-of-custody procedures were utilized to track the samples from collection to final disposition at the laboratory. The samples were analyzed using EPA methodology and within EPA's holding times.

3.0 SOIL SAMPLING AND ANALYSES

The sampling program was performed at the Site on July 11, 2019 by Mr. Mark Harris, HCEA Environmental Project Manager.

3.1 Soil Sampling Procedures and Field Findings

Probes were advanced at eight (8) on-site locations. The sample locations are illustrated on the Sample Location Map (**Figure 1**) included in this report. The probes generally consisted of sand; however, some silt and clay was observed at depths greater than 10 feet bgs. Soil recovery from approximately two (2) feet below ground surface (bgs) to approximately 10 feet bgs in soil borings SB-1 through SB-6 on the athletic field was limited; thus classification and soil sampling at those depths unable to be conducted. Depths of collected soil samples is noted on that attached soil analytical data summary tables. Evidence of potential incinerated material was observed in recovered soils on the athletic field at depths ranging from approximately four (4) feet bgs to approximately 13 feet bgs.

The analytical parameters and laboratory results for the soil samples are described in Section 3.2.

3.2 Analytical Methodologies and Results

The samples selected for laboratory analyses were transported to and analyzed by Maryland Spectral Services, Inc., located in Baltimore, Maryland. A copy of the completed Chain-of-Custody Form and the Laboratory Report is included in **Appendix A.**

As previously reported, eight (8) soil samples were selected for laboratory analysis as follows:

- Soil sample SB-1 collected as a composite from depths of approximately four (4) to five (5) feet bgs and nine (9) to 10 feet bgs;
- Soil sample SB-2 collected as a composite from depths of approximately 8.5 to 10 feet bgs and 13.5 to 17 feet bgs;
- Soil sample SB-3 collected as a composite from depths of approximately nine (9) to 10 feet bgs and 14 to 15 feet bgs;
- Soil sample SB-4 collected as a grab from depths of approximately 14 to 15 feet bgs;
- Soil sample SB-5 collected as a composite from depths of approximately nine (9) to 10 feet bgs and 14 to 15 feet bgs;
- Soil sample SB-6 collected as a grab from a depth of approximately nine (9) feet bgs;
- Soil sample SB-7 collected as a grab from a depth of approximately four (4) feet bgs; and
- Soil sample SB-8 collected as a grab from a depth of approximately three (3) feet bgs.

All eight (8) soil samples obtained during the advancement of the probes were laboratory analyzed for the following: TPH-GRO via EPA Method 8015, TPH-DRO via EPA Method 8015, VOCs via EPA Method 8260, PCBs by EPA Method 8082, Total Metals via EPA Method 6020, Semi-VOCs via EPA Method 8270, Total Cyanide, and Dioxins and Furans by Isotope Dilution.

3.2.1 Soil Results

The laboratory results for the soil samples are provided in Table 1 through Table 5 appended to this report. Also provided in the tables are the Maryland Department of the Environment Residential Soil Cleanup Standards (due to the proposed residential redevelopment of the Site). A discussion of the laboratory results is presented in Section 3.2.2.

3.2.2 Discussion of Analytical Results

For comparison purposes only, HCEA compared the concentrations detected in the soil samples with the Maryland Proposed Cleanup Standards for Residential Soils (due to the proposed future residential development of the Site), as presented in the "State of Maryland Department of the Environment Cleanup Standards for Soil and Groundwater, October 2018, Interim Final Guidance", hereafter referred to as the MDE Cleanup Standard Guidance Document. The cleanup standards are designed for application in conjunction with investigation or remediation, under the MDE's Land Restoration Program (which includes the Voluntary Cleanup Program and the Controlled Hazardous Substances Division). The cleanup standards are risk-based for human health protection, and therefore, can be conservative. In addition, the standards have not been promulgated as regulations; therefore, they are considered guidance only.

- Petroleum Hydrocarbons

As noted in Table 1, TPH-DRO was detected in five (5) of the eight (8) soil samples. The concentrations of TPH-DRO in two (2) of the soil samples (SB-1 and SB-8) exceeded the MDE's Residential Cleanup Standard for TPH-DRO. The concentrations of TPH-DRO detected in the remaining three samples did not exceed the MDE's Residential Cleanup Standard for TPH-DRO.

- VOCs

As noted in Table 1, naphthalene was detected in soil sample SB-1, but was below applicable MDE's Residential Cleanup Standards.

- PCBs

PCBs were not detected above laboratory reporting limits in any of the eight (8) collected soil samples.

- Metals

As noted in Table 2, the following Metals in the following soil samples were detected above MDE's Residential Cleanup Standard:

Soil Sample	Metals Detected Above Standards
SB-1	Arsenic, Chromium, Lead, and Cyanide
SB-2	Antimony, Arsenic, Chromium, Lead, and Cyanide
SB-3	Antimony, Arsenic, Chromium, Copper, and Cyanide
SB-4	Arsenic, Chromium, and Lead
SB-5	Antimony, Arsenic, Chromium, Copper, and Lead
SB-6	Arsenic and Chromium
SB-7	Arsenic and Chromium
SB-8	Arsenic and Chromium

- Arsenic

The arsenic concentrations in both samples exceeded the MDE's Residential Soil Cleanup Standard for arsenic. Due to the exceedance of the Proposed Residential Soil Cleanup Standard for arsenic, Hillis-Carnes compared the concentrations of arsenic detected in the soil samples with Maryland's Anticipated Typical Concentrations (ATCs, or "naturally-occurring" concentrations of metals in soils) that are presented in the MDE Cleanup Standard Guidance Document. The ATCs were developed from ten years of investigations at properties around the state of Maryland and indicate typical levels of metals that naturally occur in soils. In some cases (as in the case of arsenic), the ATC exceeds the proposed cleanup standard. The MDE Cleanup Standard Guidance Document states that when the ATC exceeds the proposed cleanup standard (i.e., the proposed cleanup standard is more stringent than the "naturally occurring" concentrations of metals), utilizing the ATC rather than the proposed cleanup standard may be acceptable. The MDE Cleanup Standard Guidance Document presents ATCs for three regions across Maryland (i.e., Western Maryland, Central Maryland and Eastern Maryland). The Site is located in the Eastern Maryland region.

When compared to the ATC for arsenic in the Eastern Maryland Region (i.e., 3.6 ppm), the concentration of arsenic in all collected soil samples exceeded the ATC for arsenic. The MDE's ATC of 3.6 ppm is a calculated concentration for naturally occurring arsenic based on the results of 76 soil samples that revealed concentrations of arsenic as high as 6.9 ppm; all samples exceeded that maximum concentration.

- Chromium

The chromium concentration in all collected soil samples with the exception of SB-1 and SB-4 exceeded the MDE's Residential Soil Cleanup Standard for chromium. The ATC for total chromium in the Eastern Maryland Region is 28 ppm. The MDE's ATC for chromium of 28 ppm is a calculated concentration for naturally occurring chromium based on the results of 76 soil samples that revealed concentrations of total chromium as high as 71 ppm; six (6) soil samples exceeded that concentration.

- SVOCs

As noted on Table 3, SVOCs were detected in soil samples SB-1, SB-2, and SB-3. However, the following SVOCs were detected above MDE's Residential Cleanup Standard in soil sample SB-1: benzo(a) anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, dibenzofuran, fluoranthene, indeno(1,2,3-cd)pyrene, 2-methylnaphthalene, pyrene, phenanthrene, and naphthalene. All other SVOC concentrations were detected below standards.

- Dioxins and Furans

As noted on Tables 4 and 5, dioxins and furans were detected throughout the Site. However, many constituents do not have regulatory standards, as noted. Analytical results were compared to EPA Region III Regional Removal Management Levels for Residential Soil and results were not detected above standards, when applicable.

4.0 SUMMARY

HCEA has conducted a Limited Subsurface Investigation (LSI) at the property located at 935 Spa Road in Annapolis, Maryland. The primary purpose of the LSI was to evaluate subsurface soil conditions based on the former operations of the Site. More specifically, the LSI addressed fly ash historically used on the Site for backfill.

- Summary

Based on the findings as presented above, it appears that evidence of environmental impact as a result of possible fly ash and other Site activities, in the form of TPH-DRO, Metals, Dioxins, Furans, and SVOCs in subsurface soils are present in certain areas of the Site. In addition, the impact at several locations exceeds the MDE's Residential Soil Cleanup Standards for numerous constituents. Specifically, in the location of the current athletic field and the management area on the southeastern portion of the Site. The impacted subsurface soils should be considered during the planning and the construction for the redevelopment of the Site.

5.0 LIMITATIONS

Our professional services have been performed, our findings obtained, and our conclusions prepared in accordance with customary principles and practices in the field of environmental science. This report does not warrant against future operations or conditions, nor does it warrant against conditions present of a type or at locations not investigated. The conclusions drawn from this assessment are considered reliable; however, there may exist localized variations in the subsurface conditions.

This report was prepared for the sole use of our Client. The scope of services performed for this assessment may not be appropriate to satisfy the needs of other users, and use or re-use of this document or the findings or conclusions is at the risk of said user.

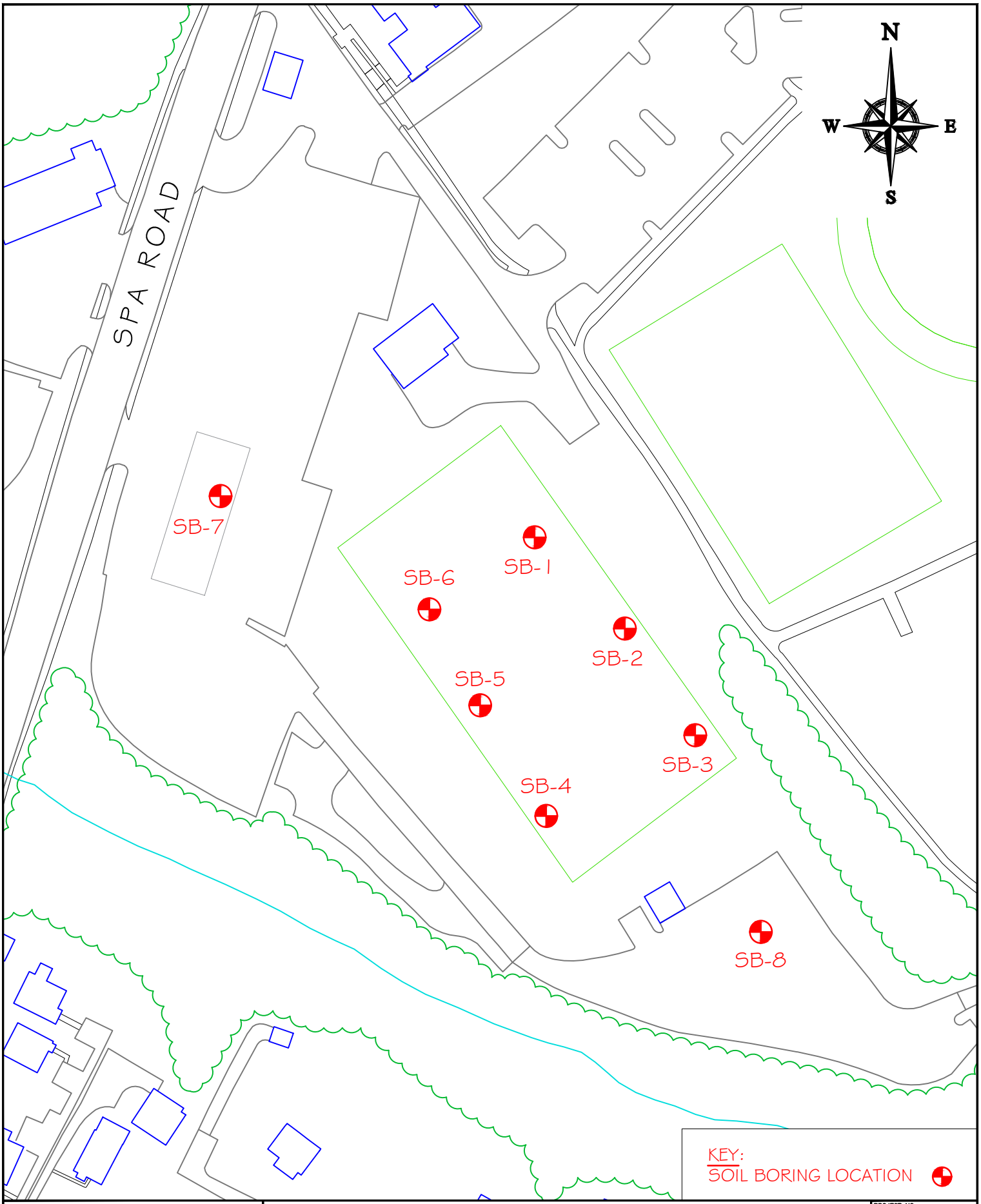
An evaluation of the legal obligations of our Client and/or other parties (e.g., an owner of a Site) to report the findings of subsurface investigations to environmental regulators are beyond the scope of this project. Therefore, in this report, HCEA has not rendered an opinion or provided professional advice regarding reporting obligations, if any, as they may pertain to the findings of this environmental investigation.

The assessment included the advancement of a number of probes at distinct locations and depths on the Site. The conclusions drawn from this assessment are considered reliable; however, there may exist localized variations in the subsurface conditions that have not been completely defined at this time. In addition, a determination of the source of constituents in the subsurface is beyond the scope of work for this project. Further, as documented in this report, if impacted media is encountered during future redevelopment activities, the impact should be handled appropriately.

The samples delivered to the analytical laboratory for this project will be retained by the laboratory for thirty (30) days from the date that the samples were received by the laboratory. After 30 days, the laboratory will dispose of the samples. Therefore, if analyses in addition to those presented in this proposal are desired, a request for the additional analyses must be made prior to the expiration of the laboratory's 30-day sample retention policy. Further, although the laboratory retains samples for 30 days, it should be noted that regulatory "holding times" for certain laboratory analyses are less than 30 days.

The MDE's Cleanup Standard Guidance Document is just one example of resources that can be utilized to provide some context with regard to laboratory results for samples analyzed for environmental contaminants. HCEA's discussion of the standards presented in this document is not meant to imply that other standards/comparative numbers may not be applicable.

Figures



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SOIL BORING LOCATION PLAN

PUBLIC WORKS PROJECT

935 SPA ROAD ANNAPOLIS, MARYLAND

PROJECT NO.	19416A
DATE:	7/30/19
SCALE:	NTS
DRAWN BY:	AM
CHECKED BY:	KP

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Tables

Table 1
Soil Analytical Data Summary - Volatile Organic Compounds
City of Annapolis Public Works
935 Spa Road
Annapolis, Maryland

Location ID	Sample Date	Depth (ft)	PID (ppmv)	Constituents of Concern (mg/kg)							
				Benzene	Toluene	Ethyl-benzene	Xylenes, Total*	MTBE	Napht-halene	TPH-DRO	TPH-GRO
MDE Soil Standard RES				**1.2**	**490**	**5.8**	**58**	**47**	**3.8**	**230**	**230**
SB-1	07/11/19	4-5; 9-10**	0.0	< 0.006	< 0.006	< 0.006	< 0.012	< 0.006	0.0072	**307**	< 0.12
SB-2	07/11/19	8.5-10; 13.5-17**	0.0	< 0.0063	< 0.0063	< 0.0063	< 0.0126	< 0.0063	< 0.0063	< 10.1	< 0.13
SB-3	07/11/19	9-10; 14-15**	0.0	< 0.0068	< 0.0068	< 0.0068	< 0.0136	< 0.0068	< 0.0068	84.9	< 0.14
SB-4	07/11/19	14-15	0.0	< 0.0067	< 0.0067	< 0.0067	< 0.0134	< 0.0067	< 0.0067	132	< 0.13
SB-5	07/11/19	9-10; 14-15**	0.0	< 0.0066	< 0.0066	< 0.0066	< 0.0132	< 0.0066	< 0.0066	187	< 0.13
SB-6	07/11/19	9.0	0.0	< 0.006	< 0.006	< 0.006	< 0.012	< 0.006	< 0.006	< 9.6	< 0.12
SB-7	07/11/19	4.0	0.0	< 0.0058	< 0.0058	< 0.0058	< 0.0116	< 0.0058	< 0.0058	< 9.3	< 0.12
SB-8	07/11/19	3.0	0.0	< 0.0054	< 0.0054	< 0.0054	< 0.0108	< 0.0054	< 0.0054	**1,080**	< 0.11

Notes:
ft = feet
mg/kg = milligrams per kilogram
TPH analysis conducted in accordance with 8015.
< = analyte not detected at or above the specified laboratory detection limit
Volatile organic compound (VOC) analysis conducted in accordance with SW8260B
Results formatted in **bold** are in exceedance of the MDE RES guideline
MDE RES = Maryland Department of the Environment Generic Numeric Cleanup Standards, Interim Final Guidance, Residential Soil, October 2018 (Update No. 3)
*= Total xylenes represents the sum of the results for o-xylene and m&p xylenes with the highest detection limit used in the case of non-detect.
**= Soil sample collected as a composite from the noted depths

MTBE = Methyl tert-butyl Ether

Table 2
Soil Analytical Data Summary - Metals/Cyanide
City of Annapolis Public Works
935 Spa Road
Annapolis, Maryland

Location ID	Sample Date	Depth (ft)	Constituents of Concern (mg/kg)													
			Antimony	Arsenic	Beryllium	Cadmium	Chromium	Copper	Lead	Nickel	Selenium	Zinc	Thallium	Silver	Cyanide	Mercury
MDE Soil Standard RES			**3.1**	**0.68**	**16**	**7.1**	**0.3**	**310**	**400**	**150**	**39**	**2,300**	**0.078**	**39**	**2.3**	**1.1**
SB-1	07/11/19	4-5; 9-10*	1.57	**8.98**	0.313	0.380	**25.6**	23.5	**683**	7.58	0.93	222	< 0.301	0.343	**4.20**	0.307
SB-2	07/11/19	8.5-10; 13.5-17*	**12.5**	**67.4**	0.53	2.82	**44.7**	122	**5,600**	63.4	1.81	1,070	< 0.316	0.677	**7.82**	0.373
SB-3	07/11/19	9-10; 14-15*	**8.42**	**17.8**	0.478	1.09	**50.9**	**848**	348	64.5	1.76	424	< 0.342	0.612	**8.49**	0.500
SB-4	07/11/19	14-15	2.29	**15.9**	0.809	1.74	**24.0**	138	**859**	20.6	2.25	704	< 0.333	1.44	< 0.598	0.969
SB-5	07/11/19	9-10; 14-15*	**13.9**	**26.3**	0.605	2.53	**61.7**	**1,670**	**2,200**	71.8	1.97	2,070	< 0.329	2.63	< 0.669	0.221
SB-6	07/11/19	9.0	< 0.301	**13.1**	1.10	< 0.301	**216**	0.304	6.83	12.3	1.33	43.9	< 0.301	< 0.301	< 0.585	< 0.0151
SB-7	07/11/19	4.0	< 0.291	**10.6**	1.00	< 0.291	**86.8**	3.27	6.00	5.25	0.958	31.2	< 0.291	< 0.291	< 0.543	< 0.0145
SB-8	07/11/19	3.0	0.295	**4.17**	0.361	< 0.269	**34.3**	7.62	65.2	13.0	0.665	46.7	< 0.269	< 0.269	1.85	0.0310

Notes:
ft = feet
mg/kg = milligrams per kilogram
Metals analysis conducted in accordance with EPA Method 3050B/6020A.
Cyanide analyzed as wet chemistry at Enviro-Chem
< = analyte not detected at or above the specified laboratory detection limit
Results formatted in **bold** are in exceedance of the MDE RES guideline
MDE RES = Maryland Department of the Environment Generic Numeric Cleanup Standards, Interim Final Guidance, Residential Soil, October 2018 (Update No. 3)
*= Soil sample collected as a composite from the noted depths

Table 3
Soil Analytical Data Summary - Semi-Volatile Organic Compounds
City of Annapolis Public Works
935 Spa Road
Annapolis, Maryland

Location ID	Sample Date	Depth (ft)	Constituents of Concern (mg/kg)														
			Acenaphthene	Anthracene	Benzo[a]anthracene	Benzo[b]fluoranthene	Benzo[k]fluoranthene	Chrysene	Dibenzo[a,h]anthracene	Dibenzofuran	Fluoranthene	Fluorene	Indeno[1,2,3-cd]pyrene	2-Methylnaphthalene	Pyrene	Phenanthrene	Naphthalene
MDE Soil Standard RES			**360**	**1,800**	**1.1**	**1.1**	**11**	**110**	**0.11**	**7.3**	**240**	**240**	**1.1**	**24**	**180**	**180**	**3.8**
SB-1	07/11/19	4-5; 9-10*	24.9	91	**184**	**213**	**78**	**193**	**30**	**61**	**425**	116	**111**	**49**	**350**	**507**	**102**
SB-2	07/11/19	8.5-10; 13.5-17*	< 0.316	< 0.316	< 0.316	< 0.316	< 0.316	< 0.316	< 0.316	< 0.316	< 0.316	< 0.316	< 0.316	< 0.316	< 0.316	< 0.316	< 0.316
SB-3	07/11/19	9-10; 14-15*	< 0.342	< 0.342	0.218 Ja	0.358	< 0.342	0.271 Ja	< 0.342	< 0.342	0.362	< 0.342	0.182 Ja	< 0.342	0.335 Ja	0.149 Ja	< 0.342
SB-4	07/11/19	14-15	< 0.333	< 0.333	< 0.333	0.227 Ja	< 0.333	0.161 Ja	< 0.333	< 0.333	0.254 Ja	< 0.333	0.142 Ja	< 0.333	0.312 Ja	0.261 Ja	< 0.333
SB-5	07/11/19	9-10; 14-15*	< 0.329	< 0.329	< 0.329	< 0.329	< 0.329	< 0.329	< 0.329	< 0.329	< 0.329	< 0.329	< 0.329	< 0.329	< 0.329	< 0.329	< 0.329
SB-6	07/11/19	9.0	< 0.301	< 0.301	< 0.301	< 0.301	< 0.301	< 0.301	< 0.301	< 0.301	< 0.301	< 0.301	< 0.301	< 0.301	< 0.301	< 0.301	< 0.301
SB-7	07/11/19	4.0	< 0.291	< 0.291	< 0.291	< 0.291	< 0.291	< 0.291	< 0.291	< 0.291	< 0.291	< 0.291	< 0.291	< 0.291	< 0.291	< 0.291	< 0.291
SB-8	07/11/19	3.0	< 2.690	< 2.690	< 2.690	< 2.690	< 2.690	< 2.690	< 2.690	< 2.690	< 2.690	< 2.690	< 2.690	< 2.690	< 2.690	< 2.690	< 2.690

Notes:
ft = feet
mg/kg = milligrams per kilogram
Ja = Detected but below the reporting limit; therefore, result is an estimated concentration (CLP J-Flag)
Semi-volatile organic compounds analysis conducted in accordance with EPA Method 3540/8270D.
< = analyte not detected at or above the specified laboratory detection limit
Results formatted in **bold** are in exceedance of the MDE RES guideline
MDE RES = Maryland Department of the Environment Generic Numeric Cleanup Standards, Interim Final Guidance, Residential Soil, October 2018 (Update No. 3)
*= Soil sample collected as a composite from the noted depths

Table 4
Soil Analytical Data Summary - Dioxins
City of Annapolis Public Works
935 Spa Road
Annapolis, Maryland

Location ID	Sample Date	Depth (ft)	Constituents of Concern (ng/kg)										
			1234678-HpCDD	123478-HxCDD	123678-HxCDD	123789-HxCDD	12378-PeCDD	2378-TCDD	OCDD	Total HpCDD	Total HxCDD	Total PeCDD	Total TCDD
EPA Region III RRML			NS	NS	NS	NS	NS	4.8	NS	NS	NS	NS	NS
SB-1	07/11/19	4-5; 9-10*	63	< 5.0	< 5.0	< 5.0	< 5.0	< 1.0	6,700	160	19	< 5.0	< 1.0
SB-2	07/11/19	8.5-10; 13.5-17*	16	< 5.0	< 5.0	< 5.0	< 5.0	< 1.0	140	25	< 5.0	< 5.0	< 1.0
SB-3	07/11/19	9-10; 14-15*	< 5.0 I	< 5.0	13	< 5.0	< 5.0	< 1.5 A	120	14	75	< 5.0	< 1.5
SB-4	07/11/19	14-15	25	< 5.0	< 5.0	< 5.0	< 5.0	< 1.1 A	170	41	< 5.0	72	7.2
SB-5	07/11/19	9-10; 14-15*	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 1.0	210	< 5.0	< 5.0	< 5.0	1.4
SB-6	07/11/19	9.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 1.0	< 10	< 5.0	< 5.0	< 5.0	< 1.0
SB-7	07/11/19	4.0	6.5	< 5.0	< 5.0	< 5.0	< 5.0	< 1.0	630	18	9.7	< 5.0	< 1.0
SB-8	07/11/19	3.0	62	< 5.0	< 5.0	< 5.0	< 5.0	< 1.0	2,700	130	7.6	19	< 1.0

Notes:
ft = feet
RRML = Regional Removal Management Levels
NS = No Standard
A = Detection Limit based on signal-to-noise measurement
ng/kg = nanograms per kilogram
I = Interference
Dioxins analysis conducted in accordance with Isotope Dilution.
< = analyte not detected at or above the specified laboratory detection limit
*= Soil sample collected as a composite from the noted depths

Table 5
Soil Analytical Data Summary - Furans
City of Annapolis Public Works
935 Spa Road
Annapolis, Maryland

Location ID	Sample Date	Depth (ft)	Constituents of Concern (ng/kg)													
			1234678-HpCDF	1234789-HpCDF	123478-HxCDF	123678-HxCDF	123789-HxCDF	12378-PeCDF	234678-HxCDF	23478-PeCDF	2378-TCDF	OCDF	Total HpCDF	Total HxCDF	Total PeCDF	Total TCDF
EPA Region III RRML			NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
SB-1	07/11/19	4-5; 9-10*	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 1.0	< 10	< 5.0	< 5.0	< 5.0	2.5
SB-2	07/11/19	8.5-10; 13.5-17*	15	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 1.0	< 10	27	< 5.0	< 5.0	2.4
SB-3	07/11/19	9-10; 14-15*	28	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 1.1 A	13	46	28	< 5.0	1.4
SB-4	07/11/19	14-15	23	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	5.6 J	6.7 A	< 10 I, J	31	28	72	130
SB-5	07/11/19	9-10; 14-15*	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	1.7	< 10	< 5.0	< 5.0	< 5.0	22
SB-6	07/11/19	9.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 1.0	< 10	< 5.0	< 5.0	< 5.0	< 1.0
SB-7	07/11/19	4.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 1.0	< 10	< 5.0	< 5.0	< 5.0	< 1.0
SB-8	07/11/19	3.0	12	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 1.0	30	34	17	19	3.1

Notes:
ft = feet
ng/kg = nanograms per kilogram
NS = No Standard
RRML = Regional Removal Management Levels
A = Detection Limit based on signal-to-noise measurement
I = Interference
J = Concentration detected is below the calibration range
Furans analysis conducted in accordance with Isotope Dilution.
< = analyte not detected at or above the specified laboratory detection limit
*= Soil sample collected as a composite from the noted depths

Appendix A

Maryland spectral Services

Analytical Chemistry Services

1500 Caton Center Dr Suite G
Baltimore MD 21227
410-247-7600
www.mdspectral.com
VELAP ID 460040

23 July 2019

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

Enclosed are the results of analyses for samples received by the laboratory on 07/11/19 13:55.

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

Maryland spectral Services

Analytical Chemistry Services

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

Analytical Results

Project: Annapolis Public Works

Project Number: 19-416A
Project Manager: Keith Progin

Reported:
07/23/19 17:23

Client Sample ID	Alternate Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SB-1		9071111-01	Soil	07/11/19 08:12	07/11/19 13:55
SB-2		9071111-02	Soil	07/11/19 08:42	07/11/19 13:55
SB-3		9071111-03	Soil	07/11/19 09:07	07/11/19 13:55
SB-4		9071111-04	Soil	07/11/19 09:45	07/11/19 13:55
SB-5		9071111-05	Soil	07/11/19 10:27	07/11/19 13:55
SB-6		9071111-06	Soil	07/11/19 11:00	07/11/19 13:55
SB-7		9071111-07	Soil	07/11/19 11:40	07/11/19 13:55
SB-8		9071111-08	Soil	07/11/19 12:10	07/11/19 13:55

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Will Brewington, President

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Baltimore MD 21227
410-247-7600
www.mdspectral.com

Project: Annapolis Public Works

Project Number: 19-416A
Project Manager: Keith Progin

Reported:
07/23/19 17:23

SB-1

9071111-01 (Soil)
Sample Date: 07/11/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
VOLATILE ORGANICS BY EPA METHOD 8260B (GC/MS)									
Acetone	**31.1**		ug/kg dry	12.0	12.0	1	07/16/19	07/16/19 14:21	GM
tert-Amyl alcohol (TAA)	ND		ug/kg dry	60.2	60.2	1	07/16/19	07/16/19 14:21	GM
tert-Amyl methyl ether (TAME)	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 14:21	GM
Benzene	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 14:21	GM
Bromobenzene	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 14:21	GM
Bromochloromethane	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 14:21	GM
Bromodichloromethane	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 14:21	GM
Bromoform	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 14:21	GM
Bromomethane	ND		ug/kg dry	6.0	6.0	1	07/16/19	07/16/19 14:21	GM
tert-Butanol (TBA)	ND		ug/kg dry	60.2	60.2	1	07/16/19	07/16/19 14:21	GM
2-Butanone (MEK)	ND		ug/kg dry	12.0	12.0	1	07/16/19	07/16/19 14:21	GM
n-Butylbenzene	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 14:21	GM
sec-Butylbenzene	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 14:21	GM
tert-Butylbenzene	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 14:21	GM
Carbon disulfide	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 14:21	GM
Carbon tetrachloride	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 14:21	GM
Chlorobenzene	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 14:21	GM
Chloroethane	ND		ug/kg dry	6.0	6.0	1	07/16/19	07/16/19 14:21	GM
Chloroform	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 14:21	GM
Chloromethane	ND		ug/kg dry	6.0	6.0	1	07/16/19	07/16/19 14:21	GM
2-Chlorotoluene	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 14:21	GM
4-Chlorotoluene	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 14:21	GM
1,2-Dibromo-3-chloropropane	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 14:21	GM
Dibromochloromethane	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 14:21	GM
1,2-Dibromoethane (EDB)	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 14:21	GM
Dibromomethane	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 14:21	GM
1,2-Dichlorobenzene	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 14:21	GM
1,3-Dichlorobenzene	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 14:21	GM
1,4-Dichlorobenzene	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 14:21	GM
Dichlorodifluoromethane	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 14:21	GM
1,1-Dichloroethane	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 14:21	GM
1,2-Dichloroethane	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 14:21	GM
1,1-Dichloroethene	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 14:21	GM

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Baltimore MD 21227
410-247-7600
www.mdspectral.com

Project: Annapolis Public Works

Project Number: 19-416A
Project Manager: Keith Progin

Reported:
07/23/19 17:23

SB-1

9071111-01 (Soil)
Sample Date: 07/11/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
VOLATILE ORGANICS BY EPA METHOD 8260B (GC/MS) (continued)									
cis-1,2-Dichloroethene	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 14:21	GM
trans-1,2-Dichloroethene	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 14:21	GM
Dichlorofluoromethane	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 14:21	GM
1,2-Dichloropropane	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 14:21	GM
1,3-Dichloropropane	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 14:21	GM
2,2-Dichloropropane	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 14:21	GM
1,1-Dichloropropene	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 14:21	GM
cis-1,3-Dichloropropene	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 14:21	GM
trans-1,3-Dichloropropene	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 14:21	GM
Diisopropyl ether (DIPE)	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 14:21	GM
Ethyl tert-butyl ether (ETBE)	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 14:21	GM
Ethylbenzene	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 14:21	GM
Hexachlorobutadiene	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 14:21	GM
2-Hexanone	ND		ug/kg dry	12.0	12.0	1	07/16/19	07/16/19 14:21	GM
Isopropylbenzene (Cumene)	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 14:21	GM
4-Isopropyltoluene	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 14:21	GM
Methyl tert-butyl ether (MTBE)	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 14:21	GM
4-Methyl-2-pentanone	ND		ug/kg dry	12.0	12.0	1	07/16/19	07/16/19 14:21	GM
Methylene chloride	ND		ug/kg dry	24.1	24.1	1	07/16/19	07/16/19 14:21	GM
Naphthalene	**7.2**		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 14:21	GM
n-Propylbenzene	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 14:21	GM
Styrene	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 14:21	GM
1,1,1,2-Tetrachloroethane	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 14:21	GM
1,1,2,2-Tetrachloroethane	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 14:21	GM
Tetrachloroethene	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 14:21	GM
Toluene	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 14:21	GM
1,2,3-Trichlorobenzene	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 14:21	GM
1,2,4-Trichlorobenzene	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 14:21	GM
1,1,1-Trichloroethane	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 14:21	GM
1,1,2-Trichloroethane	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 14:21	GM
Trichloroethene	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 14:21	GM
Trichlorofluoromethane (Freon 11)	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 14:21	GM
1,2,3-Trichloropropane	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 14:21	GM

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Analytical Results

Project: Annapolis Public Works

Project Number: 19-416A
Project Manager: Keith Progin

Reported:
07/23/19 17:23

SB-1

9071111-01 (Soil)
Sample Date: 07/11/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
VOLATILE ORGANICS BY EPA METHOD 8260B (GC/MS) (continued)									
1,2,4-Trimethylbenzene	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 14:21	GM
1,3,5-Trimethylbenzene	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 14:21	GM
Vinyl chloride	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 14:21	GM
o-Xylene	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 14:21	GM
m- & p-Xylenes	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 14:21	GM
Surrogate: 1,2-Dichloroethane-d4			*70-130*	*109 %*	*07/16/19*		*07/16/19 14:21*		
Surrogate: Toluene-d8			*75-120*	*99 %*	*07/16/19*		*07/16/19 14:21*		
Surrogate: 4-Bromofluorobenzene			*65-120*	*96 %*	*07/16/19*		*07/16/19 14:21*		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.12	0.12	1	07/17/19	07/17/19 15:11	GM
PERCENT SOLIDS BY ASTM D2216-05									
Percent Solids	**83**		%			1	07/17/19	07/18/19 11:22	CEB
POLYCHLORINATED BIPHENYLS BY EPA 3540/8082A (GC/ECD)									
Aroclor-1016	ND		ug/kg dry	100	100	1	07/11/19	07/12/19 17:31	SJA
Aroclor-1221	ND		ug/kg dry	205	205	1	07/11/19	07/12/19 17:31	SJA
Aroclor-1232	ND		ug/kg dry	100	100	1	07/11/19	07/12/19 17:31	SJA
Aroclor-1242	ND		ug/kg dry	100	100	1	07/11/19	07/12/19 17:31	SJA
Aroclor-1248	ND		ug/kg dry	100	100	1	07/11/19	07/12/19 17:31	SJA
Aroclor-1254	ND		ug/kg dry	100	100	1	07/11/19	07/12/19 17:31	SJA
Aroclor-1260	ND		ug/kg dry	100	100	1	07/11/19	07/12/19 17:31	SJA
Aroclor-1262	ND		ug/kg dry	100	100	1	07/11/19	07/12/19 17:31	SJA
Aroclor-1268	ND		ug/kg dry	100	100	1	07/11/19	07/12/19 17:31	SJA
Surrogate: Tetrachloro-m-xylene			*40-150*	*71 %*	*07/11/19*		*07/12/19 17:31*		
Surrogate: Decachlorobiphenyl			*40-150*	*97 %*	*07/11/19*		*07/12/19 17:31*		

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Maryland spectral Services

Analytical Chemistry Services

1500 Caton Center Dr Suite G
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Analytical Results

Project: Annapolis Public Works

Project Number: 19-416A
Project Manager: Keith Progin

Reported:
07/23/19 17:23

SB-1

9071111-01 (Soil)
Sample Date: 07/11/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
TOTAL METALS ANALYSIS BY EPA 3050B/6020A									
Antimony	**1.57**		mg/kg dry	0.301	0.301	1	07/15/19	07/17/19 17:33	VVD
Arsenic	**8.98**		mg/kg dry	0.301	0.301	1	07/15/19	07/17/19 17:33	VVD
Beryllium	**0.313**		mg/kg dry	0.301	0.301	1	07/15/19	07/17/19 17:33	VVD
Cadmium	**0.380**		mg/kg dry	0.301	0.301	1	07/15/19	07/17/19 17:33	VVD
Chromium	**25.6**		mg/kg dry	0.301	0.301	1	07/15/19	07/17/19 17:33	VVD
Copper	**23.5**		mg/kg dry	0.301	0.301	1	07/15/19	07/17/19 17:33	VVD
Lead	**683**		mg/kg dry	3.01	3.01	10	07/15/19	07/17/19 17:04	VVD
Mercury	**0.307**		mg/kg dry	0.0151	0.0151	1	07/15/19	07/17/19 17:33	VVD
Nickel	**7.58**		mg/kg dry	0.301	0.301	1	07/15/19	07/17/19 17:33	VVD
Selenium	**0.793**		mg/kg dry	0.301	0.301	1	07/15/19	07/17/19 17:33	VVD
Silver	**0.343**		mg/kg dry	0.301	0.301	1	07/15/19	07/17/19 17:33	VVD
Thallium	ND		mg/kg dry	0.301	0.301	1	07/15/19	07/17/19 17:33	VVD
Zinc	**222**		mg/kg dry	1.51	1.51	1	07/15/19	07/17/19 17:33	VVD
Wet Chemistry Performed at Enviro-Chem									
% Solids	**86.5**		%	1.00	1.00	1	07/15/19	07/15/19 16:08	FRD
Cyanide, Total	**4.20**		mg/kg dry	0.582	0.582	1	07/17/19	07/18/19 12:43	FRD
Dioxins and Furans by Isotope Dilution HRGC/HRMS Performed at PACE-MN									
1,2,3,4,6,7,8-HpCDD	**63**		ng/Kg	5.0	0.74	1	07/16/19	07/22/19 15:44	SMT
1,2,3,4,6,7,8-HpCDF	ND		ng/Kg	5.0	0.24	1	07/16/19	07/22/19 15:44	SMT
1,2,3,4,7,8,9-HpCDF	ND		ng/Kg	5.0	0.52	1	07/16/19	07/22/19 15:44	SMT
1,2,3,4,7,8-HxCDD	ND		ng/Kg	5.0	0.61	1	07/16/19	07/22/19 15:44	SMT
1,2,3,4,7,8-HxCDF	ND		ng/Kg	5.0	0.41	1	07/16/19	07/22/19 15:44	SMT
1,2,3,6,7,8-HxCDD	ND		ng/Kg	5.0	0.69	1	07/16/19	07/22/19 15:44	SMT
1,2,3,6,7,8-HxCDF	ND		ng/Kg	5.0	0.43	1	07/16/19	07/22/19 15:44	SMT
1,2,3,7,8,9-HxCDD	ND		ng/Kg	5.0	0.42	1	07/16/19	07/22/19 15:44	SMT
1,2,3,7,8,9-HxCDF	ND		ng/Kg	5.0	0.36	1	07/16/19	07/22/19 15:44	SMT
1,2,3,7,8-PeCDD	ND		ng/Kg	5.0	0.25	1	07/16/19	07/22/19 15:44	SMT
1,2,3,7,8-PeCDF	ND		ng/Kg	5.0	0.20	1	07/16/19	07/22/19 15:44	SMT
2,3,4,6,7,8-HxCDF	ND		ng/Kg	5.0	0.23	1	07/16/19	07/22/19 15:44	SMT
2,3,4,7,8-PeCDF	ND		ng/Kg	5.0	0.16	1	07/16/19	07/22/19 15:44	SMT
2,3,7,8-TCDD	ND		ng/Kg	1.0	0.22	1	07/16/19	07/22/19 15:44	SMT
2,3,7,8-TCDF	ND		ng/Kg	1.0	0.18	1	07/16/19	07/22/19 15:44	SMT
OCDD	**6700**		ng/Kg	10	2.4	1	07/16/19	07/22/19 15:44	SMT
OCDF	ND		ng/Kg	10	1.5	1	07/16/19	07/22/19 15:44	SMT

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

Project: Annapolis Public Works

Project Number: 19-416A
Project Manager: Keith Progin

Reported:
07/23/19 17:23

SB-1

9071111-01 (Soil)
Sample Date: 07/11/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Dioxins and Furans by Isotope Dilution HRGC/HRMS Performed at PACE-MN (continued)									
Total HpCDD	**160**		ng/Kg	5.0	0.74	1	07/16/19	07/22/19 15:44	SMT
Total HpCDF	ND		ng/Kg	5.0	0.38	1	07/16/19	07/22/19 15:44	SMT
Total HxCDD	**19**		ng/Kg	5.0	0.58	1	07/16/19	07/22/19 15:44	SMT
Total HxCDF	ND		ng/Kg	5.0	0.36	1	07/16/19	07/22/19 15:44	SMT
Total PeCDD	ND		ng/Kg	5.0	0.25	1	07/16/19	07/22/19 15:44	SMT
Total PeCDF	ND		ng/Kg	5.0	0.18	1	07/16/19	07/22/19 15:44	SMT
Total TCDD	ND		ng/Kg	1.0	0.22	1	07/16/19	07/22/19 15:44	SMT
Total TCDF	**2.5**		ng/Kg	1.0	0.18	1	07/16/19	07/22/19 15:44	SMT

Surrogate: 1,2,3,4,6,7,8-HpCDD-13C	*40.0-135.0*	*62 %*	*07/16/19*	*07/22/19 15:44*
Surrogate: 1,2,3,4,6,7,8-HpCDF-13C	*40.0-135.0*	*54 %*	*07/16/19*	*07/22/19 15:44*
Surrogate: 1,2,3,4,7,8,9-HpCDF-13C	*40.0-135.0*	*56 %*	*07/16/19*	*07/22/19 15:44*
Surrogate: 1,2,3,4,7,8-HxCDD-13C	*40.0-135.0*	*61 %*	*07/16/19*	*07/22/19 15:44*
Surrogate: 1,2,3,4,7,8-HxCDF-13C	*40.0-135.0*	*69 %*	*07/16/19*	*07/22/19 15:44*
Surrogate: 1,2,3,6,7,8-HxCDD-13C	*40.0-135.0*	*65 %*	*07/16/19*	*07/22/19 15:44*
Surrogate: 1,2,3,6,7,8-HxCDF-13C	*40.0-135.0*	*75 %*	*07/16/19*	*07/22/19 15:44*
Surrogate: 1,2,3,7,8,9-HxCDF-13C	*40.0-135.0*	*65 %*	*07/16/19*	*07/22/19 15:44*
Surrogate: 1,2,3,7,8-PeCDD-13C	*40.0-135.0*	*61 %*	*07/16/19*	*07/22/19 15:44*
Surrogate: 1,2,3,7,8-PeCDF-13C	*40.0-135.0*	*61 %*	*07/16/19*	*07/22/19 15:44*
Surrogate: 2,3,4,6,7,8-HxCDF-13C	*40.0-135.0*	*69 %*	*07/16/19*	*07/22/19 15:44*
Surrogate: 2,3,4,7,8-PeCDF-13C	*40.0-135.0*	*56 %*	*07/16/19*	*07/22/19 15:44*
Surrogate: 2,3,7,8-TCDD-13C	*40.0-135.0*	*66 %*	*07/16/19*	*07/22/19 15:44*
Surrogate: 2,3,7,8-TCDF-13C	*40.0-135.0*	*64 %*	*07/16/19*	*07/22/19 15:44*
Surrogate: OCDD-13C	*40.0-135.0*	*55 %*	*07/16/19*	*07/22/19 15:44*

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Baltimore MD 21227
410-247-7600
www.mdspectral.com

Project: Annapolis Public Works

Project Number: 19-416A
Project Manager: Keith Progin

Reported:
07/23/19 17:23

SB-1

9071111-01RE1 (Soil)
Sample Date: 07/11/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 3540/8270D (GC/MS)									
Acenaphthene	**24900**	Ja	ug/kg dry	37700	15100	25	07/11/19	07/12/19 16:23	WB
Acenaphthylene	**52700**		ug/kg dry	37700	15100	25	07/11/19	07/12/19 16:23	WB
Anthracene	**91300**		ug/kg dry	37700	15100	25	07/11/19	07/12/19 16:23	WB
Benzo[a]anthracene	**184000**		ug/kg dry	37700	15100	25	07/11/19	07/12/19 16:23	WB
Benzo[b]fluoranthene	**213000**		ug/kg dry	37700	15100	25	07/11/19	07/12/19 16:23	WB
Benzo[k]fluoranthene	**78300**		ug/kg dry	37700	15100	25	07/11/19	07/12/19 16:23	WB
Benzo[ghi]perylene	**92600**		ug/kg dry	37700	15100	25	07/11/19	07/12/19 16:23	WB
Benzo[a]pyrene	**175000**		ug/kg dry	37700	15100	25	07/11/19	07/12/19 16:23	WB
4-Bromophenyl phenyl ether	ND		ug/kg dry	37700	15100	25	07/11/19	07/12/19 16:23	WB
Butyl benzyl phthalate	ND		ug/kg dry	37700	15100	25	07/11/19	07/12/19 16:23	WB
Carbazole	**55900**		ug/kg dry	37700	15100	25	07/11/19	07/12/19 16:23	WB
4-Chloro-3-methylphenol	ND		ug/kg dry	37700	15100	25	07/11/19	07/12/19 16:23	WB
4-Chloroaniline	ND		ug/kg dry	37700	15100	25	07/11/19	07/12/19 16:23	WB
Bis(2-chloroethoxy)methane	ND		ug/kg dry	37700	15100	25	07/11/19	07/12/19 16:23	WB
Bis(2-chloroethyl) ether	ND		ug/kg dry	37700	15100	25	07/11/19	07/12/19 16:23	WB
2,2'-Oxybis(1-Chloropropane)	ND		ug/kg dry	37700	15100	25	07/11/19	07/12/19 16:23	WB
2-Chloronaphthalene	ND		ug/kg dry	37700	15100	25	07/11/19	07/12/19 16:23	WB
2-Chlorophenol	ND		ug/kg dry	37700	15100	25	07/11/19	07/12/19 16:23	WB
4-Chlorophenyl phenyl ether	ND		ug/kg dry	37700	15100	25	07/11/19	07/12/19 16:23	WB
Chrysene	**193000**		ug/kg dry	37700	15100	25	07/11/19	07/12/19 16:23	WB
Di-n-butyl phthalate	ND		ug/kg dry	37700	15100	25	07/11/19	07/12/19 16:23	WB
Di-n-octyl phthalate	ND		ug/kg dry	37700	15100	25	07/11/19	07/12/19 16:23	WB
Dibenzo[a,h]anthracene	**29600**	Ja	ug/kg dry	37700	15100	25	07/11/19	07/12/19 16:23	WB
Dibenzofuran	**60500**		ug/kg dry	37700	15100	25	07/11/19	07/12/19 16:23	WB
1,2-Dichlorobenzene	ND		ug/kg dry	37700	15100	25	07/11/19	07/12/19 16:23	WB
1,3-Dichlorobenzene	ND		ug/kg dry	37700	15100	25	07/11/19	07/12/19 16:23	WB
1,4-Dichlorobenzene	ND		ug/kg dry	37700	15100	25	07/11/19	07/12/19 16:23	WB
3,3-Dichlorobenzidine	ND		ug/kg dry	75300	75300	25	07/11/19	07/12/19 16:23	WB
2,4-Dichlorophenol	ND		ug/kg dry	37700	15100	25	07/11/19	07/12/19 16:23	WB
Diethyl phthalate	ND		ug/kg dry	37700	15100	25	07/11/19	07/12/19 16:23	WB
Dimethyl phthalate	ND		ug/kg dry	37700	15100	25	07/11/19	07/12/19 16:23	WB
2,4-Dimethylphenol	ND		ug/kg dry	37700	15100	25	07/11/19	07/12/19 16:23	WB
2-Methyl-4,6-dinitrophenol	ND		ug/kg dry	188000	188000	25	07/11/19	07/12/19 16:23	WB
2,4-Dinitrophenol	ND		ug/kg dry	188000	188000	25	07/11/19	07/12/19 16:23	WB

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410-247-7600
www.mdspectral.com

Project: Annapolis Public Works

Project Number: 19-416A
Project Manager: Keith Progin

Reported:
07/23/19 17:23

SB-1

9071111-01RE1 (Soil)
Sample Date: 07/11/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 3540/8270D (GC/MS) (continued)									
2,4-Dinitrotoluene	ND		ug/kg dry	37700	15100	25	07/11/19	07/12/19 16:23	WB
2,6-Dinitrotoluene	ND		ug/kg dry	37700	15100	25	07/11/19	07/12/19 16:23	WB
Bis(2-ethylhexyl) phthalate	ND		ug/kg dry	37700	15100	25	07/11/19	07/12/19 16:23	WB
Fluoranthene	**425000**		ug/kg dry	37700	15100	25	07/11/19	07/12/19 16:23	WB
Fluorene	**116000**		ug/kg dry	37700	15100	25	07/11/19	07/12/19 16:23	WB
Hexachlorobenzene	ND		ug/kg dry	37700	15100	25	07/11/19	07/12/19 16:23	WB
Hexachlorobutadiene	ND		ug/kg dry	37700	15100	25	07/11/19	07/12/19 16:23	WB
Hexachlorocyclopentadiene	ND		ug/kg dry	37700	15100	25	07/11/19	07/12/19 16:23	WB
Hexachloroethane	ND		ug/kg dry	37700	15100	25	07/11/19	07/12/19 16:23	WB
Indeno[1,2,3-cd]pyrene	**111000**		ug/kg dry	37700	15100	25	07/11/19	07/12/19 16:23	WB
Isophorone	ND		ug/kg dry	37700	15100	25	07/11/19	07/12/19 16:23	WB
2-Methylnaphthalene	**48600**		ug/kg dry	37700	15100	25	07/11/19	07/12/19 16:23	WB
3&4-Methylphenol	ND		ug/kg dry	37700	15100	25	07/11/19	07/12/19 16:23	WB
2-Methylphenol	ND		ug/kg dry	37700	15100	25	07/11/19	07/12/19 16:23	WB
N-Nitroso-di-n-propylamine	ND		ug/kg dry	37700	15100	25	07/11/19	07/12/19 16:23	WB
N-Nitrosodiphenylamine	ND		ug/kg dry	37700	15100	25	07/11/19	07/12/19 16:23	WB
Naphthalene	**102000**		ug/kg dry	37700	15100	25	07/11/19	07/12/19 16:23	WB
2-Nitroaniline	ND		ug/kg dry	188000	188000	25	07/11/19	07/12/19 16:23	WB
3-Nitroaniline	ND		ug/kg dry	188000	188000	25	07/11/19	07/12/19 16:23	WB
4-Nitroaniline	ND		ug/kg dry	188000	188000	25	07/11/19	07/12/19 16:23	WB
Nitrobenzene	ND		ug/kg dry	37700	15100	25	07/11/19	07/12/19 16:23	WB
2-Nitrophenol	ND		ug/kg dry	37700	15100	25	07/11/19	07/12/19 16:23	WB
4-Nitrophenol	ND		ug/kg dry	188000	188000	25	07/11/19	07/12/19 16:23	WB
Pentachlorophenol	ND		ug/kg dry	188000	188000	25	07/11/19	07/12/19 16:23	WB
Phenanthrene	**507000**		ug/kg dry	37700	15100	25	07/11/19	07/12/19 16:23	WB
Phenol	ND		ug/kg dry	37700	15100	25	07/11/19	07/12/19 16:23	WB
Pyrene	**350000**		ug/kg dry	37700	15100	25	07/11/19	07/12/19 16:23	WB
1,2,4-Trichlorobenzene	ND		ug/kg dry	37700	15100	25	07/11/19	07/12/19 16:23	WB
2,4,5-Trichlorophenol	ND		ug/kg dry	37700	15100	25	07/11/19	07/12/19 16:23	WB
2,4,6-Trichlorophenol	ND		ug/kg dry	37700	15100	25	07/11/19	07/12/19 16:23	WB

Surrogate: 2-Fluorophenol	*23-121*	*%*	*07/11/19*	*07/12/19 16:23*	*S-01*
Surrogate: Phenol-d5	*24-113*	*%*	*07/11/19*	*07/12/19 16:23*	*S-01*
Surrogate: Nitrobenzene-d5	*23-120*	*%*	*07/11/19*	*07/12/19 16:23*	*S-01*
Surrogate: 2,4,6-Tribromophenol	*19-122*	*%*	*07/11/19*	*07/12/19 16:23*	*S-01*

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410-247-7600
www.mdspectral.com

Project: Annapolis Public Works

Project Number: 19-416A
Project Manager: Keith Progin

Reported:
07/23/19 17:23

SB-1

9071111-01RE1 (Soil)
Sample Date: 07/11/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 3540/8270D (GC/MS) (continued)									
Surrogate: 2-Fluorobiphenyl			*30-115*	*%*		*07/11/19*	*07/12/19 16:23*		*S-01*
Surrogate: Terphenyl-d14			*18-137*	*%*		*07/11/19*	*07/12/19 16:23*		*S-01*

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Maryland spectral Services

Analytical Chemistry Services

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Baltimore MD 21227
410-247-7600
www.mdspectral.com

Analytical Results

Project: Annapolis Public Works

Project Number: 19-416A
Project Manager: Keith Progin

Reported:
07/23/19 17:23

SB-1

9071111-01RE2 (Soil)
Sample Date: 07/11/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	**307**		mg/kg dry	19.3	19.3	2	07/16/19	07/17/19 23:02	SJA
Surrogate: o-Terphenyl			*70-130*	*86 %*		*07/16/19*		*07/17/19 23:02*	

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Maryland spectral Services

Analytical Chemistry Services

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Analytical Results

Project: Annapolis Public Works

Project Number: 19-416A
Project Manager: Keith Progin

Reported:
07/23/19 17:23

SB-2

9071111-02 (Soil)
Sample Date: 07/11/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
VOLATILE ORGANICS BY EPA METHOD 8260B (GC/MS)									
Acetone	ND		ug/kg dry	12.7	12.7	1	07/16/19	07/16/19 14:48	GM
tert-Amyl alcohol (TAA)	ND		ug/kg dry	63.3	63.3	1	07/16/19	07/16/19 14:48	GM
tert-Amyl methyl ether (TAME)	ND		ug/kg dry	6.3	2.5	1	07/16/19	07/16/19 14:48	GM
Benzene	ND		ug/kg dry	6.3	2.5	1	07/16/19	07/16/19 14:48	GM
Bromobenzene	ND		ug/kg dry	6.3	2.5	1	07/16/19	07/16/19 14:48	GM
Bromochloromethane	ND		ug/kg dry	6.3	2.5	1	07/16/19	07/16/19 14:48	GM
Bromodichloromethane	ND		ug/kg dry	6.3	2.5	1	07/16/19	07/16/19 14:48	GM
Bromoform	ND		ug/kg dry	6.3	2.5	1	07/16/19	07/16/19 14:48	GM
Bromomethane	ND		ug/kg dry	6.3	6.3	1	07/16/19	07/16/19 14:48	GM
tert-Butanol (TBA)	ND		ug/kg dry	63.3	63.3	1	07/16/19	07/16/19 14:48	GM
2-Butanone (MEK)	ND		ug/kg dry	12.7	12.7	1	07/16/19	07/16/19 14:48	GM
n-Butylbenzene	ND		ug/kg dry	6.3	2.5	1	07/16/19	07/16/19 14:48	GM
sec-Butylbenzene	ND		ug/kg dry	6.3	2.5	1	07/16/19	07/16/19 14:48	GM
tert-Butylbenzene	ND		ug/kg dry	6.3	2.5	1	07/16/19	07/16/19 14:48	GM
Carbon disulfide	ND		ug/kg dry	6.3	2.5	1	07/16/19	07/16/19 14:48	GM
Carbon tetrachloride	ND		ug/kg dry	6.3	2.5	1	07/16/19	07/16/19 14:48	GM
Chlorobenzene	ND		ug/kg dry	6.3	2.5	1	07/16/19	07/16/19 14:48	GM
Chloroethane	ND		ug/kg dry	6.3	6.3	1	07/16/19	07/16/19 14:48	GM
Chloroform	ND		ug/kg dry	6.3	2.5	1	07/16/19	07/16/19 14:48	GM
Chloromethane	ND		ug/kg dry	6.3	6.3	1	07/16/19	07/16/19 14:48	GM
2-Chlorotoluene	ND		ug/kg dry	6.3	2.5	1	07/16/19	07/16/19 14:48	GM
4-Chlorotoluene	ND		ug/kg dry	6.3	2.5	1	07/16/19	07/16/19 14:48	GM
1,2-Dibromo-3-chloropropane	ND		ug/kg dry	6.3	2.5	1	07/16/19	07/16/19 14:48	GM
Dibromochloromethane	ND		ug/kg dry	6.3	2.5	1	07/16/19	07/16/19 14:48	GM
1,2-Dibromoethane (EDB)	ND		ug/kg dry	6.3	2.5	1	07/16/19	07/16/19 14:48	GM
Dibromomethane	ND		ug/kg dry	6.3	2.5	1	07/16/19	07/16/19 14:48	GM
1,2-Dichlorobenzene	ND		ug/kg dry	6.3	2.5	1	07/16/19	07/16/19 14:48	GM
1,3-Dichlorobenzene	ND		ug/kg dry	6.3	2.5	1	07/16/19	07/16/19 14:48	GM
1,4-Dichlorobenzene	ND		ug/kg dry	6.3	2.5	1	07/16/19	07/16/19 14:48	GM
Dichlorodifluoromethane	ND		ug/kg dry	6.3	2.5	1	07/16/19	07/16/19 14:48	GM
1,1-Dichloroethane	ND		ug/kg dry	6.3	2.5	1	07/16/19	07/16/19 14:48	GM
1,2-Dichloroethane	ND		ug/kg dry	6.3	2.5	1	07/16/19	07/16/19 14:48	GM
1,1-Dichloroethene	ND		ug/kg dry	6.3	2.5	1	07/16/19	07/16/19 14:48	GM

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Project: Annapolis Public Works

Project Number: 19-416A
Project Manager: Keith Progin

Reported:
07/23/19 17:23

SB-2

9071111-02 (Soil)
Sample Date: 07/11/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
VOLATILE ORGANICS BY EPA METHOD 8260B (GC/MS) (continued)									
cis-1,2-Dichloroethene	ND		ug/kg dry	6.3	2.5	1	07/16/19	07/16/19 14:48	GM
trans-1,2-Dichloroethene	ND		ug/kg dry	6.3	2.5	1	07/16/19	07/16/19 14:48	GM
Dichlorofluoromethane	ND		ug/kg dry	6.3	2.5	1	07/16/19	07/16/19 14:48	GM
1,2-Dichloropropane	ND		ug/kg dry	6.3	2.5	1	07/16/19	07/16/19 14:48	GM
1,3-Dichloropropane	ND		ug/kg dry	6.3	2.5	1	07/16/19	07/16/19 14:48	GM
2,2-Dichloropropane	ND		ug/kg dry	6.3	2.5	1	07/16/19	07/16/19 14:48	GM
1,1-Dichloropropene	ND		ug/kg dry	6.3	2.5	1	07/16/19	07/16/19 14:48	GM
cis-1,3-Dichloropropene	ND		ug/kg dry	6.3	2.5	1	07/16/19	07/16/19 14:48	GM
trans-1,3-Dichloropropene	ND		ug/kg dry	6.3	2.5	1	07/16/19	07/16/19 14:48	GM
Diisopropyl ether (DIPE)	ND		ug/kg dry	6.3	2.5	1	07/16/19	07/16/19 14:48	GM
Ethyl tert-butyl ether (ETBE)	ND		ug/kg dry	6.3	2.5	1	07/16/19	07/16/19 14:48	GM
Ethylbenzene	ND		ug/kg dry	6.3	2.5	1	07/16/19	07/16/19 14:48	GM
Hexachlorobutadiene	ND		ug/kg dry	6.3	2.5	1	07/16/19	07/16/19 14:48	GM
2-Hexanone	ND		ug/kg dry	12.7	12.7	1	07/16/19	07/16/19 14:48	GM
Isopropylbenzene (Cumene)	ND		ug/kg dry	6.3	2.5	1	07/16/19	07/16/19 14:48	GM
4-Isopropyltoluene	ND		ug/kg dry	6.3	2.5	1	07/16/19	07/16/19 14:48	GM
Methyl tert-butyl ether (MTBE)	ND		ug/kg dry	6.3	2.5	1	07/16/19	07/16/19 14:48	GM
4-Methyl-2-pentanone	ND		ug/kg dry	12.7	12.7	1	07/16/19	07/16/19 14:48	GM
Methylene chloride	ND		ug/kg dry	25.3	25.3	1	07/16/19	07/16/19 14:48	GM
Naphthalene	ND		ug/kg dry	6.3	2.5	1	07/16/19	07/16/19 14:48	GM
n-Propylbenzene	ND		ug/kg dry	6.3	2.5	1	07/16/19	07/16/19 14:48	GM
Styrene	ND		ug/kg dry	6.3	2.5	1	07/16/19	07/16/19 14:48	GM
1,1,1,2-Tetrachloroethane	ND		ug/kg dry	6.3	2.5	1	07/16/19	07/16/19 14:48	GM
1,1,2,2-Tetrachloroethane	ND		ug/kg dry	6.3	2.5	1	07/16/19	07/16/19 14:48	GM
Tetrachloroethene	ND		ug/kg dry	6.3	2.5	1	07/16/19	07/16/19 14:48	GM
Toluene	ND		ug/kg dry	6.3	2.5	1	07/16/19	07/16/19 14:48	GM
1,2,3-Trichlorobenzene	ND		ug/kg dry	6.3	2.5	1	07/16/19	07/16/19 14:48	GM
1,2,4-Trichlorobenzene	ND		ug/kg dry	6.3	2.5	1	07/16/19	07/16/19 14:48	GM
1,1,1-Trichloroethane	ND		ug/kg dry	6.3	2.5	1	07/16/19	07/16/19 14:48	GM
1,1,2-Trichloroethane	ND		ug/kg dry	6.3	2.5	1	07/16/19	07/16/19 14:48	GM
Trichloroethene	ND		ug/kg dry	6.3	2.5	1	07/16/19	07/16/19 14:48	GM
Trichlorofluoromethane (Freon 11)	ND		ug/kg dry	6.3	2.5	1	07/16/19	07/16/19 14:48	GM
1,2,3-Trichloropropane	ND		ug/kg dry	6.3	2.5	1	07/16/19	07/16/19 14:48	GM

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

Project: Annapolis Public Works

Project Number: 19-416A
Project Manager: Keith Progin

Reported:
07/23/19 17:23

SB-2

9071111-02 (Soil)
Sample Date: 07/11/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
VOLATILE ORGANICS BY EPA METHOD 8260B (GC/MS) (continued)									
1,2,4-Trimethylbenzene	ND		ug/kg dry	6.3	2.5	1	07/16/19	07/16/19 14:48	GM
1,3,5-Trimethylbenzene	ND		ug/kg dry	6.3	2.5	1	07/16/19	07/16/19 14:48	GM
Vinyl chloride	ND		ug/kg dry	6.3	2.5	1	07/16/19	07/16/19 14:48	GM
o-Xylene	ND		ug/kg dry	6.3	2.5	1	07/16/19	07/16/19 14:48	GM
m- & p-Xylenes	ND		ug/kg dry	6.3	2.5	1	07/16/19	07/16/19 14:48	GM
Surrogate: 1,2-Dichloroethane-d4			*70-130*	*104 %*	*07/16/19*		*07/16/19 14:48*		
Surrogate: Toluene-d8			*75-120*	*102 %*	*07/16/19*		*07/16/19 14:48*		
Surrogate: 4-Bromofluorobenzene			*65-120*	*93 %*	*07/16/19*		*07/16/19 14:48*		
SEMIVOLATILE ORGANICS BY EPA METHOD 3540/8270D (GC/MS)									
Acenaphthene	ND		ug/kg dry	316	127	1	07/11/19	07/12/19 13:45	WB
Acenaphthylene	ND		ug/kg dry	316	127	1	07/11/19	07/12/19 13:45	WB
Anthracene	ND		ug/kg dry	316	127	1	07/11/19	07/12/19 13:45	WB
Benzo[a]anthracene	ND		ug/kg dry	316	127	1	07/11/19	07/12/19 13:45	WB
Benzo[b]fluoranthene	ND		ug/kg dry	316	127	1	07/11/19	07/12/19 13:45	WB
Benzo[k]fluoranthene	ND		ug/kg dry	316	127	1	07/11/19	07/12/19 13:45	WB
Benzo[ghi]perylene	ND		ug/kg dry	316	127	1	07/11/19	07/12/19 13:45	WB
Benzo[a]pyrene	ND		ug/kg dry	316	127	1	07/11/19	07/12/19 13:45	WB
4-Bromophenyl phenyl ether	ND		ug/kg dry	316	127	1	07/11/19	07/12/19 13:45	WB
Butyl benzyl phthalate	ND		ug/kg dry	316	127	1	07/11/19	07/12/19 13:45	WB
Carbazole	ND		ug/kg dry	316	127	1	07/11/19	07/12/19 13:45	WB
4-Chloro-3-methylphenol	ND		ug/kg dry	316	127	1	07/11/19	07/12/19 13:45	WB
4-Chloroaniline	ND		ug/kg dry	316	127	1	07/11/19	07/12/19 13:45	WB
Bis(2-chloroethoxy)methane	ND		ug/kg dry	316	127	1	07/11/19	07/12/19 13:45	WB
Bis(2-chloroethyl) ether	ND		ug/kg dry	316	127	1	07/11/19	07/12/19 13:45	WB
2,2'-Oxybis(1-Chloropropane)	ND		ug/kg dry	316	127	1	07/11/19	07/12/19 13:45	WB
2-Chloronaphthalene	ND		ug/kg dry	316	127	1	07/11/19	07/12/19 13:45	WB
2-Chlorophenol	ND		ug/kg dry	316	127	1	07/11/19	07/12/19 13:45	WB
4-Chlorophenyl phenyl ether	ND		ug/kg dry	316	127	1	07/11/19	07/12/19 13:45	WB
Chrysene	ND		ug/kg dry	316	127	1	07/11/19	07/12/19 13:45	WB
Di-n-butyl phthalate	ND		ug/kg dry	316	127	1	07/11/19	07/12/19 13:45	WB
Di-n-octyl phthalate	ND		ug/kg dry	316	127	1	07/11/19	07/12/19 13:45	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	316	127	1	07/11/19	07/12/19 13:45	WB
Dibenzofuran	ND		ug/kg dry	316	127	1	07/11/19	07/12/19 13:45	WB

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410-247-7600
www.mdspectral.com

Project: Annapolis Public Works

Project Number: 19-416A
Project Manager: Keith Progin

Reported:
07/23/19 17:23

SB-2

9071111-02 (Soil)
Sample Date: 07/11/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 3540/8270D (GC/MS) (continued)									
1,2-Dichlorobenzene	ND		ug/kg dry	316	127	1	07/11/19	07/12/19 13:45	WB
1,3-Dichlorobenzene	ND		ug/kg dry	316	127	1	07/11/19	07/12/19 13:45	WB
1,4-Dichlorobenzene	ND		ug/kg dry	316	127	1	07/11/19	07/12/19 13:45	WB
3,3-Dichlorobenzidine	ND		ug/kg dry	633	633	1	07/11/19	07/12/19 13:45	WB
2,4-Dichlorophenol	ND		ug/kg dry	316	127	1	07/11/19	07/12/19 13:45	WB
Diethyl phthalate	ND		ug/kg dry	316	127	1	07/11/19	07/12/19 13:45	WB
Dimethyl phthalate	ND		ug/kg dry	316	127	1	07/11/19	07/12/19 13:45	WB
2,4-Dimethylphenol	ND		ug/kg dry	316	127	1	07/11/19	07/12/19 13:45	WB
2-Methyl-4,6-dinitrophenol	ND		ug/kg dry	1580	1580	1	07/11/19	07/12/19 13:45	WB
2,4-Dinitrophenol	ND		ug/kg dry	1580	1580	1	07/11/19	07/12/19 13:45	WB
2,4-Dinitrotoluene	ND		ug/kg dry	316	127	1	07/11/19	07/12/19 13:45	WB
2,6-Dinitrotoluene	ND		ug/kg dry	316	127	1	07/11/19	07/12/19 13:45	WB
Bis(2-ethylhexyl) phthalate	ND		ug/kg dry	316	127	1	07/11/19	07/12/19 13:45	WB
Fluoranthene	ND		ug/kg dry	316	127	1	07/11/19	07/12/19 13:45	WB
Fluorene	ND		ug/kg dry	316	127	1	07/11/19	07/12/19 13:45	WB
Hexachlorobenzene	ND		ug/kg dry	316	127	1	07/11/19	07/12/19 13:45	WB
Hexachlorobutadiene	ND		ug/kg dry	316	127	1	07/11/19	07/12/19 13:45	WB
Hexachlorocyclopentadiene	ND		ug/kg dry	316	127	1	07/11/19	07/12/19 13:45	WB
Hexachloroethane	ND		ug/kg dry	316	127	1	07/11/19	07/12/19 13:45	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	316	127	1	07/11/19	07/12/19 13:45	WB
Isophorone	ND		ug/kg dry	316	127	1	07/11/19	07/12/19 13:45	WB
2-Methylnaphthalene	ND		ug/kg dry	316	127	1	07/11/19	07/12/19 13:45	WB
3&4-Methylphenol	ND		ug/kg dry	316	127	1	07/11/19	07/12/19 13:45	WB
2-Methylphenol	ND		ug/kg dry	316	127	1	07/11/19	07/12/19 13:45	WB
N-Nitroso-di-n-propylamine	ND		ug/kg dry	316	127	1	07/11/19	07/12/19 13:45	WB
N-Nitrosodiphenylamine	ND		ug/kg dry	316	127	1	07/11/19	07/12/19 13:45	WB
Naphthalene	ND		ug/kg dry	316	127	1	07/11/19	07/12/19 13:45	WB
2-Nitroaniline	ND		ug/kg dry	1580	1580	1	07/11/19	07/12/19 13:45	WB
3-Nitroaniline	ND		ug/kg dry	1580	1580	1	07/11/19	07/12/19 13:45	WB
4-Nitroaniline	ND		ug/kg dry	1580	1580	1	07/11/19	07/12/19 13:45	WB
Nitrobenzene	ND		ug/kg dry	316	127	1	07/11/19	07/12/19 13:45	WB
2-Nitrophenol	ND		ug/kg dry	316	127	1	07/11/19	07/12/19 13:45	WB
4-Nitrophenol	ND		ug/kg dry	1580	1580	1	07/11/19	07/12/19 13:45	WB

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410-247-7600
www.mdspectral.com

Project: Annapolis Public Works

Project Number: 19-416A
Project Manager: Keith Progin

Reported:
07/23/19 17:23

SB-2

9071111-02 (Soil)
Sample Date: 07/11/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 3540/8270D (GC/MS) (continued)									
Pentachlorophenol	ND		ug/kg dry	1580	1580	1	07/11/19	07/12/19 13:45	WB
Phenanthrene	ND		ug/kg dry	316	127	1	07/11/19	07/12/19 13:45	WB
Phenol	ND		ug/kg dry	316	127	1	07/11/19	07/12/19 13:45	WB
Pyrene	ND		ug/kg dry	316	127	1	07/11/19	07/12/19 13:45	WB
1,2,4-Trichlorobenzene	ND		ug/kg dry	316	127	1	07/11/19	07/12/19 13:45	WB
2,4,5-Trichlorophenol	ND		ug/kg dry	316	127	1	07/11/19	07/12/19 13:45	WB
2,4,6-Trichlorophenol	ND		ug/kg dry	316	127	1	07/11/19	07/12/19 13:45	WB
Surrogate: 2-Fluorophenol			*23-121*	*69 %*	*07/11/19*		*07/12/19 13:45*		
Surrogate: Phenol-d5			*24-113*	*71 %*	*07/11/19*		*07/12/19 13:45*		
Surrogate: Nitrobenzene-d5			*23-120*	*77 %*	*07/11/19*		*07/12/19 13:45*		
Surrogate: 2,4,6-Tribromophenol			*19-122*	*80 %*	*07/11/19*		*07/12/19 13:45*		
Surrogate: 2-Fluorobiphenyl			*30-115*	*74 %*	*07/11/19*		*07/12/19 13:45*		
Surrogate: Terphenyl-d14			*18-137*	*80 %*	*07/11/19*		*07/12/19 13:45*		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.13	0.13	1	07/17/19	07/17/19 15:41	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	ND		mg/kg dry	10.1	10.1	1	07/11/19	07/13/19 01:20	SJA
Surrogate: o-Terphenyl			*70-130*	*78 %*	*07/11/19*		*07/13/19 01:20*		
PERCENT SOLIDS BY ASTM D2216-05									
Percent Solids	**79**		%			1	07/17/19	07/18/19 11:22	CEB
POLYCHLORINATED BIPHENYLS BY EPA 3540/8082A (GC/ECD)									
Aroclor-1016	ND		ug/kg dry	105	105	1	07/11/19	07/12/19 17:58	SJA
Aroclor-1221	ND		ug/kg dry	215	215	1	07/11/19	07/12/19 17:58	SJA
Aroclor-1232	ND		ug/kg dry	105	105	1	07/11/19	07/12/19 17:58	SJA
Aroclor-1242	ND		ug/kg dry	105	105	1	07/11/19	07/12/19 17:58	SJA
Aroclor-1248	ND		ug/kg dry	105	105	1	07/11/19	07/12/19 17:58	SJA
Aroclor-1254	ND		ug/kg dry	105	105	1	07/11/19	07/12/19 17:58	SJA
Aroclor-1260	ND		ug/kg dry	105	105	1	07/11/19	07/12/19 17:58	SJA
Aroclor-1262	ND		ug/kg dry	105	105	1	07/11/19	07/12/19 17:58	SJA
Aroclor-1268	ND		ug/kg dry	105	105	1	07/11/19	07/12/19 17:58	SJA
Surrogate: Tetrachloro-m-xylene			*40-150*	*67 %*	*07/11/19*		*07/12/19 17:58*		
Surrogate: Decachlorobiphenyl			*40-150*	*80 %*	*07/11/19*		*07/12/19 17:58*		

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Maryland spectral Services

Analytical Chemistry Services

1500 Caton Center Dr Suite G
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Analytical Results

Project: Annapolis Public Works

Project Number: 19-416A
Project Manager: Keith Progin

Reported:
07/23/19 17:23

SB-2

9071111-02 (Soil)
Sample Date: 07/11/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
TOTAL METALS ANALYSIS BY EPA 3050B/6020A									
Antimony	**12.5**		mg/kg dry	0.316	0.316	1	07/15/19	07/17/19 18:12	VVD
Arsenic	**67.4**		mg/kg dry	0.316	0.316	1	07/15/19	07/17/19 18:12	VVD
Beryllium	**0.530**		mg/kg dry	0.316	0.316	1	07/15/19	07/17/19 18:12	VVD
Cadmium	**2.82**		mg/kg dry	0.316	0.316	1	07/15/19	07/17/19 18:12	VVD
Chromium	**44.7**		mg/kg dry	0.316	0.316	1	07/15/19	07/17/19 18:12	VVD
Copper	**122**		mg/kg dry	0.316	0.316	1	07/15/19	07/17/19 18:12	VVD
Lead	**5600**		mg/kg dry	15.8	15.8	50	07/15/19	07/17/19 17:07	VVD
Mercury	**0.373**		mg/kg dry	0.0158	0.0158	1	07/15/19	07/17/19 18:12	VVD
Nickel	**63.4**		mg/kg dry	0.316	0.316	1	07/15/19	07/17/19 18:12	VVD
Selenium	**1.81**		mg/kg dry	0.316	0.316	1	07/15/19	07/17/19 18:12	VVD
Silver	**0.677**		mg/kg dry	0.316	0.316	1	07/15/19	07/17/19 18:12	VVD
Thallium	ND		mg/kg dry	0.316	0.316	1	07/15/19	07/17/19 18:12	VVD
Zinc	**1070**		mg/kg dry	79.1	79.1	50	07/15/19	07/17/19 17:07	VVD
Wet Chemistry Performed at Enviro-Chem									
% Solids	**76.0**		%	1.00	1.00	1	07/15/19	07/15/19 16:08	FRD
Cyanide, Total	**7.82**		mg/kg dry	0.662	0.662	1	07/17/19	07/18/19 12:55	FRD
Dioxins and Furans by Isotope Dilution HRGC/HRMS Performed at PACE-MN									
1,2,3,4,6,7,8-HpCDD	**16**		ng/Kg	5.0	0.49	1	07/16/19	07/22/19 16:31	SMT
1,2,3,4,6,7,8-HpCDF	**15**		ng/Kg	5.0	0.59	1	07/16/19	07/22/19 16:31	SMT
1,2,3,4,7,8,9-HpCDF	ND		ng/Kg	5.0	0.48	1	07/16/19	07/22/19 16:31	SMT
1,2,3,4,7,8-HxCDD	ND		ng/Kg	5.0	0.20	1	07/16/19	07/22/19 16:31	SMT
1,2,3,4,7,8-HxCDF	ND		ng/Kg	5.0	0.28	1	07/16/19	07/22/19 16:31	SMT
1,2,3,6,7,8-HxCDD	ND		ng/Kg	5.0	0.19	1	07/16/19	07/22/19 16:31	SMT
1,2,3,6,7,8-HxCDF	ND		ng/Kg	5.0	0.28	1	07/16/19	07/22/19 16:31	SMT
1,2,3,7,8,9-HxCDD	ND		ng/Kg	5.0	0.20	1	07/16/19	07/22/19 16:31	SMT
1,2,3,7,8,9-HxCDF	ND		ng/Kg	5.0	0.25	1	07/16/19	07/22/19 16:31	SMT
1,2,3,7,8-PeCDD	ND		ng/Kg	5.0	0.21	1	07/16/19	07/22/19 16:31	SMT
1,2,3,7,8-PeCDF	ND		ng/Kg	5.0	0.73	1	07/16/19	07/22/19 16:31	SMT
2,3,4,6,7,8-HxCDF	ND		ng/Kg	5.0	0.30	1	07/16/19	07/22/19 16:31	SMT
2,3,4,7,8-PeCDF	ND		ng/Kg	5.0	0.31	1	07/16/19	07/22/19 16:31	SMT
2,3,7,8-TCDD	ND		ng/Kg	1.0	0.33	1	07/16/19	07/22/19 16:31	SMT
2,3,7,8-TCDF	ND		ng/Kg	1.0	0.95	1	07/16/19	07/22/19 16:31	SMT
OCDD	**140**		ng/Kg	10	2.4	1	07/16/19	07/22/19 16:31	SMT
OCDF	ND		ng/Kg	10	0.72	1	07/16/19	07/22/19 16:31	SMT

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Project Number: 19-416A
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07/23/19 17:23

SB-2

9071111-02 (Soil)
Sample Date: 07/11/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Dioxins and Furans by Isotope Dilution HRGC/HRMS Performed at PACE-MN (continued)									
Total HpCDD	**25**		ng/Kg	5.0	0.49	1	07/16/19	07/22/19 16:31	SMT
Total HpCDF	**27**		ng/Kg	5.0	0.54	1	07/16/19	07/22/19 16:31	SMT
Total HxCDD	ND		ng/Kg	5.0	0.20	1	07/16/19	07/22/19 16:31	SMT
Total HxCDF	ND		ng/Kg	5.0	0.28	1	07/16/19	07/22/19 16:31	SMT
Total PeCDD	ND		ng/Kg	5.0	0.21	1	07/16/19	07/22/19 16:31	SMT
Total PeCDF	ND		ng/Kg	5.0	0.52	1	07/16/19	07/22/19 16:31	SMT
Total TCDD	ND		ng/Kg	1.0	0.33	1	07/16/19	07/22/19 16:31	SMT
Total TCDF	**2.4**		ng/Kg	1.0	0.95	1	07/16/19	07/22/19 16:31	SMT
Surrogate: 1,2,3,4,6,7,8-HpCDD-13C			*40.0-135.0*	*58 %*			*07/16/19*	*07/22/19 16:31*	
Surrogate: 1,2,3,4,6,7,8-HpCDF-13C			*40.0-135.0*	*51 %*			*07/16/19*	*07/22/19 16:31*	
Surrogate: 1,2,3,4,7,8,9-HpCDF-13C			*40.0-135.0*	*54 %*			*07/16/19*	*07/22/19 16:31*	
Surrogate: 1,2,3,4,7,8-HxCDD-13C			*40.0-135.0*	*56 %*			*07/16/19*	*07/22/19 16:31*	
Surrogate: 1,2,3,4,7,8-HxCDF-13C			*40.0-135.0*	*58 %*			*07/16/19*	*07/22/19 16:31*	
Surrogate: 1,2,3,6,7,8-HxCDD-13C			*40.0-135.0*	*54 %*			*07/16/19*	*07/22/19 16:31*	
Surrogate: 1,2,3,6,7,8-HxCDF-13C			*40.0-135.0*	*61 %*			*07/16/19*	*07/22/19 16:31*	
Surrogate: 1,2,3,7,8,9-HxCDF-13C			*40.0-135.0*	*58 %*			*07/16/19*	*07/22/19 16:31*	
Surrogate: 1,2,3,7,8-PeCDD-13C			*40.0-135.0*	*64 %*			*07/16/19*	*07/22/19 16:31*	
Surrogate: 1,2,3,7,8-PeCDF-13C			*40.0-135.0*	*62 %*			*07/16/19*	*07/22/19 16:31*	
Surrogate: 2,3,4,6,7,8-HxCDF-13C			*40.0-135.0*	*60 %*			*07/16/19*	*07/22/19 16:31*	
Surrogate: 2,3,4,7,8-PeCDF-13C			*40.0-135.0*	*60 %*			*07/16/19*	*07/22/19 16:31*	
Surrogate: 2,3,7,8-TCDD-13C			*40.0-135.0*	*57 %*			*07/16/19*	*07/22/19 16:31*	
Surrogate: 2,3,7,8-TCDF-13C			*40.0-135.0*	*56 %*			*07/16/19*	*07/22/19 16:31*	
Surrogate: OCDD-13C			*40.0-135.0*	*51 %*			*07/16/19*	*07/22/19 16:31*	

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Baltimore MD 21227
410-247-7600
www.mdspectral.com

Project: Annapolis Public Works

Project Number: 19-416A
Project Manager: Keith Progin

Reported:
07/23/19 17:23

SB-3

9071111-03 (Soil)
Sample Date: 07/11/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
VOLATILE ORGANICS BY EPA METHOD 8260B (GC/MS)									
Acetone	ND		ug/kg dry	13.7	13.7	1	07/16/19	07/16/19 15:15	GM
tert-Amyl alcohol (TAA)	ND		ug/kg dry	68.5	68.5	1	07/16/19	07/16/19 15:15	GM
tert-Amyl methyl ether (TAME)	ND		ug/kg dry	6.8	2.7	1	07/16/19	07/16/19 15:15	GM
Benzene	ND		ug/kg dry	6.8	2.7	1	07/16/19	07/16/19 15:15	GM
Bromobenzene	ND		ug/kg dry	6.8	2.7	1	07/16/19	07/16/19 15:15	GM
Bromochloromethane	ND		ug/kg dry	6.8	2.7	1	07/16/19	07/16/19 15:15	GM
Bromodichloromethane	ND		ug/kg dry	6.8	2.7	1	07/16/19	07/16/19 15:15	GM
Bromoform	ND		ug/kg dry	6.8	2.7	1	07/16/19	07/16/19 15:15	GM
Bromomethane	ND		ug/kg dry	6.8	6.8	1	07/16/19	07/16/19 15:15	GM
tert-Butanol (TBA)	ND		ug/kg dry	68.5	68.5	1	07/16/19	07/16/19 15:15	GM
2-Butanone (MEK)	ND		ug/kg dry	13.7	13.7	1	07/16/19	07/16/19 15:15	GM
n-Butylbenzene	ND		ug/kg dry	6.8	2.7	1	07/16/19	07/16/19 15:15	GM
sec-Butylbenzene	ND		ug/kg dry	6.8	2.7	1	07/16/19	07/16/19 15:15	GM
tert-Butylbenzene	ND		ug/kg dry	6.8	2.7	1	07/16/19	07/16/19 15:15	GM
Carbon disulfide	ND		ug/kg dry	6.8	2.7	1	07/16/19	07/16/19 15:15	GM
Carbon tetrachloride	ND		ug/kg dry	6.8	2.7	1	07/16/19	07/16/19 15:15	GM
Chlorobenzene	ND		ug/kg dry	6.8	2.7	1	07/16/19	07/16/19 15:15	GM
Chloroethane	ND		ug/kg dry	6.8	6.8	1	07/16/19	07/16/19 15:15	GM
Chloroform	ND		ug/kg dry	6.8	2.7	1	07/16/19	07/16/19 15:15	GM
Chloromethane	ND		ug/kg dry	6.8	6.8	1	07/16/19	07/16/19 15:15	GM
2-Chlorotoluene	ND		ug/kg dry	6.8	2.7	1	07/16/19	07/16/19 15:15	GM
4-Chlorotoluene	ND		ug/kg dry	6.8	2.7	1	07/16/19	07/16/19 15:15	GM
1,2-Dibromo-3-chloropropane	ND		ug/kg dry	6.8	2.7	1	07/16/19	07/16/19 15:15	GM
Dibromochloromethane	ND		ug/kg dry	6.8	2.7	1	07/16/19	07/16/19 15:15	GM
1,2-Dibromoethane (EDB)	ND		ug/kg dry	6.8	2.7	1	07/16/19	07/16/19 15:15	GM
Dibromomethane	ND		ug/kg dry	6.8	2.7	1	07/16/19	07/16/19 15:15	GM
1,2-Dichlorobenzene	ND		ug/kg dry	6.8	2.7	1	07/16/19	07/16/19 15:15	GM
1,3-Dichlorobenzene	ND		ug/kg dry	6.8	2.7	1	07/16/19	07/16/19 15:15	GM
1,4-Dichlorobenzene	ND		ug/kg dry	6.8	2.7	1	07/16/19	07/16/19 15:15	GM
Dichlorodifluoromethane	ND		ug/kg dry	6.8	2.7	1	07/16/19	07/16/19 15:15	GM
1,1-Dichloroethane	ND		ug/kg dry	6.8	2.7	1	07/16/19	07/16/19 15:15	GM
1,2-Dichloroethane	ND		ug/kg dry	6.8	2.7	1	07/16/19	07/16/19 15:15	GM
1,1-Dichloroethene	ND		ug/kg dry	6.8	2.7	1	07/16/19	07/16/19 15:15	GM

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Project: Annapolis Public Works

Project Number: 19-416A
Project Manager: Keith Progin

Reported:
07/23/19 17:23

SB-3

9071111-03 (Soil)
Sample Date: 07/11/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
VOLATILE ORGANICS BY EPA METHOD 8260B (GC/MS) (continued)									
cis-1,2-Dichloroethene	ND		ug/kg dry	6.8	2.7	1	07/16/19	07/16/19 15:15	GM
trans-1,2-Dichloroethene	ND		ug/kg dry	6.8	2.7	1	07/16/19	07/16/19 15:15	GM
Dichlorofluoromethane	ND		ug/kg dry	6.8	2.7	1	07/16/19	07/16/19 15:15	GM
1,2-Dichloropropane	ND		ug/kg dry	6.8	2.7	1	07/16/19	07/16/19 15:15	GM
1,3-Dichloropropane	ND		ug/kg dry	6.8	2.7	1	07/16/19	07/16/19 15:15	GM
2,2-Dichloropropane	ND		ug/kg dry	6.8	2.7	1	07/16/19	07/16/19 15:15	GM
1,1-Dichloropropene	ND		ug/kg dry	6.8	2.7	1	07/16/19	07/16/19 15:15	GM
cis-1,3-Dichloropropene	ND		ug/kg dry	6.8	2.7	1	07/16/19	07/16/19 15:15	GM
trans-1,3-Dichloropropene	ND		ug/kg dry	6.8	2.7	1	07/16/19	07/16/19 15:15	GM
Diisopropyl ether (DIPE)	ND		ug/kg dry	6.8	2.7	1	07/16/19	07/16/19 15:15	GM
Ethyl tert-butyl ether (ETBE)	ND		ug/kg dry	6.8	2.7	1	07/16/19	07/16/19 15:15	GM
Ethylbenzene	ND		ug/kg dry	6.8	2.7	1	07/16/19	07/16/19 15:15	GM
Hexachlorobutadiene	ND		ug/kg dry	6.8	2.7	1	07/16/19	07/16/19 15:15	GM
2-Hexanone	ND		ug/kg dry	13.7	13.7	1	07/16/19	07/16/19 15:15	GM
Isopropylbenzene (Cumene)	ND		ug/kg dry	6.8	2.7	1	07/16/19	07/16/19 15:15	GM
4-Isopropyltoluene	ND		ug/kg dry	6.8	2.7	1	07/16/19	07/16/19 15:15	GM
Methyl tert-butyl ether (MTBE)	ND		ug/kg dry	6.8	2.7	1	07/16/19	07/16/19 15:15	GM
4-Methyl-2-pentanone	ND		ug/kg dry	13.7	13.7	1	07/16/19	07/16/19 15:15	GM
Methylene chloride	ND		ug/kg dry	27.4	27.4	1	07/16/19	07/16/19 15:15	GM
Naphthalene	ND		ug/kg dry	6.8	2.7	1	07/16/19	07/16/19 15:15	GM
n-Propylbenzene	ND		ug/kg dry	6.8	2.7	1	07/16/19	07/16/19 15:15	GM
Styrene	ND		ug/kg dry	6.8	2.7	1	07/16/19	07/16/19 15:15	GM
1,1,1,2-Tetrachloroethane	ND		ug/kg dry	6.8	2.7	1	07/16/19	07/16/19 15:15	GM
1,1,2,2-Tetrachloroethane	ND		ug/kg dry	6.8	2.7	1	07/16/19	07/16/19 15:15	GM
Tetrachloroethene	ND		ug/kg dry	6.8	2.7	1	07/16/19	07/16/19 15:15	GM
Toluene	ND		ug/kg dry	6.8	2.7	1	07/16/19	07/16/19 15:15	GM
1,2,3-Trichlorobenzene	ND		ug/kg dry	6.8	2.7	1	07/16/19	07/16/19 15:15	GM
1,2,4-Trichlorobenzene	ND		ug/kg dry	6.8	2.7	1	07/16/19	07/16/19 15:15	GM
1,1,1-Trichloroethane	ND		ug/kg dry	6.8	2.7	1	07/16/19	07/16/19 15:15	GM
1,1,2-Trichloroethane	ND		ug/kg dry	6.8	2.7	1	07/16/19	07/16/19 15:15	GM
Trichloroethene	ND		ug/kg dry	6.8	2.7	1	07/16/19	07/16/19 15:15	GM
Trichlorofluoromethane (Freon 11)	ND		ug/kg dry	6.8	2.7	1	07/16/19	07/16/19 15:15	GM
1,2,3-Trichloropropane	ND		ug/kg dry	6.8	2.7	1	07/16/19	07/16/19 15:15	GM

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Project: Annapolis Public Works

Project Number: 19-416A
Project Manager: Keith Progin

Reported:
07/23/19 17:23

SB-3

9071111-03 (Soil)
Sample Date: 07/11/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
VOLATILE ORGANICS BY EPA METHOD 8260B (GC/MS) (continued)									
1,2,4-Trimethylbenzene	ND		ug/kg dry	6.8	2.7	1	07/16/19	07/16/19 15:15	GM
1,3,5-Trimethylbenzene	ND		ug/kg dry	6.8	2.7	1	07/16/19	07/16/19 15:15	GM
Vinyl chloride	ND		ug/kg dry	6.8	2.7	1	07/16/19	07/16/19 15:15	GM
o-Xylene	ND		ug/kg dry	6.8	2.7	1	07/16/19	07/16/19 15:15	GM
m- & p-Xylenes	ND		ug/kg dry	6.8	2.7	1	07/16/19	07/16/19 15:15	GM
Surrogate: 1,2-Dichloroethane-d4			*70-130*	*106 %*	*07/16/19*		*07/16/19 15:15*		
Surrogate: Toluene-d8			*75-120*	*99 %*	*07/16/19*		*07/16/19 15:15*		
Surrogate: 4-Bromofluorobenzene			*65-120*	*94 %*	*07/16/19*		*07/16/19 15:15*		
SEMIVOLATILE ORGANICS BY EPA METHOD 3540/8270D (GC/MS)									
Acenaphthene	ND		ug/kg dry	342	137	1	07/11/19	07/12/19 14:07	WB
Acenaphthylene	ND		ug/kg dry	342	137	1	07/11/19	07/12/19 14:07	WB
Anthracene	ND		ug/kg dry	342	137	1	07/11/19	07/12/19 14:07	WB
Benzo[a]anthracene	**218**	Ja	ug/kg dry	342	137	1	07/11/19	07/12/19 14:07	WB
Benzo[b]fluoranthene	**358**		ug/kg dry	342	137	1	07/11/19	07/12/19 14:07	WB
Benzo[k]fluoranthene	ND		ug/kg dry	342	137	1	07/11/19	07/12/19 14:07	WB
Benzo[ghi]perylene	**209**	Ja	ug/kg dry	342	137	1	07/11/19	07/12/19 14:07	WB
Benzo[a]pyrene	**266**	Ja	ug/kg dry	342	137	1	07/11/19	07/12/19 14:07	WB
4-Bromophenyl phenyl ether	ND		ug/kg dry	342	137	1	07/11/19	07/12/19 14:07	WB
Butyl benzyl phthalate	ND		ug/kg dry	342	137	1	07/11/19	07/12/19 14:07	WB
Carbazole	ND		ug/kg dry	342	137	1	07/11/19	07/12/19 14:07	WB
4-Chloro-3-methylphenol	ND		ug/kg dry	342	137	1	07/11/19	07/12/19 14:07	WB
4-Chloroaniline	ND		ug/kg dry	342	137	1	07/11/19	07/12/19 14:07	WB
Bis(2-chloroethoxy)methane	ND		ug/kg dry	342	137	1	07/11/19	07/12/19 14:07	WB
Bis(2-chloroethyl) ether	ND		ug/kg dry	342	137	1	07/11/19	07/12/19 14:07	WB
2,2'-Oxybis(1-Chloropropane)	ND		ug/kg dry	342	137	1	07/11/19	07/12/19 14:07	WB
2-Chloronaphthalene	ND		ug/kg dry	342	137	1	07/11/19	07/12/19 14:07	WB
2-Chlorophenol	ND		ug/kg dry	342	137	1	07/11/19	07/12/19 14:07	WB
4-Chlorophenyl phenyl ether	ND		ug/kg dry	342	137	1	07/11/19	07/12/19 14:07	WB
Chrysene	**271**	Ja	ug/kg dry	342	137	1	07/11/19	07/12/19 14:07	WB
Di-n-butyl phthalate	ND		ug/kg dry	342	137	1	07/11/19	07/12/19 14:07	WB
Di-n-octyl phthalate	ND		ug/kg dry	342	137	1	07/11/19	07/12/19 14:07	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	342	137	1	07/11/19	07/12/19 14:07	WB
Dibenzofuran	ND		ug/kg dry	342	137	1	07/11/19	07/12/19 14:07	WB

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Project: Annapolis Public Works

Project Number: 19-416A
Project Manager: Keith Progin

Reported:
07/23/19 17:23

SB-3

9071111-03 (Soil)
Sample Date: 07/11/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 3540/8270D (GC/MS) (continued)									
1,2-Dichlorobenzene	ND		ug/kg dry	342	137	1	07/11/19	07/12/19 14:07	WB
1,3-Dichlorobenzene	ND		ug/kg dry	342	137	1	07/11/19	07/12/19 14:07	WB
1,4-Dichlorobenzene	ND		ug/kg dry	342	137	1	07/11/19	07/12/19 14:07	WB
3,3-Dichlorobenzidine	ND		ug/kg dry	685	685	1	07/11/19	07/12/19 14:07	WB
2,4-Dichlorophenol	ND		ug/kg dry	342	137	1	07/11/19	07/12/19 14:07	WB
Diethyl phthalate	ND		ug/kg dry	342	137	1	07/11/19	07/12/19 14:07	WB
Dimethyl phthalate	ND		ug/kg dry	342	137	1	07/11/19	07/12/19 14:07	WB
2,4-Dimethylphenol	ND		ug/kg dry	342	137	1	07/11/19	07/12/19 14:07	WB
2-Methyl-4,6-dinitrophenol	ND		ug/kg dry	1710	1710	1	07/11/19	07/12/19 14:07	WB
2,4-Dinitrophenol	ND		ug/kg dry	1710	1710	1	07/11/19	07/12/19 14:07	WB
2,4-Dinitrotoluene	ND		ug/kg dry	342	137	1	07/11/19	07/12/19 14:07	WB
2,6-Dinitrotoluene	ND		ug/kg dry	342	137	1	07/11/19	07/12/19 14:07	WB
Bis(2-ethylhexyl) phthalate	ND		ug/kg dry	342	137	1	07/11/19	07/12/19 14:07	WB
Fluoranthene	**362**		ug/kg dry	342	137	1	07/11/19	07/12/19 14:07	WB
Fluorene	ND		ug/kg dry	342	137	1	07/11/19	07/12/19 14:07	WB
Hexachlorobenzene	ND		ug/kg dry	342	137	1	07/11/19	07/12/19 14:07	WB
Hexachlorobutadiene	ND		ug/kg dry	342	137	1	07/11/19	07/12/19 14:07	WB
Hexachlorocyclopentadiene	ND		ug/kg dry	342	137	1	07/11/19	07/12/19 14:07	WB
Hexachloroethane	ND		ug/kg dry	342	137	1	07/11/19	07/12/19 14:07	WB
Indeno[1,2,3-cd]pyrene	**182**	Ja	ug/kg dry	342	137	1	07/11/19	07/12/19 14:07	WB
Isophorone	ND		ug/kg dry	342	137	1	07/11/19	07/12/19 14:07	WB
2-Methylnaphthalene	ND		ug/kg dry	342	137	1	07/11/19	07/12/19 14:07	WB
3&4-Methylphenol	ND		ug/kg dry	342	137	1	07/11/19	07/12/19 14:07	WB
2-Methylphenol	ND		ug/kg dry	342	137	1	07/11/19	07/12/19 14:07	WB
N-Nitroso-di-n-propylamine	ND		ug/kg dry	342	137	1	07/11/19	07/12/19 14:07	WB
N-Nitrosodiphenylamine	ND		ug/kg dry	342	137	1	07/11/19	07/12/19 14:07	WB
Naphthalene	ND		ug/kg dry	342	137	1	07/11/19	07/12/19 14:07	WB
2-Nitroaniline	ND		ug/kg dry	1710	1710	1	07/11/19	07/12/19 14:07	WB
3-Nitroaniline	ND		ug/kg dry	1710	1710	1	07/11/19	07/12/19 14:07	WB
4-Nitroaniline	ND		ug/kg dry	1710	1710	1	07/11/19	07/12/19 14:07	WB
Nitrobenzene	ND		ug/kg dry	342	137	1	07/11/19	07/12/19 14:07	WB
2-Nitrophenol	ND		ug/kg dry	342	137	1	07/11/19	07/12/19 14:07	WB
4-Nitrophenol	ND		ug/kg dry	1710	1710	1	07/11/19	07/12/19 14:07	WB

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07/23/19 17:23

SB-3

9071111-03 (Soil)
Sample Date: 07/11/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 3540/8270D (GC/MS) (continued)									
Pentachlorophenol	ND		ug/kg dry	1710	1710	1	07/11/19	07/12/19 14:07	WB
Phenanthrene	**149**	Ja	ug/kg dry	342	137	1	07/11/19	07/12/19 14:07	WB
Phenol	ND		ug/kg dry	342	137	1	07/11/19	07/12/19 14:07	WB
Pyrene	**335**	Ja	ug/kg dry	342	137	1	07/11/19	07/12/19 14:07	WB
1,2,4-Trichlorobenzene	ND		ug/kg dry	342	137	1	07/11/19	07/12/19 14:07	WB
2,4,5-Trichlorophenol	ND		ug/kg dry	342	137	1	07/11/19	07/12/19 14:07	WB
2,4,6-Trichlorophenol	ND		ug/kg dry	342	137	1	07/11/19	07/12/19 14:07	WB
Surrogate: 2-Fluorophenol			*23-121*	*53 %*	*07/11/19*		*07/12/19 14:07*		
Surrogate: Phenol-d5			*24-113*	*59 %*	*07/11/19*		*07/12/19 14:07*		
Surrogate: Nitrobenzene-d5			*23-120*	*63 %*	*07/11/19*		*07/12/19 14:07*		
Surrogate: 2,4,6-Tribromophenol			*19-122*	*85 %*	*07/11/19*		*07/12/19 14:07*		
Surrogate: 2-Fluorobiphenyl			*30-115*	*68 %*	*07/11/19*		*07/12/19 14:07*		
Surrogate: Terphenyl-d14			*18-137*	*85 %*	*07/11/19*		*07/12/19 14:07*		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.14	0.14	1	07/17/19	07/17/19 16:12	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	**84.9**		mg/kg dry	11.0	11.0	1	07/11/19	07/13/19 01:47	SJA
Surrogate: o-Terphenyl			*70-130*	*71 %*	*07/11/19*		*07/13/19 01:47*		
PERCENT SOLIDS BY ASTM D2216-05									
Percent Solids	**73**		%			1	07/17/19	07/18/19 11:22	CEB
POLYCHLORINATED BIPHENYLS BY EPA 3540/8082A (GC/ECD)									
Aroclor-1016	ND		ug/kg dry	114	114	1	07/11/19	07/12/19 18:26	SJA
Aroclor-1221	ND		ug/kg dry	233	233	1	07/11/19	07/12/19 18:26	SJA
Aroclor-1232	ND		ug/kg dry	114	114	1	07/11/19	07/12/19 18:26	SJA
Aroclor-1242	ND		ug/kg dry	114	114	1	07/11/19	07/12/19 18:26	SJA
Aroclor-1248	ND		ug/kg dry	114	114	1	07/11/19	07/12/19 18:26	SJA
Aroclor-1254	ND		ug/kg dry	114	114	1	07/11/19	07/12/19 18:26	SJA
Aroclor-1260	ND		ug/kg dry	114	114	1	07/11/19	07/12/19 18:26	SJA
Aroclor-1262	ND		ug/kg dry	114	114	1	07/11/19	07/12/19 18:26	SJA
Aroclor-1268	ND		ug/kg dry	114	114	1	07/11/19	07/12/19 18:26	SJA
Surrogate: Tetrachloro-m-xylene			*40-150*	*68 %*	*07/11/19*		*07/12/19 18:26*		
Surrogate: Decachlorobiphenyl			*40-150*	*99 %*	*07/11/19*		*07/12/19 18:26*		

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Maryland spectral Services

Analytical Chemistry Services

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

Analytical Results

Project: Annapolis Public Works

Project Number: 19-416A
Project Manager: Keith Progin

Reported:
07/23/19 17:23

SB-3

9071111-03 (Soil)
Sample Date: 07/11/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
TOTAL METALS ANALYSIS BY EPA 3050B/6020A									
Antimony	**8.42**		mg/kg dry	0.342	0.342	1	07/15/19	07/17/19 17:46	VVD
Arsenic	**17.8**		mg/kg dry	0.342	0.342	1	07/15/19	07/17/19 17:46	VVD
Beryllium	**0.478**		mg/kg dry	0.342	0.342	1	07/15/19	07/17/19 17:46	VVD
Cadmium	**1.09**		mg/kg dry	0.342	0.342	1	07/15/19	07/17/19 17:46	VVD
Chromium	**50.9**		mg/kg dry	0.342	0.342	1	07/15/19	07/17/19 17:46	VVD
Copper	**848**		mg/kg dry	3.42	3.42	10	07/15/19	07/17/19 17:09	VVD
Lead	**348**		mg/kg dry	3.42	3.42	10	07/15/19	07/17/19 17:09	VVD
Mercury	**0.500**		mg/kg dry	0.0171	0.0171	1	07/15/19	07/17/19 17:46	VVD
Nickel	**64.5**		mg/kg dry	0.342	0.342	1	07/15/19	07/17/19 17:46	VVD
Selenium	**1.76**		mg/kg dry	0.342	0.342	1	07/15/19	07/17/19 17:46	VVD
Silver	**0.612**		mg/kg dry	0.342	0.342	1	07/15/19	07/17/19 17:46	VVD
Thallium	ND		mg/kg dry	0.342	0.342	1	07/15/19	07/17/19 17:46	VVD
Zinc	**424**		mg/kg dry	17.1	17.1	10	07/15/19	07/17/19 17:09	VVD
Wet Chemistry Performed at Enviro-Chem									
% Solids	**67.0**		%	1.00	1.00	1	07/15/19	07/15/19 16:08	FRD
Cyanide, Total	**8.49**		mg/kg dry	0.715	0.715	1	07/17/19	07/18/19 12:59	FRD
Dioxins and Furans by Isotope Dilution HRGC/HRMS Performed at PACE-MN									
1,2,3,4,6,7,8-HpCDD	ND	I	ng/Kg	5.0	3.0	1	07/16/19	07/22/19 17:19	SMT
1,2,3,4,6,7,8-HpCDF	**28**		ng/Kg	5.0	2.7	1	07/16/19	07/22/19 17:19	SMT
1,2,3,4,7,8,9-HpCDF	ND		ng/Kg	5.0	2.9	1	07/16/19	07/22/19 17:19	SMT
1,2,3,4,7,8-HxCDD	ND		ng/Kg	5.0	1.7	1	07/16/19	07/22/19 17:19	SMT
1,2,3,4,7,8-HxCDF	ND		ng/Kg	5.0	0.92	1	07/16/19	07/22/19 17:19	SMT
1,2,3,6,7,8-HxCDD	**13**		ng/Kg	5.0	1.7	1	07/16/19	07/22/19 17:19	SMT
1,2,3,6,7,8-HxCDF	ND		ng/Kg	5.0	1.3	1	07/16/19	07/22/19 17:19	SMT
1,2,3,7,8,9-HxCDD	ND		ng/Kg	5.0	2.0	1	07/16/19	07/22/19 17:19	SMT
1,2,3,7,8,9-HxCDF	ND		ng/Kg	5.0	0.75	1	07/16/19	07/22/19 17:19	SMT
1,2,3,7,8-PeCDD	ND		ng/Kg	5.0	1.5	1	07/16/19	07/22/19 17:19	SMT
1,2,3,7,8-PeCDF	ND		ng/Kg	5.0	2.2	1	07/16/19	07/22/19 17:19	SMT
2,3,4,6,7,8-HxCDF	ND		ng/Kg	5.0	1.2	1	07/16/19	07/22/19 17:19	SMT
2,3,4,7,8-PeCDF	ND		ng/Kg	5.0	1.2	1	07/16/19	07/22/19 17:19	SMT
2,3,7,8-TCDD	ND	A	ng/Kg	1.5	1.5	1	07/16/19	07/22/19 17:19	SMT
2,3,7,8-TCDF	ND	A	ng/Kg	1.1	1.1	1	07/16/19	07/22/19 17:19	SMT
OCDD	**120**		ng/Kg	10	4.2	1	07/16/19	07/22/19 17:19	SMT
OCDF	**13**		ng/Kg	10	5.3	1	07/16/19	07/22/19 17:19	SMT
Total HpCDD	**14**		ng/Kg	5.0	3.0	1	07/16/19	07/22/19 17:19	SMT

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Project: Annapolis Public Works

Project Number: 19-416A
Project Manager: Keith Progin

Reported:
07/23/19 17:23

SB-3

9071111-03 (Soil)
Sample Date: 07/11/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Dioxins and Furans by Isotope Dilution HRGC/HRMS Performed at PACE-MN (continued)									
Total HpCDF	**46**		ng/Kg	5.0	2.8	1	07/16/19	07/22/19 17:19	SMT
Total HxCDD	**75**		ng/Kg	5.0	1.8	1	07/16/19	07/22/19 17:19	SMT
Total HxCDF	**28**		ng/Kg	5.0	1.1	1	07/16/19	07/22/19 17:19	SMT
Total PeCDD	ND		ng/Kg	5.0	1.5	1	07/16/19	07/22/19 17:19	SMT
Total PeCDF	ND		ng/Kg	5.0	1.7	1	07/16/19	07/22/19 17:19	SMT
Total TCDD	ND		ng/Kg	1.5	1.5	1	07/16/19	07/22/19 17:19	SMT
Total TCDF	**1.4**		ng/Kg	1.1	1.1	1	07/16/19	07/22/19 17:19	SMT
Surrogate: 1,2,3,4,6,7,8-HpCDD-13C			*40.0-135.0*	*44 %*		*07/16/19*	*07/22/19 17:19*		
Surrogate: 1,2,3,4,6,7,8-HpCDF-13C			*40.0-135.0*	*42 %*		*07/16/19*	*07/22/19 17:19*		
Surrogate: 1,2,3,4,7,8,9-HpCDF-13C			*40.0-135.0*	*39 %*		*07/16/19*	*07/22/19 17:19*		*P*
Surrogate: 1,2,3,4,7,8-HxCDD-13C			*40.0-135.0*	*56 %*		*07/16/19*	*07/22/19 17:19*		
Surrogate: 1,2,3,4,7,8-HxCDF-13C			*40.0-135.0*	*62 %*		*07/16/19*	*07/22/19 17:19*		
Surrogate: 1,2,3,6,7,8-HxCDD-13C			*40.0-135.0*	*45 %*		*07/16/19*	*07/22/19 17:19*		
Surrogate: 1,2,3,6,7,8-HxCDF-13C			*40.0-135.0*	*48 %*		*07/16/19*	*07/22/19 17:19*		
Surrogate: 1,2,3,7,8,9-HxCDF-13C			*40.0-135.0*	*51 %*		*07/16/19*	*07/22/19 17:19*		
Surrogate: 1,2,3,7,8-PeCDD-13C			*40.0-135.0*	*46 %*		*07/16/19*	*07/22/19 17:19*		
Surrogate: 1,2,3,7,8-PeCDF-13C			*40.0-135.0*	*45 %*		*07/16/19*	*07/22/19 17:19*		
Surrogate: 2,3,4,6,7,8-HxCDF-13C			*40.0-135.0*	*50 %*		*07/16/19*	*07/22/19 17:19*		
Surrogate: 2,3,4,7,8-PeCDF-13C			*40.0-135.0*	*40 %*		*07/16/19*	*07/22/19 17:19*		
Surrogate: 2,3,7,8-TCDD-13C			*40.0-135.0*	*48 %*		*07/16/19*	*07/22/19 17:19*		
Surrogate: 2,3,7,8-TCDF-13C			*40.0-135.0*	*47 %*		*07/16/19*	*07/22/19 17:19*		
Surrogate: OCDD-13C			*40.0-135.0*	*33 %*		*07/16/19*	*07/22/19 17:19*		*P*

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Maryland spectral Services

Analytical Chemistry Services

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Analytical Results

Project: Annapolis Public Works

Project Number: 19-416A
Project Manager: Keith Progin

Reported:
07/23/19 17:23

SB-4

9071111-04 (Soil)
Sample Date: 07/11/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
VOLATILE ORGANICS BY EPA METHOD 8260B (GC/MS)									
Acetone	ND		ug/kg dry	13.3	13.3	1	07/16/19	07/16/19 15:42	GM
tert-Amyl alcohol (TAA)	ND		ug/kg dry	66.7	66.7	1	07/16/19	07/16/19 15:42	GM
tert-Amyl methyl ether (TAME)	ND		ug/kg dry	6.7	2.7	1	07/16/19	07/16/19 15:42	GM
Benzene	ND		ug/kg dry	6.7	2.7	1	07/16/19	07/16/19 15:42	GM
Bromobenzene	ND		ug/kg dry	6.7	2.7	1	07/16/19	07/16/19 15:42	GM
Bromochloromethane	ND		ug/kg dry	6.7	2.7	1	07/16/19	07/16/19 15:42	GM
Bromodichloromethane	ND		ug/kg dry	6.7	2.7	1	07/16/19	07/16/19 15:42	GM
Bromoform	ND		ug/kg dry	6.7	2.7	1	07/16/19	07/16/19 15:42	GM
Bromomethane	ND		ug/kg dry	6.7	6.7	1	07/16/19	07/16/19 15:42	GM
tert-Butanol (TBA)	ND		ug/kg dry	66.7	66.7	1	07/16/19	07/16/19 15:42	GM
2-Butanone (MEK)	ND		ug/kg dry	13.3	13.3	1	07/16/19	07/16/19 15:42	GM
n-Butylbenzene	ND		ug/kg dry	6.7	2.7	1	07/16/19	07/16/19 15:42	GM
sec-Butylbenzene	ND		ug/kg dry	6.7	2.7	1	07/16/19	07/16/19 15:42	GM
tert-Butylbenzene	ND		ug/kg dry	6.7	2.7	1	07/16/19	07/16/19 15:42	GM
Carbon disulfide	ND		ug/kg dry	6.7	2.7	1	07/16/19	07/16/19 15:42	GM
Carbon tetrachloride	ND		ug/kg dry	6.7	2.7	1	07/16/19	07/16/19 15:42	GM
Chlorobenzene	ND		ug/kg dry	6.7	2.7	1	07/16/19	07/16/19 15:42	GM
Chloroethane	ND		ug/kg dry	6.7	6.7	1	07/16/19	07/16/19 15:42	GM
Chloroform	ND		ug/kg dry	6.7	2.7	1	07/16/19	07/16/19 15:42	GM
Chloromethane	ND		ug/kg dry	6.7	6.7	1	07/16/19	07/16/19 15:42	GM
2-Chlorotoluene	ND		ug/kg dry	6.7	2.7	1	07/16/19	07/16/19 15:42	GM
4-Chlorotoluene	ND		ug/kg dry	6.7	2.7	1	07/16/19	07/16/19 15:42	GM
1,2-Dibromo-3-chloropropane	ND		ug/kg dry	6.7	2.7	1	07/16/19	07/16/19 15:42	GM
Dibromochloromethane	ND		ug/kg dry	6.7	2.7	1	07/16/19	07/16/19 15:42	GM
1,2-Dibromoethane (EDB)	ND		ug/kg dry	6.7	2.7	1	07/16/19	07/16/19 15:42	GM
Dibromomethane	ND		ug/kg dry	6.7	2.7	1	07/16/19	07/16/19 15:42	GM
1,2-Dichlorobenzene	ND		ug/kg dry	6.7	2.7	1	07/16/19	07/16/19 15:42	GM
1,3-Dichlorobenzene	ND		ug/kg dry	6.7	2.7	1	07/16/19	07/16/19 15:42	GM
1,4-Dichlorobenzene	ND		ug/kg dry	6.7	2.7	1	07/16/19	07/16/19 15:42	GM
Dichlorodifluoromethane	ND		ug/kg dry	6.7	2.7	1	07/16/19	07/16/19 15:42	GM
1,1-Dichloroethane	ND		ug/kg dry	6.7	2.7	1	07/16/19	07/16/19 15:42	GM
1,2-Dichloroethane	ND		ug/kg dry	6.7	2.7	1	07/16/19	07/16/19 15:42	GM
1,1-Dichloroethene	ND		ug/kg dry	6.7	2.7	1	07/16/19	07/16/19 15:42	GM

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Project: Annapolis Public Works

Project Number: 19-416A
Project Manager: Keith Progin

Reported:
07/23/19 17:23

SB-4

9071111-04 (Soil)
Sample Date: 07/11/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
VOLATILE ORGANICS BY EPA METHOD 8260B (GC/MS) (continued)									
cis-1,2-Dichloroethene	ND		ug/kg dry	6.7	2.7	1	07/16/19	07/16/19 15:42	GM
trans-1,2-Dichloroethene	ND		ug/kg dry	6.7	2.7	1	07/16/19	07/16/19 15:42	GM
Dichlorofluoromethane	ND		ug/kg dry	6.7	2.7	1	07/16/19	07/16/19 15:42	GM
1,2-Dichloropropane	ND		ug/kg dry	6.7	2.7	1	07/16/19	07/16/19 15:42	GM
1,3-Dichloropropane	ND		ug/kg dry	6.7	2.7	1	07/16/19	07/16/19 15:42	GM
2,2-Dichloropropane	ND		ug/kg dry	6.7	2.7	1	07/16/19	07/16/19 15:42	GM
1,1-Dichloropropene	ND		ug/kg dry	6.7	2.7	1	07/16/19	07/16/19 15:42	GM
cis-1,3-Dichloropropene	ND		ug/kg dry	6.7	2.7	1	07/16/19	07/16/19 15:42	GM
trans-1,3-Dichloropropene	ND		ug/kg dry	6.7	2.7	1	07/16/19	07/16/19 15:42	GM
Diisopropyl ether (DIPE)	ND		ug/kg dry	6.7	2.7	1	07/16/19	07/16/19 15:42	GM
Ethyl tert-butyl ether (ETBE)	ND		ug/kg dry	6.7	2.7	1	07/16/19	07/16/19 15:42	GM
Ethylbenzene	ND		ug/kg dry	6.7	2.7	1	07/16/19	07/16/19 15:42	GM
Hexachlorobutadiene	ND		ug/kg dry	6.7	2.7	1	07/16/19	07/16/19 15:42	GM
2-Hexanone	ND		ug/kg dry	13.3	13.3	1	07/16/19	07/16/19 15:42	GM
Isopropylbenzene (Cumene)	ND		ug/kg dry	6.7	2.7	1	07/16/19	07/16/19 15:42	GM
4-Isopropyltoluene	ND		ug/kg dry	6.7	2.7	1	07/16/19	07/16/19 15:42	GM
Methyl tert-butyl ether (MTBE)	ND		ug/kg dry	6.7	2.7	1	07/16/19	07/16/19 15:42	GM
4-Methyl-2-pentanone	ND		ug/kg dry	13.3	13.3	1	07/16/19	07/16/19 15:42	GM
Methylene chloride	ND		ug/kg dry	26.7	26.7	1	07/16/19	07/16/19 15:42	GM
Naphthalene	ND		ug/kg dry	6.7	2.7	1	07/16/19	07/16/19 15:42	GM
n-Propylbenzene	ND		ug/kg dry	6.7	2.7	1	07/16/19	07/16/19 15:42	GM
Styrene	ND		ug/kg dry	6.7	2.7	1	07/16/19	07/16/19 15:42	GM
1,1,1,2-Tetrachloroethane	ND		ug/kg dry	6.7	2.7	1	07/16/19	07/16/19 15:42	GM
1,1,2,2-Tetrachloroethane	ND		ug/kg dry	6.7	2.7	1	07/16/19	07/16/19 15:42	GM
Tetrachloroethene	ND		ug/kg dry	6.7	2.7	1	07/16/19	07/16/19 15:42	GM
Toluene	ND		ug/kg dry	6.7	2.7	1	07/16/19	07/16/19 15:42	GM
1,2,3-Trichlorobenzene	ND		ug/kg dry	6.7	2.7	1	07/16/19	07/16/19 15:42	GM
1,2,4-Trichlorobenzene	ND		ug/kg dry	6.7	2.7	1	07/16/19	07/16/19 15:42	GM
1,1,1-Trichloroethane	ND		ug/kg dry	6.7	2.7	1	07/16/19	07/16/19 15:42	GM
1,1,2-Trichloroethane	ND		ug/kg dry	6.7	2.7	1	07/16/19	07/16/19 15:42	GM
Trichloroethene	ND		ug/kg dry	6.7	2.7	1	07/16/19	07/16/19 15:42	GM
Trichlorofluoromethane (Freon 11)	ND		ug/kg dry	6.7	2.7	1	07/16/19	07/16/19 15:42	GM
1,2,3-Trichloropropane	ND		ug/kg dry	6.7	2.7	1	07/16/19	07/16/19 15:42	GM

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Project: Annapolis Public Works

Project Number: 19-416A
Project Manager: Keith Progin

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07/23/19 17:23

SB-4

9071111-04 (Soil)
Sample Date: 07/11/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
VOLATILE ORGANICS BY EPA METHOD 8260B (GC/MS) (continued)									
1,2,4-Trimethylbenzene	ND		ug/kg dry	6.7	2.7	1	07/16/19	07/16/19 15:42	GM
1,3,5-Trimethylbenzene	ND		ug/kg dry	6.7	2.7	1	07/16/19	07/16/19 15:42	GM
Vinyl chloride	ND		ug/kg dry	6.7	2.7	1	07/16/19	07/16/19 15:42	GM
o-Xylene	ND		ug/kg dry	6.7	2.7	1	07/16/19	07/16/19 15:42	GM
m- & p-Xylenes	ND		ug/kg dry	6.7	2.7	1	07/16/19	07/16/19 15:42	GM
Surrogate: 1,2-Dichloroethane-d4			*70-130*	*103 %*	*07/16/19*		*07/16/19 15:42*		
Surrogate: Toluene-d8			*75-120*	*100 %*	*07/16/19*		*07/16/19 15:42*		
Surrogate: 4-Bromofluorobenzene			*65-120*	*93 %*	*07/16/19*		*07/16/19 15:42*		
SEMIVOLATILE ORGANICS BY EPA METHOD 3540/8270D (GC/MS)									
Acenaphthene	ND		ug/kg dry	333	133	1	07/11/19	07/12/19 14:30	WB
Acenaphthylene	ND		ug/kg dry	333	133	1	07/11/19	07/12/19 14:30	WB
Anthracene	ND		ug/kg dry	333	133	1	07/11/19	07/12/19 14:30	WB
Benzo[a]anthracene	ND		ug/kg dry	333	133	1	07/11/19	07/12/19 14:30	WB
Benzo[b]fluoranthene	**227**	Ja	ug/kg dry	333	133	1	07/11/19	07/12/19 14:30	WB
Benzo[k]fluoranthene	ND		ug/kg dry	333	133	1	07/11/19	07/12/19 14:30	WB
Benzo[ghi]perylene	**174**	Ja	ug/kg dry	333	133	1	07/11/19	07/12/19 14:30	WB
Benzo[a]pyrene	**169**	Ja	ug/kg dry	333	133	1	07/11/19	07/12/19 14:30	WB
4-Bromophenyl phenyl ether	ND		ug/kg dry	333	133	1	07/11/19	07/12/19 14:30	WB
Butyl benzyl phthalate	ND		ug/kg dry	333	133	1	07/11/19	07/12/19 14:30	WB
Carbazole	ND		ug/kg dry	333	133	1	07/11/19	07/12/19 14:30	WB
4-Chloro-3-methylphenol	ND		ug/kg dry	333	133	1	07/11/19	07/12/19 14:30	WB
4-Chloroaniline	ND		ug/kg dry	333	133	1	07/11/19	07/12/19 14:30	WB
Bis(2-chloroethoxy)methane	ND		ug/kg dry	333	133	1	07/11/19	07/12/19 14:30	WB
Bis(2-chloroethyl) ether	ND		ug/kg dry	333	133	1	07/11/19	07/12/19 14:30	WB
2,2'-Oxybis(1-Chloropropane)	ND		ug/kg dry	333	133	1	07/11/19	07/12/19 14:30	WB
2-Chloronaphthalene	ND		ug/kg dry	333	133	1	07/11/19	07/12/19 14:30	WB
2-Chlorophenol	ND		ug/kg dry	333	133	1	07/11/19	07/12/19 14:30	WB
4-Chlorophenyl phenyl ether	ND		ug/kg dry	333	133	1	07/11/19	07/12/19 14:30	WB
Chrysene	**161**	Ja	ug/kg dry	333	133	1	07/11/19	07/12/19 14:30	WB
Di-n-butyl phthalate	ND		ug/kg dry	333	133	1	07/11/19	07/12/19 14:30	WB
Di-n-octyl phthalate	ND		ug/kg dry	333	133	1	07/11/19	07/12/19 14:30	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	333	133	1	07/11/19	07/12/19 14:30	WB
Dibenzofuran	ND		ug/kg dry	333	133	1	07/11/19	07/12/19 14:30	WB

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www.mdspectral.com

Project: Annapolis Public Works

Project Number: 19-416A
Project Manager: Keith Progin

Reported:
07/23/19 17:23

SB-4

9071111-04 (Soil)
Sample Date: 07/11/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 3540/8270D (GC/MS) (continued)									
1,2-Dichlorobenzene	ND		ug/kg dry	333	133	1	07/11/19	07/12/19 14:30	WB
1,3-Dichlorobenzene	ND		ug/kg dry	333	133	1	07/11/19	07/12/19 14:30	WB
1,4-Dichlorobenzene	ND		ug/kg dry	333	133	1	07/11/19	07/12/19 14:30	WB
3,3-Dichlorobenzidine	ND		ug/kg dry	667	667	1	07/11/19	07/12/19 14:30	WB
2,4-Dichlorophenol	ND		ug/kg dry	333	133	1	07/11/19	07/12/19 14:30	WB
Diethyl phthalate	ND		ug/kg dry	333	133	1	07/11/19	07/12/19 14:30	WB
Dimethyl phthalate	ND		ug/kg dry	333	133	1	07/11/19	07/12/19 14:30	WB
2,4-Dimethylphenol	ND		ug/kg dry	333	133	1	07/11/19	07/12/19 14:30	WB
2-Methyl-4,6-dinitrophenol	ND		ug/kg dry	1670	1670	1	07/11/19	07/12/19 14:30	WB
2,4-Dinitrophenol	ND		ug/kg dry	1670	1670	1	07/11/19	07/12/19 14:30	WB
2,4-Dinitrotoluene	ND		ug/kg dry	333	133	1	07/11/19	07/12/19 14:30	WB
2,6-Dinitrotoluene	ND		ug/kg dry	333	133	1	07/11/19	07/12/19 14:30	WB
Bis(2-ethylhexyl) phthalate	ND		ug/kg dry	333	133	1	07/11/19	07/12/19 14:30	WB
Fluoranthene	**254**	Ja	ug/kg dry	333	133	1	07/11/19	07/12/19 14:30	WB
Fluorene	ND		ug/kg dry	333	133	1	07/11/19	07/12/19 14:30	WB
Hexachlorobenzene	ND		ug/kg dry	333	133	1	07/11/19	07/12/19 14:30	WB
Hexachlorobutadiene	ND		ug/kg dry	333	133	1	07/11/19	07/12/19 14:30	WB
Hexachlorocyclopentadiene	ND		ug/kg dry	333	133	1	07/11/19	07/12/19 14:30	WB
Hexachloroethane	ND		ug/kg dry	333	133	1	07/11/19	07/12/19 14:30	WB
Indeno[1,2,3-cd]pyrene	**142**	Ja	ug/kg dry	333	133	1	07/11/19	07/12/19 14:30	WB
Isophorone	ND		ug/kg dry	333	133	1	07/11/19	07/12/19 14:30	WB
2-Methylnaphthalene	ND		ug/kg dry	333	133	1	07/11/19	07/12/19 14:30	WB
3&4-Methylphenol	ND		ug/kg dry	333	133	1	07/11/19	07/12/19 14:30	WB
2-Methylphenol	ND		ug/kg dry	333	133	1	07/11/19	07/12/19 14:30	WB
N-Nitroso-di-n-propylamine	ND		ug/kg dry	333	133	1	07/11/19	07/12/19 14:30	WB
N-Nitrosodiphenylamine	ND		ug/kg dry	333	133	1	07/11/19	07/12/19 14:30	WB
Naphthalene	ND		ug/kg dry	333	133	1	07/11/19	07/12/19 14:30	WB
2-Nitroaniline	ND		ug/kg dry	1670	1670	1	07/11/19	07/12/19 14:30	WB
3-Nitroaniline	ND		ug/kg dry	1670	1670	1	07/11/19	07/12/19 14:30	WB
4-Nitroaniline	ND		ug/kg dry	1670	1670	1	07/11/19	07/12/19 14:30	WB
Nitrobenzene	ND		ug/kg dry	333	133	1	07/11/19	07/12/19 14:30	WB
2-Nitrophenol	ND		ug/kg dry	333	133	1	07/11/19	07/12/19 14:30	WB
4-Nitrophenol	ND		ug/kg dry	1670	1670	1	07/11/19	07/12/19 14:30	WB

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Project: Annapolis Public Works

Project Number: 19-416A
Project Manager: Keith Progin

Reported:
07/23/19 17:23

SB-4

9071111-04 (Soil)
Sample Date: 07/11/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 3540/8270D (GC/MS) (continued)									
Pentachlorophenol	ND		ug/kg dry	1670	1670	1	07/11/19	07/12/19 14:30	WB
Phenanthrene	**261**	Ja	ug/kg dry	333	133	1	07/11/19	07/12/19 14:30	WB
Phenol	ND		ug/kg dry	333	133	1	07/11/19	07/12/19 14:30	WB
Pyrene	**312**	Ja	ug/kg dry	333	133	1	07/11/19	07/12/19 14:30	WB
1,2,4-Trichlorobenzene	ND		ug/kg dry	333	133	1	07/11/19	07/12/19 14:30	WB
2,4,5-Trichlorophenol	ND		ug/kg dry	333	133	1	07/11/19	07/12/19 14:30	WB
2,4,6-Trichlorophenol	ND		ug/kg dry	333	133	1	07/11/19	07/12/19 14:30	WB
Surrogate: 2-Fluorophenol			*23-121*	*47 %*	*07/11/19*		*07/12/19 14:30*		
Surrogate: Phenol-d5			*24-113*	*52 %*	*07/11/19*		*07/12/19 14:30*		
Surrogate: Nitrobenzene-d5			*23-120*	*58 %*	*07/11/19*		*07/12/19 14:30*		
Surrogate: 2,4,6-Tribromophenol			*19-122*	*86 %*	*07/11/19*		*07/12/19 14:30*		
Surrogate: 2-Fluorobiphenyl			*30-115*	*59 %*	*07/11/19*		*07/12/19 14:30*		
Surrogate: Terphenyl-d14			*18-137*	*85 %*	*07/11/19*		*07/12/19 14:30*		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.13	0.13	1	07/17/19	07/17/19 16:42	GM
PERCENT SOLIDS BY ASTM D2216-05									
Percent Solids	**75**		%			1	07/17/19	07/18/19 11:22	CEB
POLYCHLORINATED BIPHENYLS BY EPA 3540/8082A (GC/ECD)									
Aroclor-1016	ND		ug/kg dry	111	111	1	07/11/19	07/12/19 18:54	SJA
Aroclor-1221	ND		ug/kg dry	227	227	1	07/11/19	07/12/19 18:54	SJA
Aroclor-1232	ND		ug/kg dry	111	111	1	07/11/19	07/12/19 18:54	SJA
Aroclor-1242	ND		ug/kg dry	111	111	1	07/11/19	07/12/19 18:54	SJA
Aroclor-1248	ND		ug/kg dry	111	111	1	07/11/19	07/12/19 18:54	SJA
Aroclor-1254	ND		ug/kg dry	111	111	1	07/11/19	07/12/19 18:54	SJA
Aroclor-1260	ND		ug/kg dry	111	111	1	07/11/19	07/12/19 18:54	SJA
Aroclor-1262	ND		ug/kg dry	111	111	1	07/11/19	07/12/19 18:54	SJA
Aroclor-1268	ND		ug/kg dry	111	111	1	07/11/19	07/12/19 18:54	SJA
Surrogate: Tetrachloro-m-xylene			*40-150*	*61 %*	*07/11/19*		*07/12/19 18:54*		
Surrogate: Decachlorobiphenyl			*40-150*	*101 %*	*07/11/19*		*07/12/19 18:54*		

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Maryland spectral Services

Analytical Chemistry Services

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Analytical Results

Project: Annapolis Public Works

Project Number: 19-416A
Project Manager: Keith Progin

Reported:
07/23/19 17:23

SB-4

9071111-04 (Soil)
Sample Date: 07/11/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
TOTAL METALS ANALYSIS BY EPA 3050B/6020A									
Antimony	**2.29**		mg/kg dry	0.333	0.333	1	07/15/19	07/17/19 17:54	VVD
Arsenic	**15.9**		mg/kg dry	0.333	0.333	1	07/15/19	07/17/19 17:54	VVD
Beryllium	**0.809**		mg/kg dry	0.333	0.333	1	07/15/19	07/17/19 17:54	VVD
Cadmium	**1.74**		mg/kg dry	0.333	0.333	1	07/15/19	07/17/19 17:54	VVD
Chromium	**24.0**		mg/kg dry	0.333	0.333	1	07/15/19	07/17/19 17:54	VVD
Copper	**138**		mg/kg dry	0.333	0.333	1	07/15/19	07/17/19 17:54	VVD
Lead	**859**		mg/kg dry	3.33	3.33	10	07/15/19	07/17/19 17:12	VVD
Mercury	**0.969**		mg/kg dry	0.167	0.167	10	07/15/19	07/17/19 17:12	VVD
Nickel	**20.6**		mg/kg dry	0.333	0.333	1	07/15/19	07/17/19 17:54	VVD
Selenium	**2.25**		mg/kg dry	0.333	0.333	1	07/15/19	07/17/19 17:54	VVD
Silver	**1.44**		mg/kg dry	0.333	0.333	1	07/15/19	07/17/19 17:54	VVD
Thallium	ND		mg/kg dry	0.333	0.333	1	07/15/19	07/17/19 17:54	VVD
Zinc	**704**		mg/kg dry	16.7	16.7	10	07/15/19	07/17/19 17:12	VVD
Wet Chemistry Performed at Enviro-Chem									
% Solids	**81.0**		%	1.00	1.00	1	07/15/19	07/15/19 16:08	FRD
Cyanide, Total	ND		mg/kg dry	0.598	0.598	1	07/17/19	07/18/19 13:07	FRD
Dioxins and Furans by Isotope Dilution HRGC/HRMS Performed at PACE-MN									
1,2,3,4,6,7,8-HpCDD	**25**		ng/Kg	5.0	1.2	1	07/16/19	07/22/19 18:06	SMT
1,2,3,4,6,7,8-HpCDF	**23**		ng/Kg	5.0	1.3	1	07/16/19	07/22/19 18:06	SMT
1,2,3,4,7,8,9-HpCDF	ND		ng/Kg	5.0	1.5	1	07/16/19	07/22/19 18:06	SMT
1,2,3,4,7,8-HxCDD	ND		ng/Kg	5.0	2.0	1	07/16/19	07/22/19 18:06	SMT
1,2,3,4,7,8-HxCDF	ND		ng/Kg	5.0	1.4	1	07/16/19	07/22/19 18:06	SMT
1,2,3,6,7,8-HxCDD	ND		ng/Kg	5.0	1.6	1	07/16/19	07/22/19 18:06	SMT
1,2,3,6,7,8-HxCDF	ND		ng/Kg	5.0	1.3	1	07/16/19	07/22/19 18:06	SMT
1,2,3,7,8,9-HxCDD	ND		ng/Kg	5.0	1.3	1	07/16/19	07/22/19 18:06	SMT
1,2,3,7,8,9-HxCDF	ND		ng/Kg	5.0	1.4	1	07/16/19	07/22/19 18:06	SMT
1,2,3,7,8-PeCDD	ND		ng/Kg	5.0	0.98	1	07/16/19	07/22/19 18:06	SMT
1,2,3,7,8-PeCDF	ND		ng/Kg	5.0	1.5	1	07/16/19	07/22/19 18:06	SMT
2,3,4,6,7,8-HxCDF	ND		ng/Kg	5.0	0.85	1	07/16/19	07/22/19 18:06	SMT
2,3,4,7,8-PeCDF	**5.6**	J	ng/Kg	5.0	1.3	1	07/16/19	07/22/19 18:06	SMT
2,3,7,8-TCDD	ND	A	ng/Kg	1.1	1.1	1	07/16/19	07/22/19 18:06	SMT
2,3,7,8-TCDF	**6.7**	A	ng/Kg	2.1	2.1	1	07/16/19	07/22/19 18:06	SMT
OCDD	**170**		ng/Kg	10	2.8	1	07/16/19	07/22/19 18:06	SMT
OCDF	ND	I, J	ng/Kg	10	4.9	1	07/16/19	07/22/19 18:06	SMT
Total HpCDD	**41**		ng/Kg	5.0	1.2	1	07/16/19	07/22/19 18:06	SMT

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Project: Annapolis Public Works

Project Number: 19-416A
Project Manager: Keith Progin

Reported:
07/23/19 17:23

SB-4

9071111-04 (Soil)
Sample Date: 07/11/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Dioxins and Furans by Isotope Dilution HRGC/HRMS Performed at PACE-MN (continued)									
Total HpCDF	**31**		ng/Kg	5.0	1.4	1	07/16/19	07/22/19 18:06	SMT
Total HxCDD	ND		ng/Kg	5.0	1.6	1	07/16/19	07/22/19 18:06	SMT
Total HxCDF	**28**		ng/Kg	5.0	1.2	1	07/16/19	07/22/19 18:06	SMT
Total PeCDD	ND		ng/Kg	5.0	0.98	1	07/16/19	07/22/19 18:06	SMT
Total PeCDF	**72**		ng/Kg	5.0	1.4	1	07/16/19	07/22/19 18:06	SMT
Total TCDD	**7.2**		ng/Kg	1.1	1.1	1	07/16/19	07/22/19 18:06	SMT
Total TCDF	**130**		ng/Kg	2.1	2.1	1	07/16/19	07/22/19 18:06	SMT
Surrogate: 1,2,3,4,6,7,8-HpCDD-13C			*40.0-135.0*	*59 %*			*07/16/19*	*07/22/19 18:06*	
Surrogate: 1,2,3,4,6,7,8-HpCDF-13C			*40.0-135.0*	*51 %*			*07/16/19*	*07/22/19 18:06*	
Surrogate: 1,2,3,4,7,8,9-HpCDF-13C			*40.0-135.0*	*50 %*			*07/16/19*	*07/22/19 18:06*	
Surrogate: 1,2,3,4,7,8-HxCDD-13C			*40.0-135.0*	*61 %*			*07/16/19*	*07/22/19 18:06*	
Surrogate: 1,2,3,4,7,8-HxCDF-13C			*40.0-135.0*	*70 %*			*07/16/19*	*07/22/19 18:06*	
Surrogate: 1,2,3,6,7,8-HxCDD-13C			*40.0-135.0*	*58 %*			*07/16/19*	*07/22/19 18:06*	
Surrogate: 1,2,3,6,7,8-HxCDF-13C			*40.0-135.0*	*69 %*			*07/16/19*	*07/22/19 18:06*	
Surrogate: 1,2,3,7,8,9-HxCDF-13C			*40.0-135.0*	*62 %*			*07/16/19*	*07/22/19 18:06*	
Surrogate: 1,2,3,7,8-PeCDD-13C			*40.0-135.0*	*52 %*			*07/16/19*	*07/22/19 18:06*	
Surrogate: 1,2,3,7,8-PeCDF-13C			*40.0-135.0*	*53 %*			*07/16/19*	*07/22/19 18:06*	
Surrogate: 2,3,4,6,7,8-HxCDF-13C			*40.0-135.0*	*67 %*			*07/16/19*	*07/22/19 18:06*	
Surrogate: 2,3,4,7,8-PeCDF-13C			*40.0-135.0*	*47 %*			*07/16/19*	*07/22/19 18:06*	
Surrogate: 2,3,7,8-TCDD-13C			*40.0-135.0*	*63 %*			*07/16/19*	*07/22/19 18:06*	
Surrogate: 2,3,7,8-TCDF-13C			*40.0-135.0*	*61 %*			*07/16/19*	*07/22/19 18:06*	
Surrogate: OCDD-13C			*40.0-135.0*	*47 %*			*07/16/19*	*07/22/19 18:06*	

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Maryland spectral Services

Analytical Chemistry Services

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Analytical Results

Project: Annapolis Public Works

Project Number: 19-416A
Project Manager: Keith Progin

Reported:
07/23/19 17:23

SB-4

9071111-04RE1 (Soil)
Sample Date: 07/11/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	**132**		mg/kg dry	10.7	10.7	1	07/11/19	07/16/19 03:08	SJA
Surrogate: o-Terphenyl			*70-130*	*81 %*		*07/11/19*		*07/16/19 03:08*	

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Project: Annapolis Public Works

Project Number: 19-416A
Project Manager: Keith Progin

Reported:
07/23/19 17:23

SB-5

9071111-05 (Soil)
Sample Date: 07/11/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
VOLATILE ORGANICS BY EPA METHOD 8260B (GC/MS)									
Acetone	**34.0**		ug/kg dry	13.2	13.2	1	07/16/19	07/16/19 16:10	GM
tert-Amyl alcohol (TAA)	ND		ug/kg dry	65.8	65.8	1	07/16/19	07/16/19 16:10	GM
tert-Amyl methyl ether (TAME)	ND		ug/kg dry	6.6	2.6	1	07/16/19	07/16/19 16:10	GM
Benzene	ND		ug/kg dry	6.6	2.6	1	07/16/19	07/16/19 16:10	GM
Bromobenzene	ND		ug/kg dry	6.6	2.6	1	07/16/19	07/16/19 16:10	GM
Bromochloromethane	ND		ug/kg dry	6.6	2.6	1	07/16/19	07/16/19 16:10	GM
Bromodichloromethane	ND		ug/kg dry	6.6	2.6	1	07/16/19	07/16/19 16:10	GM
Bromoform	ND		ug/kg dry	6.6	2.6	1	07/16/19	07/16/19 16:10	GM
Bromomethane	ND		ug/kg dry	6.6	6.6	1	07/16/19	07/16/19 16:10	GM
tert-Butanol (TBA)	ND		ug/kg dry	65.8	65.8	1	07/16/19	07/16/19 16:10	GM
2-Butanone (MEK)	ND		ug/kg dry	13.2	13.2	1	07/16/19	07/16/19 16:10	GM
n-Butylbenzene	ND		ug/kg dry	6.6	2.6	1	07/16/19	07/16/19 16:10	GM
sec-Butylbenzene	ND		ug/kg dry	6.6	2.6	1	07/16/19	07/16/19 16:10	GM
tert-Butylbenzene	ND		ug/kg dry	6.6	2.6	1	07/16/19	07/16/19 16:10	GM
Carbon disulfide	ND		ug/kg dry	6.6	2.6	1	07/16/19	07/16/19 16:10	GM
Carbon tetrachloride	ND		ug/kg dry	6.6	2.6	1	07/16/19	07/16/19 16:10	GM
Chlorobenzene	ND		ug/kg dry	6.6	2.6	1	07/16/19	07/16/19 16:10	GM
Chloroethane	ND		ug/kg dry	6.6	6.6	1	07/16/19	07/16/19 16:10	GM
Chloroform	ND		ug/kg dry	6.6	2.6	1	07/16/19	07/16/19 16:10	GM
Chloromethane	ND		ug/kg dry	6.6	6.6	1	07/16/19	07/16/19 16:10	GM
2-Chlorotoluene	ND		ug/kg dry	6.6	2.6	1	07/16/19	07/16/19 16:10	GM
4-Chlorotoluene	ND		ug/kg dry	6.6	2.6	1	07/16/19	07/16/19 16:10	GM
1,2-Dibromo-3-chloropropane	ND		ug/kg dry	6.6	2.6	1	07/16/19	07/16/19 16:10	GM
Dibromochloromethane	ND		ug/kg dry	6.6	2.6	1	07/16/19	07/16/19 16:10	GM
1,2-Dibromoethane (EDB)	ND		ug/kg dry	6.6	2.6	1	07/16/19	07/16/19 16:10	GM
Dibromomethane	ND		ug/kg dry	6.6	2.6	1	07/16/19	07/16/19 16:10	GM
1,2-Dichlorobenzene	ND		ug/kg dry	6.6	2.6	1	07/16/19	07/16/19 16:10	GM
1,3-Dichlorobenzene	ND		ug/kg dry	6.6	2.6	1	07/16/19	07/16/19 16:10	GM
1,4-Dichlorobenzene	ND		ug/kg dry	6.6	2.6	1	07/16/19	07/16/19 16:10	GM
Dichlorodifluoromethane	ND		ug/kg dry	6.6	2.6	1	07/16/19	07/16/19 16:10	GM
1,1-Dichloroethane	ND		ug/kg dry	6.6	2.6	1	07/16/19	07/16/19 16:10	GM
1,2-Dichloroethane	ND		ug/kg dry	6.6	2.6	1	07/16/19	07/16/19 16:10	GM
1,1-Dichloroethene	ND		ug/kg dry	6.6	2.6	1	07/16/19	07/16/19 16:10	GM

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Project: Annapolis Public Works

Project Number: 19-416A
Project Manager: Keith Progin

Reported:
07/23/19 17:23

SB-5

9071111-05 (Soil)
Sample Date: 07/11/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
VOLATILE ORGANICS BY EPA METHOD 8260B (GC/MS) (continued)									
cis-1,2-Dichloroethene	ND		ug/kg dry	6.6	2.6	1	07/16/19	07/16/19 16:10	GM
trans-1,2-Dichloroethene	ND		ug/kg dry	6.6	2.6	1	07/16/19	07/16/19 16:10	GM
Dichlorofluoromethane	ND		ug/kg dry	6.6	2.6	1	07/16/19	07/16/19 16:10	GM
1,2-Dichloropropane	ND		ug/kg dry	6.6	2.6	1	07/16/19	07/16/19 16:10	GM
1,3-Dichloropropane	ND		ug/kg dry	6.6	2.6	1	07/16/19	07/16/19 16:10	GM
2,2-Dichloropropane	ND		ug/kg dry	6.6	2.6	1	07/16/19	07/16/19 16:10	GM
1,1-Dichloropropene	ND		ug/kg dry	6.6	2.6	1	07/16/19	07/16/19 16:10	GM
cis-1,3-Dichloropropene	ND		ug/kg dry	6.6	2.6	1	07/16/19	07/16/19 16:10	GM
trans-1,3-Dichloropropene	ND		ug/kg dry	6.6	2.6	1	07/16/19	07/16/19 16:10	GM
Diisopropyl ether (DIPE)	ND		ug/kg dry	6.6	2.6	1	07/16/19	07/16/19 16:10	GM
Ethyl tert-butyl ether (ETBE)	ND		ug/kg dry	6.6	2.6	1	07/16/19	07/16/19 16:10	GM
Ethylbenzene	ND		ug/kg dry	6.6	2.6	1	07/16/19	07/16/19 16:10	GM
Hexachlorobutadiene	ND		ug/kg dry	6.6	2.6	1	07/16/19	07/16/19 16:10	GM
2-Hexanone	ND		ug/kg dry	13.2	13.2	1	07/16/19	07/16/19 16:10	GM
Isopropylbenzene (Cumene)	ND		ug/kg dry	6.6	2.6	1	07/16/19	07/16/19 16:10	GM
4-Isopropyltoluene	ND		ug/kg dry	6.6	2.6	1	07/16/19	07/16/19 16:10	GM
Methyl tert-butyl ether (MTBE)	ND		ug/kg dry	6.6	2.6	1	07/16/19	07/16/19 16:10	GM
4-Methyl-2-pentanone	ND		ug/kg dry	13.2	13.2	1	07/16/19	07/16/19 16:10	GM
Methylene chloride	ND		ug/kg dry	26.3	26.3	1	07/16/19	07/16/19 16:10	GM
Naphthalene	ND		ug/kg dry	6.6	2.6	1	07/16/19	07/16/19 16:10	GM
n-Propylbenzene	ND		ug/kg dry	6.6	2.6	1	07/16/19	07/16/19 16:10	GM
Styrene	ND		ug/kg dry	6.6	2.6	1	07/16/19	07/16/19 16:10	GM
1,1,1,2-Tetrachloroethane	ND		ug/kg dry	6.6	2.6	1	07/16/19	07/16/19 16:10	GM
1,1,2,2-Tetrachloroethane	ND		ug/kg dry	6.6	2.6	1	07/16/19	07/16/19 16:10	GM
Tetrachloroethene	ND		ug/kg dry	6.6	2.6	1	07/16/19	07/16/19 16:10	GM
Toluene	ND		ug/kg dry	6.6	2.6	1	07/16/19	07/16/19 16:10	GM
1,2,3-Trichlorobenzene	ND		ug/kg dry	6.6	2.6	1	07/16/19	07/16/19 16:10	GM
1,2,4-Trichlorobenzene	ND		ug/kg dry	6.6	2.6	1	07/16/19	07/16/19 16:10	GM
1,1,1-Trichloroethane	ND		ug/kg dry	6.6	2.6	1	07/16/19	07/16/19 16:10	GM
1,1,2-Trichloroethane	ND		ug/kg dry	6.6	2.6	1	07/16/19	07/16/19 16:10	GM
Trichloroethene	ND		ug/kg dry	6.6	2.6	1	07/16/19	07/16/19 16:10	GM
Trichlorofluoromethane (Freon 11)	ND		ug/kg dry	6.6	2.6	1	07/16/19	07/16/19 16:10	GM
1,2,3-Trichloropropane	ND		ug/kg dry	6.6	2.6	1	07/16/19	07/16/19 16:10	GM

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SB-5

9071111-05 (Soil)
Sample Date: 07/11/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
VOLATILE ORGANICS BY EPA METHOD 8260B (GC/MS) (continued)									
1,2,4-Trimethylbenzene	ND		ug/kg dry	6.6	2.6	1	07/16/19	07/16/19 16:10	GM
1,3,5-Trimethylbenzene	ND		ug/kg dry	6.6	2.6	1	07/16/19	07/16/19 16:10	GM
Vinyl chloride	ND		ug/kg dry	6.6	2.6	1	07/16/19	07/16/19 16:10	GM
o-Xylene	ND		ug/kg dry	6.6	2.6	1	07/16/19	07/16/19 16:10	GM
m- & p-Xylenes	ND		ug/kg dry	6.6	2.6	1	07/16/19	07/16/19 16:10	GM
Surrogate: 1,2-Dichloroethane-d4			*70-130*	*105 %*	*07/16/19*		*07/16/19 16:10*		
Surrogate: Toluene-d8			*75-120*	*99 %*	*07/16/19*		*07/16/19 16:10*		
Surrogate: 4-Bromofluorobenzene			*65-120*	*93 %*	*07/16/19*		*07/16/19 16:10*		
SEMIVOLATILE ORGANICS BY EPA METHOD 3540/8270D (GC/MS)									
Acenaphthene	ND		ug/kg dry	329	132	1	07/11/19	07/12/19 14:53	WB
Acenaphthylene	ND		ug/kg dry	329	132	1	07/11/19	07/12/19 14:53	WB
Anthracene	ND		ug/kg dry	329	132	1	07/11/19	07/12/19 14:53	WB
Benzo[a]anthracene	ND		ug/kg dry	329	132	1	07/11/19	07/12/19 14:53	WB
Benzo[b]fluoranthene	ND		ug/kg dry	329	132	1	07/11/19	07/12/19 14:53	WB
Benzo[k]fluoranthene	ND		ug/kg dry	329	132	1	07/11/19	07/12/19 14:53	WB
Benzo[ghi]perylene	ND		ug/kg dry	329	132	1	07/11/19	07/12/19 14:53	WB
Benzo[a]pyrene	ND		ug/kg dry	329	132	1	07/11/19	07/12/19 14:53	WB
4-Bromophenyl phenyl ether	ND		ug/kg dry	329	132	1	07/11/19	07/12/19 14:53	WB
Butyl benzyl phthalate	ND		ug/kg dry	329	132	1	07/11/19	07/12/19 14:53	WB
Carbazole	ND		ug/kg dry	329	132	1	07/11/19	07/12/19 14:53	WB
4-Chloro-3-methylphenol	ND		ug/kg dry	329	132	1	07/11/19	07/12/19 14:53	WB
4-Chloroaniline	ND		ug/kg dry	329	132	1	07/11/19	07/12/19 14:53	WB
Bis(2-chloroethoxy)methane	ND		ug/kg dry	329	132	1	07/11/19	07/12/19 14:53	WB
Bis(2-chloroethyl) ether	ND		ug/kg dry	329	132	1	07/11/19	07/12/19 14:53	WB
2,2'-Oxybis(1-Chloropropane)	ND		ug/kg dry	329	132	1	07/11/19	07/12/19 14:53	WB
2-Chloronaphthalene	ND		ug/kg dry	329	132	1	07/11/19	07/12/19 14:53	WB
2-Chlorophenol	ND		ug/kg dry	329	132	1	07/11/19	07/12/19 14:53	WB
4-Chlorophenyl phenyl ether	ND		ug/kg dry	329	132	1	07/11/19	07/12/19 14:53	WB
Chrysene	ND		ug/kg dry	329	132	1	07/11/19	07/12/19 14:53	WB
Di-n-butyl phthalate	ND		ug/kg dry	329	132	1	07/11/19	07/12/19 14:53	WB
Di-n-octyl phthalate	ND		ug/kg dry	329	132	1	07/11/19	07/12/19 14:53	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	329	132	1	07/11/19	07/12/19 14:53	WB
Dibenzofuran	ND		ug/kg dry	329	132	1	07/11/19	07/12/19 14:53	WB

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SB-5

9071111-05 (Soil)
Sample Date: 07/11/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 3540/8270D (GC/MS) (continued)									
1,2-Dichlorobenzene	ND		ug/kg dry	329	132	1	07/11/19	07/12/19 14:53	WB
1,3-Dichlorobenzene	ND		ug/kg dry	329	132	1	07/11/19	07/12/19 14:53	WB
1,4-Dichlorobenzene	ND		ug/kg dry	329	132	1	07/11/19	07/12/19 14:53	WB
3,3-Dichlorobenzidine	ND		ug/kg dry	658	658	1	07/11/19	07/12/19 14:53	WB
2,4-Dichlorophenol	ND		ug/kg dry	329	132	1	07/11/19	07/12/19 14:53	WB
Diethyl phthalate	ND		ug/kg dry	329	132	1	07/11/19	07/12/19 14:53	WB
Dimethyl phthalate	ND		ug/kg dry	329	132	1	07/11/19	07/12/19 14:53	WB
2,4-Dimethylphenol	ND		ug/kg dry	329	132	1	07/11/19	07/12/19 14:53	WB
2-Methyl-4,6-dinitrophenol	ND		ug/kg dry	1640	1640	1	07/11/19	07/12/19 14:53	WB
2,4-Dinitrophenol	ND		ug/kg dry	1640	1640	1	07/11/19	07/12/19 14:53	WB
2,4-Dinitrotoluene	ND		ug/kg dry	329	132	1	07/11/19	07/12/19 14:53	WB
2,6-Dinitrotoluene	ND		ug/kg dry	329	132	1	07/11/19	07/12/19 14:53	WB
Bis(2-ethylhexyl) phthalate	ND		ug/kg dry	329	132	1	07/11/19	07/12/19 14:53	WB
Fluoranthene	ND		ug/kg dry	329	132	1	07/11/19	07/12/19 14:53	WB
Fluorene	ND		ug/kg dry	329	132	1	07/11/19	07/12/19 14:53	WB
Hexachlorobenzene	ND		ug/kg dry	329	132	1	07/11/19	07/12/19 14:53	WB
Hexachlorobutadiene	ND		ug/kg dry	329	132	1	07/11/19	07/12/19 14:53	WB
Hexachlorocyclopentadiene	ND		ug/kg dry	329	132	1	07/11/19	07/12/19 14:53	WB
Hexachloroethane	ND		ug/kg dry	329	132	1	07/11/19	07/12/19 14:53	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	329	132	1	07/11/19	07/12/19 14:53	WB
Isophorone	ND		ug/kg dry	329	132	1	07/11/19	07/12/19 14:53	WB
2-Methylnaphthalene	ND		ug/kg dry	329	132	1	07/11/19	07/12/19 14:53	WB
3&4-Methylphenol	ND		ug/kg dry	329	132	1	07/11/19	07/12/19 14:53	WB
2-Methylphenol	ND		ug/kg dry	329	132	1	07/11/19	07/12/19 14:53	WB
N-Nitroso-di-n-propylamine	ND		ug/kg dry	329	132	1	07/11/19	07/12/19 14:53	WB
N-Nitrosodiphenylamine	ND		ug/kg dry	329	132	1	07/11/19	07/12/19 14:53	WB
Naphthalene	ND		ug/kg dry	329	132	1	07/11/19	07/12/19 14:53	WB
2-Nitroaniline	ND		ug/kg dry	1640	1640	1	07/11/19	07/12/19 14:53	WB
3-Nitroaniline	ND		ug/kg dry	1640	1640	1	07/11/19	07/12/19 14:53	WB
4-Nitroaniline	ND		ug/kg dry	1640	1640	1	07/11/19	07/12/19 14:53	WB
Nitrobenzene	ND		ug/kg dry	329	132	1	07/11/19	07/12/19 14:53	WB
2-Nitrophenol	ND		ug/kg dry	329	132	1	07/11/19	07/12/19 14:53	WB
4-Nitrophenol	ND		ug/kg dry	1640	1640	1	07/11/19	07/12/19 14:53	WB

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Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 3540/8270D (GC/MS) (continued)									
Pentachlorophenol	ND		ug/kg dry	1640	1640	1	07/11/19	07/12/19 14:53	WB
Phenanthrene	ND		ug/kg dry	329	132	1	07/11/19	07/12/19 14:53	WB
Phenol	ND		ug/kg dry	329	132	1	07/11/19	07/12/19 14:53	WB
Pyrene	ND		ug/kg dry	329	132	1	07/11/19	07/12/19 14:53	WB
1,2,4-Trichlorobenzene	ND		ug/kg dry	329	132	1	07/11/19	07/12/19 14:53	WB
2,4,5-Trichlorophenol	ND		ug/kg dry	329	132	1	07/11/19	07/12/19 14:53	WB
2,4,6-Trichlorophenol	ND		ug/kg dry	329	132	1	07/11/19	07/12/19 14:53	WB
Surrogate: 2-Fluorophenol			*23-121*	*73 %*	*07/11/19*		*07/12/19 14:53*		
Surrogate: Phenol-d5			*24-113*	*76 %*	*07/11/19*		*07/12/19 14:53*		
Surrogate: Nitrobenzene-d5			*23-120*	*83 %*	*07/11/19*		*07/12/19 14:53*		
Surrogate: 2,4,6-Tribromophenol			*19-122*	*87 %*	*07/11/19*		*07/12/19 14:53*		
Surrogate: 2-Fluorobiphenyl			*30-115*	*82 %*	*07/11/19*		*07/12/19 14:53*		
Surrogate: Terphenyl-d14			*18-137*	*84 %*	*07/11/19*		*07/12/19 14:53*		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.13	0.13	1	07/17/19	07/17/19 17:12	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	**187**		mg/kg dry	52.6	52.6	1	07/11/19	07/13/19 02:40	SJA
Surrogate: o-Terphenyl			*70-130*	*79 %*	*07/11/19*		*07/13/19 02:40*		
PERCENT SOLIDS BY ASTM D2216-05									
Percent Solids	**76**		%			1	07/17/19	07/18/19 11:22	CEB
POLYCHLORINATED BIPHENYLS BY EPA 3540/8082A (GC/ECD)									
Aroclor-1016	ND		ug/kg dry	109	109	1	07/11/19	07/12/19 19:21	SJA
Aroclor-1221	ND		ug/kg dry	224	224	1	07/11/19	07/12/19 19:21	SJA
Aroclor-1232	ND		ug/kg dry	109	109	1	07/11/19	07/12/19 19:21	SJA
Aroclor-1242	ND		ug/kg dry	109	109	1	07/11/19	07/12/19 19:21	SJA
Aroclor-1248	ND		ug/kg dry	109	109	1	07/11/19	07/12/19 19:21	SJA
Aroclor-1254	ND		ug/kg dry	109	109	1	07/11/19	07/12/19 19:21	SJA
Aroclor-1260	ND		ug/kg dry	109	109	1	07/11/19	07/12/19 19:21	SJA
Aroclor-1262	ND		ug/kg dry	109	109	1	07/11/19	07/12/19 19:21	SJA
Aroclor-1268	ND		ug/kg dry	109	109	1	07/11/19	07/12/19 19:21	SJA
Surrogate: Tetrachloro-m-xylene			*40-150*	*66 %*	*07/11/19*		*07/12/19 19:21*		
Surrogate: Decachlorobiphenyl			*40-150*	*104 %*	*07/11/19*		*07/12/19 19:21*		

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Maryland spectral Services

Analytical Chemistry Services

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Analytical Results

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9071111-05 (Soil)
Sample Date: 07/11/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
TOTAL METALS ANALYSIS BY EPA 3050B/6020A									
Antimony	**13.9**		mg/kg dry	0.329	0.329	1	07/15/19	07/17/19 18:02	VVD
Arsenic	**26.3**		mg/kg dry	0.329	0.329	1	07/15/19	07/17/19 18:02	VVD
Beryllium	**0.605**		mg/kg dry	0.329	0.329	1	07/15/19	07/17/19 18:02	VVD
Cadmium	**2.53**		mg/kg dry	0.329	0.329	1	07/15/19	07/17/19 18:02	VVD
Chromium	**61.7**		mg/kg dry	0.329	0.329	1	07/15/19	07/17/19 18:02	VVD
Copper	**1670**		mg/kg dry	6.58	6.58	20	07/15/19	07/17/19 17:15	VVD
Lead	**2200**		mg/kg dry	6.58	6.58	20	07/15/19	07/17/19 17:15	VVD
Mercury	**0.221**		mg/kg dry	0.0164	0.0164	1	07/15/19	07/17/19 18:02	VVD
Nickel	**71.8**		mg/kg dry	0.329	0.329	1	07/15/19	07/17/19 18:02	VVD
Selenium	**1.97**		mg/kg dry	0.329	0.329	1	07/15/19	07/17/19 18:02	VVD
Silver	**2.63**		mg/kg dry	0.329	0.329	1	07/15/19	07/17/19 18:02	VVD
Thallium	ND		mg/kg dry	0.329	0.329	1	07/15/19	07/17/19 18:02	VVD
Zinc	**2070**		mg/kg dry	32.9	32.9	20	07/15/19	07/17/19 17:15	VVD
Wet Chemistry Performed at Enviro-Chem									
% Solids	**73.6**		%	1.00	1.00	1	07/15/19	07/15/19 16:08	FRD
Cyanide, Total	ND		mg/kg dry	0.669	0.669	1	07/17/19	07/18/19 13:11	FRD
Dioxins and Furans by Isotope Dilution HRGC/HRMS Performed at PACE-MN									
1,2,3,4,6,7,8-HpCDD	ND		ng/Kg	5.0	0.72	1	07/16/19	07/22/19 18:53	SMT
1,2,3,4,6,7,8-HpCDF	ND		ng/Kg	5.0	0.73	1	07/16/19	07/22/19 18:53	SMT
1,2,3,4,7,8,9-HpCDF	ND		ng/Kg	5.0	0.88	1	07/16/19	07/22/19 18:53	SMT
1,2,3,4,7,8-HxCDD	ND		ng/Kg	5.0	0.48	1	07/16/19	07/22/19 18:53	SMT
1,2,3,4,7,8-HxCDF	ND		ng/Kg	5.0	0.40	1	07/16/19	07/22/19 18:53	SMT
1,2,3,6,7,8-HxCDD	ND		ng/Kg	5.0	0.41	1	07/16/19	07/22/19 18:53	SMT
1,2,3,6,7,8-HxCDF	ND		ng/Kg	5.0	0.40	1	07/16/19	07/22/19 18:53	SMT
1,2,3,7,8,9-HxCDD	ND		ng/Kg	5.0	0.55	1	07/16/19	07/22/19 18:53	SMT
1,2,3,7,8,9-HxCDF	ND		ng/Kg	5.0	0.25	1	07/16/19	07/22/19 18:53	SMT
1,2,3,7,8-PeCDD	ND		ng/Kg	5.0	0.46	1	07/16/19	07/22/19 18:53	SMT
1,2,3,7,8-PeCDF	ND		ng/Kg	5.0	0.45	1	07/16/19	07/22/19 18:53	SMT
2,3,4,6,7,8-HxCDF	ND		ng/Kg	5.0	0.34	1	07/16/19	07/22/19 18:53	SMT
2,3,4,7,8-PeCDF	ND		ng/Kg	5.0	0.21	1	07/16/19	07/22/19 18:53	SMT
2,3,7,8-TCDD	ND		ng/Kg	1.0	0.38	1	07/16/19	07/22/19 18:53	SMT
2,3,7,8-TCDF	**1.7**		ng/Kg	1.0	0.43	1	07/16/19	07/22/19 18:53	SMT
OCDD	**210**		ng/Kg	10	1.9	1	07/16/19	07/22/19 18:53	SMT
OCDF	ND		ng/Kg	10	1.4	1	07/16/19	07/22/19 18:53	SMT

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

Project: Annapolis Public Works

Project Number: 19-416A
Project Manager: Keith Progin

Reported:
07/23/19 17:23

SB-5

9071111-05 (Soil)
Sample Date: 07/11/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Dioxins and Furans by Isotope Dilution HRGC/HRMS Performed at PACE-MN (continued)									
Total HpCDD	ND		ng/Kg	5.0	0.72	1	07/16/19	07/22/19 18:53	SMT
Total HpCDF	ND		ng/Kg	5.0	0.80	1	07/16/19	07/22/19 18:53	SMT
Total HxCDD	ND		ng/Kg	5.0	0.48	1	07/16/19	07/22/19 18:53	SMT
Total HxCDF	ND		ng/Kg	5.0	0.35	1	07/16/19	07/22/19 18:53	SMT
Total PeCDD	ND		ng/Kg	5.0	0.46	1	07/16/19	07/22/19 18:53	SMT
Total PeCDF	ND		ng/Kg	5.0	0.33	1	07/16/19	07/22/19 18:53	SMT
Total TCDD	**1.4**		ng/Kg	1.0	0.38	1	07/16/19	07/22/19 18:53	SMT
Total TCDF	**22**		ng/Kg	1.0	0.43	1	07/16/19	07/22/19 18:53	SMT
Surrogate: 1,2,3,4,6,7,8-HpCDD-13C			*40.0-135.0*	*53 %*			*07/16/19*	*07/22/19 18:53*	
Surrogate: 1,2,3,4,6,7,8-HpCDF-13C			*40.0-135.0*	*47 %*			*07/16/19*	*07/22/19 18:53*	
Surrogate: 1,2,3,4,7,8,9-HpCDF-13C			*40.0-135.0*	*51 %*			*07/16/19*	*07/22/19 18:53*	
Surrogate: 1,2,3,4,7,8-HxCDD-13C			*40.0-135.0*	*56 %*			*07/16/19*	*07/22/19 18:53*	
Surrogate: 1,2,3,4,7,8-HxCDF-13C			*40.0-135.0*	*60 %*			*07/16/19*	*07/22/19 18:53*	
Surrogate: 1,2,3,6,7,8-HxCDD-13C			*40.0-135.0*	*55 %*			*07/16/19*	*07/22/19 18:53*	
Surrogate: 1,2,3,6,7,8-HxCDF-13C			*40.0-135.0*	*61 %*			*07/16/19*	*07/22/19 18:53*	
Surrogate: 1,2,3,7,8,9-HxCDF-13C			*40.0-135.0*	*58 %*			*07/16/19*	*07/22/19 18:53*	
Surrogate: 1,2,3,7,8-PeCDD-13C			*40.0-135.0*	*56 %*			*07/16/19*	*07/22/19 18:53*	
Surrogate: 1,2,3,7,8-PeCDF-13C			*40.0-135.0*	*56 %*			*07/16/19*	*07/22/19 18:53*	
Surrogate: 2,3,4,6,7,8-HxCDF-13C			*40.0-135.0*	*57 %*			*07/16/19*	*07/22/19 18:53*	
Surrogate: 2,3,4,7,8-PeCDF-13C			*40.0-135.0*	*52 %*			*07/16/19*	*07/22/19 18:53*	
Surrogate: 2,3,7,8-TCDD-13C			*40.0-135.0*	*60 %*			*07/16/19*	*07/22/19 18:53*	
Surrogate: 2,3,7,8-TCDF-13C			*40.0-135.0*	*58 %*			*07/16/19*	*07/22/19 18:53*	
Surrogate: OCDD-13C			*40.0-135.0*	*42 %*			*07/16/19*	*07/22/19 18:53*	

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410-247-7600
www.mdspectral.com

Project: Annapolis Public Works

Project Number: 19-416A
Project Manager: Keith Progin

Reported:
07/23/19 17:23

SB-6

9071111-06 (Soil)
Sample Date: 07/11/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
VOLATILE ORGANICS BY EPA METHOD 8260B (GC/MS)									
Acetone	ND		ug/kg dry	12.0	12.0	1	07/16/19	07/16/19 16:37	GM
tert-Amyl alcohol (TAA)	ND		ug/kg dry	60.2	60.2	1	07/16/19	07/16/19 16:37	GM
tert-Amyl methyl ether (TAME)	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 16:37	GM
Benzene	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 16:37	GM
Bromobenzene	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 16:37	GM
Bromochloromethane	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 16:37	GM
Bromodichloromethane	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 16:37	GM
Bromoform	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 16:37	GM
Bromomethane	ND		ug/kg dry	6.0	6.0	1	07/16/19	07/16/19 16:37	GM
tert-Butanol (TBA)	ND		ug/kg dry	60.2	60.2	1	07/16/19	07/16/19 16:37	GM
2-Butanone (MEK)	ND		ug/kg dry	12.0	12.0	1	07/16/19	07/16/19 16:37	GM
n-Butylbenzene	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 16:37	GM
sec-Butylbenzene	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 16:37	GM
tert-Butylbenzene	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 16:37	GM
Carbon disulfide	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 16:37	GM
Carbon tetrachloride	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 16:37	GM
Chlorobenzene	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 16:37	GM
Chloroethane	ND		ug/kg dry	6.0	6.0	1	07/16/19	07/16/19 16:37	GM
Chloroform	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 16:37	GM
Chloromethane	ND		ug/kg dry	6.0	6.0	1	07/16/19	07/16/19 16:37	GM
2-Chlorotoluene	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 16:37	GM
4-Chlorotoluene	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 16:37	GM
1,2-Dibromo-3-chloropropane	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 16:37	GM
Dibromochloromethane	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 16:37	GM
1,2-Dibromoethane (EDB)	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 16:37	GM
Dibromomethane	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 16:37	GM
1,2-Dichlorobenzene	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 16:37	GM
1,3-Dichlorobenzene	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 16:37	GM
1,4-Dichlorobenzene	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 16:37	GM
Dichlorodifluoromethane	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 16:37	GM
1,1-Dichloroethane	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 16:37	GM
1,2-Dichloroethane	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 16:37	GM
1,1-Dichloroethene	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 16:37	GM

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Project: Annapolis Public Works

Project Number: 19-416A
Project Manager: Keith Progin

Reported:
07/23/19 17:23

SB-6

9071111-06 (Soil)
Sample Date: 07/11/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
VOLATILE ORGANICS BY EPA METHOD 8260B (GC/MS) (continued)									
cis-1,2-Dichloroethene	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 16:37	GM
trans-1,2-Dichloroethene	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 16:37	GM
Dichlorofluoromethane	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 16:37	GM
1,2-Dichloropropane	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 16:37	GM
1,3-Dichloropropane	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 16:37	GM
2,2-Dichloropropane	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 16:37	GM
1,1-Dichloropropene	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 16:37	GM
cis-1,3-Dichloropropene	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 16:37	GM
trans-1,3-Dichloropropene	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 16:37	GM
Diisopropyl ether (DIPE)	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 16:37	GM
Ethyl tert-butyl ether (ETBE)	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 16:37	GM
Ethylbenzene	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 16:37	GM
Hexachlorobutadiene	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 16:37	GM
2-Hexanone	ND		ug/kg dry	12.0	12.0	1	07/16/19	07/16/19 16:37	GM
Isopropylbenzene (Cumene)	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 16:37	GM
4-Isopropyltoluene	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 16:37	GM
Methyl tert-butyl ether (MTBE)	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 16:37	GM
4-Methyl-2-pentanone	ND		ug/kg dry	12.0	12.0	1	07/16/19	07/16/19 16:37	GM
Methylene chloride	ND		ug/kg dry	24.1	24.1	1	07/16/19	07/16/19 16:37	GM
Naphthalene	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 16:37	GM
n-Propylbenzene	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 16:37	GM
Styrene	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 16:37	GM
1,1,1,2-Tetrachloroethane	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 16:37	GM
1,1,2,2-Tetrachloroethane	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 16:37	GM
Tetrachloroethene	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 16:37	GM
Toluene	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 16:37	GM
1,2,3-Trichlorobenzene	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 16:37	GM
1,2,4-Trichlorobenzene	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 16:37	GM
1,1,1-Trichloroethane	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 16:37	GM
1,1,2-Trichloroethane	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 16:37	GM
Trichloroethene	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 16:37	GM
Trichlorofluoromethane (Freon 11)	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 16:37	GM
1,2,3-Trichloropropane	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 16:37	GM

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Analytical Results

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410-247-7600
www.mdspectral.com

Project: Annapolis Public Works

Project Number: 19-416A
Project Manager: Keith Progin

Reported:
07/23/19 17:23

SB-6

9071111-06 (Soil)
Sample Date: 07/11/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
VOLATILE ORGANICS BY EPA METHOD 8260B (GC/MS) (continued)									
1,2,4-Trimethylbenzene	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 16:37	GM
1,3,5-Trimethylbenzene	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 16:37	GM
Vinyl chloride	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 16:37	GM
o-Xylene	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 16:37	GM
m- & p-Xylenes	ND		ug/kg dry	6.0	2.4	1	07/16/19	07/16/19 16:37	GM
Surrogate: 1,2-Dichloroethane-d4			*70-130*	*106 %*	*07/16/19*		*07/16/19 16:37*		
Surrogate: Toluene-d8			*75-120*	*96 %*	*07/16/19*		*07/16/19 16:37*		
Surrogate: 4-Bromofluorobenzene			*65-120*	*94 %*	*07/16/19*		*07/16/19 16:37*		
SEMIVOLATILE ORGANICS BY EPA METHOD 3540/8270D (GC/MS)									
Acenaphthene	ND		ug/kg dry	301	120	1	07/11/19	07/12/19 15:15	WB
Acenaphthylene	ND		ug/kg dry	301	120	1	07/11/19	07/12/19 15:15	WB
Anthracene	ND		ug/kg dry	301	120	1	07/11/19	07/12/19 15:15	WB
Benzo[a]anthracene	ND		ug/kg dry	301	120	1	07/11/19	07/12/19 15:15	WB
Benzo[b]fluoranthene	ND		ug/kg dry	301	120	1	07/11/19	07/12/19 15:15	WB
Benzo[k]fluoranthene	ND		ug/kg dry	301	120	1	07/11/19	07/12/19 15:15	WB
Benzo[ghi]perylene	ND		ug/kg dry	301	120	1	07/11/19	07/12/19 15:15	WB
Benzo[a]pyrene	ND		ug/kg dry	301	120	1	07/11/19	07/12/19 15:15	WB
4-Bromophenyl phenyl ether	ND		ug/kg dry	301	120	1	07/11/19	07/12/19 15:15	WB
Butyl benzyl phthalate	ND		ug/kg dry	301	120	1	07/11/19	07/12/19 15:15	WB
Carbazole	ND		ug/kg dry	301	120	1	07/11/19	07/12/19 15:15	WB
4-Chloro-3-methylphenol	ND		ug/kg dry	301	120	1	07/11/19	07/12/19 15:15	WB
4-Chloroaniline	ND		ug/kg dry	301	120	1	07/11/19	07/12/19 15:15	WB
Bis(2-chloroethoxy)methane	ND		ug/kg dry	301	120	1	07/11/19	07/12/19 15:15	WB
Bis(2-chloroethyl) ether	ND		ug/kg dry	301	120	1	07/11/19	07/12/19 15:15	WB
2,2'-Oxybis(1-Chloropropane)	ND		ug/kg dry	301	120	1	07/11/19	07/12/19 15:15	WB
2-Chloronaphthalene	ND		ug/kg dry	301	120	1	07/11/19	07/12/19 15:15	WB
2-Chlorophenol	ND		ug/kg dry	301	120	1	07/11/19	07/12/19 15:15	WB
4-Chlorophenyl phenyl ether	ND		ug/kg dry	301	120	1	07/11/19	07/12/19 15:15	WB
Chrysene	ND		ug/kg dry	301	120	1	07/11/19	07/12/19 15:15	WB
Di-n-butyl phthalate	ND		ug/kg dry	301	120	1	07/11/19	07/12/19 15:15	WB
Di-n-octyl phthalate	ND		ug/kg dry	301	120	1	07/11/19	07/12/19 15:15	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	301	120	1	07/11/19	07/12/19 15:15	WB
Dibenzofuran	ND		ug/kg dry	301	120	1	07/11/19	07/12/19 15:15	WB

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Baltimore MD 21227
410-247-7600
www.mdspectral.com

Project: Annapolis Public Works

Project Number: 19-416A
Project Manager: Keith Progin

Reported:
07/23/19 17:23

SB-6

9071111-06 (Soil)
Sample Date: 07/11/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 3540/8270D (GC/MS) (continued)									
1,2-Dichlorobenzene	ND		ug/kg dry	301	120	1	07/11/19	07/12/19 15:15	WB
1,3-Dichlorobenzene	ND		ug/kg dry	301	120	1	07/11/19	07/12/19 15:15	WB
1,4-Dichlorobenzene	ND		ug/kg dry	301	120	1	07/11/19	07/12/19 15:15	WB
3,3-Dichlorobenzidine	ND		ug/kg dry	602	602	1	07/11/19	07/12/19 15:15	WB
2,4-Dichlorophenol	ND		ug/kg dry	301	120	1	07/11/19	07/12/19 15:15	WB
Diethyl phthalate	ND		ug/kg dry	301	120	1	07/11/19	07/12/19 15:15	WB
Dimethyl phthalate	ND		ug/kg dry	301	120	1	07/11/19	07/12/19 15:15	WB
2,4-Dimethylphenol	ND		ug/kg dry	301	120	1	07/11/19	07/12/19 15:15	WB
2-Methyl-4,6-dinitrophenol	ND		ug/kg dry	1510	1510	1	07/11/19	07/12/19 15:15	WB
2,4-Dinitrophenol	ND		ug/kg dry	1510	1510	1	07/11/19	07/12/19 15:15	WB
2,4-Dinitrotoluene	ND		ug/kg dry	301	120	1	07/11/19	07/12/19 15:15	WB
2,6-Dinitrotoluene	ND		ug/kg dry	301	120	1	07/11/19	07/12/19 15:15	WB
Bis(2-ethylhexyl) phthalate	ND		ug/kg dry	301	120	1	07/11/19	07/12/19 15:15	WB
Fluoranthene	ND		ug/kg dry	301	120	1	07/11/19	07/12/19 15:15	WB
Fluorene	ND		ug/kg dry	301	120	1	07/11/19	07/12/19 15:15	WB
Hexachlorobenzene	ND		ug/kg dry	301	120	1	07/11/19	07/12/19 15:15	WB
Hexachlorobutadiene	ND		ug/kg dry	301	120	1	07/11/19	07/12/19 15:15	WB
Hexachlorocyclopentadiene	ND		ug/kg dry	301	120	1	07/11/19	07/12/19 15:15	WB
Hexachloroethane	ND		ug/kg dry	301	120	1	07/11/19	07/12/19 15:15	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	301	120	1	07/11/19	07/12/19 15:15	WB
Isophorone	ND		ug/kg dry	301	120	1	07/11/19	07/12/19 15:15	WB
2-Methylnaphthalene	ND		ug/kg dry	301	120	1	07/11/19	07/12/19 15:15	WB
3&4-Methylphenol	ND		ug/kg dry	301	120	1	07/11/19	07/12/19 15:15	WB
2-Methylphenol	ND		ug/kg dry	301	120	1	07/11/19	07/12/19 15:15	WB
N-Nitroso-di-n-propylamine	ND		ug/kg dry	301	120	1	07/11/19	07/12/19 15:15	WB
N-Nitrosodiphenylamine	ND		ug/kg dry	301	120	1	07/11/19	07/12/19 15:15	WB
Naphthalene	ND		ug/kg dry	301	120	1	07/11/19	07/12/19 15:15	WB
2-Nitroaniline	ND		ug/kg dry	1510	1510	1	07/11/19	07/12/19 15:15	WB
3-Nitroaniline	ND		ug/kg dry	1510	1510	1	07/11/19	07/12/19 15:15	WB
4-Nitroaniline	ND		ug/kg dry	1510	1510	1	07/11/19	07/12/19 15:15	WB
Nitrobenzene	ND		ug/kg dry	301	120	1	07/11/19	07/12/19 15:15	WB
2-Nitrophenol	ND		ug/kg dry	301	120	1	07/11/19	07/12/19 15:15	WB
4-Nitrophenol	ND		ug/kg dry	1510	1510	1	07/11/19	07/12/19 15:15	WB

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Project: Annapolis Public Works

Project Number: 19-416A
Project Manager: Keith Progin

Reported:
07/23/19 17:23

SB-6

9071111-06 (Soil)
Sample Date: 07/11/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 3540/8270D (GC/MS) (continued)									
Pentachlorophenol	ND		ug/kg dry	1510	1510	1	07/11/19	07/12/19 15:15	WB
Phenanthrene	ND		ug/kg dry	301	120	1	07/11/19	07/12/19 15:15	WB
Phenol	ND		ug/kg dry	301	120	1	07/11/19	07/12/19 15:15	WB
Pyrene	ND		ug/kg dry	301	120	1	07/11/19	07/12/19 15:15	WB
1,2,4-Trichlorobenzene	ND		ug/kg dry	301	120	1	07/11/19	07/12/19 15:15	WB
2,4,5-Trichlorophenol	ND		ug/kg dry	301	120	1	07/11/19	07/12/19 15:15	WB
2,4,6-Trichlorophenol	ND		ug/kg dry	301	120	1	07/11/19	07/12/19 15:15	WB
Surrogate: 2-Fluorophenol			*23-121*	*74 %*	*07/11/19*		*07/12/19 15:15*		
Surrogate: Phenol-d5			*24-113*	*76 %*	*07/11/19*		*07/12/19 15:15*		
Surrogate: Nitrobenzene-d5			*23-120*	*83 %*	*07/11/19*		*07/12/19 15:15*		
Surrogate: 2,4,6-Tribromophenol			*19-122*	*87 %*	*07/11/19*		*07/12/19 15:15*		
Surrogate: 2-Fluorobiphenyl			*30-115*	*86 %*	*07/11/19*		*07/12/19 15:15*		
Surrogate: Terphenyl-d14			*18-137*	*91 %*	*07/11/19*		*07/12/19 15:15*		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.12	0.12	1	07/17/19	07/17/19 17:43	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	ND		mg/kg dry	9.6	9.6	1	07/11/19	07/13/19 03:06	SJA
Surrogate: o-Terphenyl			*70-130*	*77 %*	*07/11/19*		*07/13/19 03:06*		
PERCENT SOLIDS BY ASTM D2216-05									
Percent Solids	**83**		%			1	07/17/19	07/18/19 11:22	CEB
POLYCHLORINATED BIPHENYLS BY EPA 3540/8082A (GC/ECD)									
Aroclor-1016	ND		ug/kg dry	100	100	1	07/11/19	07/12/19 19:49	SJA
Aroclor-1221	ND		ug/kg dry	205	205	1	07/11/19	07/12/19 19:49	SJA
Aroclor-1232	ND		ug/kg dry	100	100	1	07/11/19	07/12/19 19:49	SJA
Aroclor-1242	ND		ug/kg dry	100	100	1	07/11/19	07/12/19 19:49	SJA
Aroclor-1248	ND		ug/kg dry	100	100	1	07/11/19	07/12/19 19:49	SJA
Aroclor-1254	ND		ug/kg dry	100	100	1	07/11/19	07/12/19 19:49	SJA
Aroclor-1260	ND		ug/kg dry	100	100	1	07/11/19	07/12/19 19:49	SJA
Aroclor-1262	ND		ug/kg dry	100	100	1	07/11/19	07/12/19 19:49	SJA
Aroclor-1268	ND		ug/kg dry	100	100	1	07/11/19	07/12/19 19:49	SJA
Surrogate: Tetrachloro-m-xylene			*40-150*	*62 %*	*07/11/19*		*07/12/19 19:49*		
Surrogate: Decachlorobiphenyl			*40-150*	*65 %*	*07/11/19*		*07/12/19 19:49*		

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Maryland spectral Services

Analytical Chemistry Services

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Analytical Results

Project: Annapolis Public Works

Project Number: 19-416A
Project Manager: Keith Progin

Reported:
07/23/19 17:23

SB-6

9071111-06 (Soil)
Sample Date: 07/11/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
TOTAL METALS ANALYSIS BY EPA 3050B/6020A									
Antimony	ND		mg/kg dry	0.301	0.301	1	07/15/19	07/17/19 17:20	VVD
Arsenic	**13.1**		mg/kg dry	0.301	0.301	1	07/15/19	07/17/19 17:20	VVD
Beryllium	**1.10**		mg/kg dry	0.301	0.301	1	07/15/19	07/17/19 17:20	VVD
Cadmium	ND		mg/kg dry	0.301	0.301	1	07/15/19	07/17/19 17:20	VVD
Chromium	**216**		mg/kg dry	1.51	1.51	5	07/15/19	07/17/19 17:17	VVD
Copper	**0.304**		mg/kg dry	0.301	0.301	1	07/15/19	07/17/19 17:20	VVD
Lead	**6.83**		mg/kg dry	0.301	0.301	1	07/15/19	07/17/19 17:20	VVD
Mercury	ND		mg/kg dry	0.0151	0.0151	1	07/15/19	07/17/19 17:20	VVD
Nickel	**12.3**		mg/kg dry	0.301	0.301	1	07/15/19	07/17/19 17:20	VVD
Selenium	**1.33**		mg/kg dry	0.301	0.301	1	07/15/19	07/17/19 17:20	VVD
Silver	ND		mg/kg dry	0.301	0.301	1	07/15/19	07/17/19 17:20	VVD
Thallium	ND		mg/kg dry	0.301	0.301	1	07/15/19	07/17/19 17:20	VVD
Zinc	**43.9**		mg/kg dry	1.51	1.51	1	07/15/19	07/17/19 17:20	VVD
Wet Chemistry Performed at Enviro-Chem									
% Solids	**85.2**		%	1.00	1.00	1	07/15/19	07/15/19 16:08	FRD
Cyanide, Total	ND		mg/kg dry	0.585	0.585	1	07/17/19	07/18/19 13:15	FRD
Dioxins and Furans by Isotope Dilution HRGC/HRMS Performed at PACE-MN									
1,2,3,4,6,7,8-HpCDD	ND		ng/Kg	5.0	0.23	1	07/16/19	07/22/19 19:41	SMT
1,2,3,4,6,7,8-HpCDF	ND		ng/Kg	5.0	0.17	1	07/16/19	07/22/19 19:41	SMT
1,2,3,4,7,8,9-HpCDF	ND		ng/Kg	5.0	0.17	1	07/16/19	07/22/19 19:41	SMT
1,2,3,4,7,8-HxCDD	ND		ng/Kg	5.0	0.17	1	07/16/19	07/22/19 19:41	SMT
1,2,3,4,7,8-HxCDF	ND		ng/Kg	5.0	0.097	1	07/16/19	07/22/19 19:41	SMT
1,2,3,6,7,8-HxCDD	ND		ng/Kg	5.0	0.18	1	07/16/19	07/22/19 19:41	SMT
1,2,3,6,7,8-HxCDF	ND		ng/Kg	5.0	0.089	1	07/16/19	07/22/19 19:41	SMT
1,2,3,7,8,9-HxCDD	ND		ng/Kg	5.0	0.15	1	07/16/19	07/22/19 19:41	SMT
1,2,3,7,8,9-HxCDF	ND		ng/Kg	5.0	0.17	1	07/16/19	07/22/19 19:41	SMT
1,2,3,7,8-PeCDD	ND		ng/Kg	5.0	0.28	1	07/16/19	07/22/19 19:41	SMT
1,2,3,7,8-PeCDF	ND		ng/Kg	5.0	0.22	1	07/16/19	07/22/19 19:41	SMT
2,3,4,6,7,8-HxCDF	ND		ng/Kg	5.0	0.14	1	07/16/19	07/22/19 19:41	SMT
2,3,4,7,8-PeCDF	ND		ng/Kg	5.0	0.096	1	07/16/19	07/22/19 19:41	SMT
2,3,7,8-TCDD	ND		ng/Kg	1.0	0.35	1	07/16/19	07/22/19 19:41	SMT
2,3,7,8-TCDF	ND		ng/Kg	1.0	0.26	1	07/16/19	07/22/19 19:41	SMT
OCDD	ND		ng/Kg	10	0.82	1	07/16/19	07/22/19 19:41	SMT

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Project: Annapolis Public Works

Project Number: 19-416A
Project Manager: Keith Progin

Reported:
07/23/19 17:23

SB-6

9071111-06 (Soil)
Sample Date: 07/11/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Dioxins and Furans by Isotope Dilution HRGC/HRMS Performed at PACE-MN (continued)									
OCDF	ND		ng/Kg	10	0.66	1	07/16/19	07/22/19 19:41	SMT
Total HpCDD	ND		ng/Kg	5.0	0.23	1	07/16/19	07/22/19 19:41	SMT
Total HpCDF	ND		ng/Kg	5.0	0.17	1	07/16/19	07/22/19 19:41	SMT
Total HxCDD	ND		ng/Kg	5.0	0.17	1	07/16/19	07/22/19 19:41	SMT
Total HxCDF	ND		ng/Kg	5.0	0.12	1	07/16/19	07/22/19 19:41	SMT
Total PeCDD	ND		ng/Kg	5.0	0.28	1	07/16/19	07/22/19 19:41	SMT
Total PeCDF	ND		ng/Kg	5.0	0.16	1	07/16/19	07/22/19 19:41	SMT
Total TCDD	ND		ng/Kg	1.0	0.35	1	07/16/19	07/22/19 19:41	SMT
Total TCDF	ND		ng/Kg	1.0	0.26	1	07/16/19	07/22/19 19:41	SMT

Surrogate: 1,2,3,4,6,7,8-HpCDD-13C	*40.0-135.0*	*59 %*	*07/16/19*	*07/22/19 19:41*
Surrogate: 1,2,3,4,6,7,8-HpCDF-13C	*40.0-135.0*	*61 %*	*07/16/19*	*07/22/19 19:41*
Surrogate: 1,2,3,4,7,8,9-HpCDF-13C	*40.0-135.0*	*56 %*	*07/16/19*	*07/22/19 19:41*
Surrogate: 1,2,3,4,7,8-HxCDD-13C	*40.0-135.0*	*65 %*	*07/16/19*	*07/22/19 19:41*
Surrogate: 1,2,3,4,7,8-HxCDF-13C	*40.0-135.0*	*58 %*	*07/16/19*	*07/22/19 19:41*
Surrogate: 1,2,3,6,7,8-HxCDD-13C	*40.0-135.0*	*62 %*	*07/16/19*	*07/22/19 19:41*
Surrogate: 1,2,3,6,7,8-HxCDF-13C	*40.0-135.0*	*65 %*	*07/16/19*	*07/22/19 19:41*
Surrogate: 1,2,3,7,8,9-HxCDF-13C	*40.0-135.0*	*66 %*	*07/16/19*	*07/22/19 19:41*
Surrogate: 1,2,3,7,8-PeCDD-13C	*40.0-135.0*	*70 %*	*07/16/19*	*07/22/19 19:41*
Surrogate: 1,2,3,7,8-PeCDF-13C	*40.0-135.0*	*62 %*	*07/16/19*	*07/22/19 19:41*
Surrogate: 2,3,4,6,7,8-HxCDF-13C	*40.0-135.0*	*69 %*	*07/16/19*	*07/22/19 19:41*
Surrogate: 2,3,4,7,8-PeCDF-13C	*40.0-135.0*	*62 %*	*07/16/19*	*07/22/19 19:41*
Surrogate: 2,3,7,8-TCDD-13C	*40.0-135.0*	*69 %*	*07/16/19*	*07/22/19 19:41*
Surrogate: 2,3,7,8-TCDF-13C	*40.0-135.0*	*66 %*	*07/16/19*	*07/22/19 19:41*
Surrogate: OCDD-13C	*40.0-135.0*	*44 %*	*07/16/19*	*07/22/19 19:41*

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Project: Annapolis Public Works

Project Number: 19-416A
Project Manager: Keith Progin

Reported:
07/23/19 17:23

SB-7

9071111-07 (Soil)
Sample Date: 07/11/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
VOLATILE ORGANICS BY EPA METHOD 8260B (GC/MS)									
Acetone	ND		ug/kg dry	11.6	11.6	1	07/16/19	07/16/19 17:04	GM
tert-Amyl alcohol (TAA)	ND		ug/kg dry	58.1	58.1	1	07/16/19	07/16/19 17:04	GM
tert-Amyl methyl ether (TAME)	ND		ug/kg dry	5.8	2.3	1	07/16/19	07/16/19 17:04	GM
Benzene	ND		ug/kg dry	5.8	2.3	1	07/16/19	07/16/19 17:04	GM
Bromobenzene	ND		ug/kg dry	5.8	2.3	1	07/16/19	07/16/19 17:04	GM
Bromochloromethane	ND		ug/kg dry	5.8	2.3	1	07/16/19	07/16/19 17:04	GM
Bromodichloromethane	ND		ug/kg dry	5.8	2.3	1	07/16/19	07/16/19 17:04	GM
Bromoform	ND		ug/kg dry	5.8	2.3	1	07/16/19	07/16/19 17:04	GM
Bromomethane	ND		ug/kg dry	5.8	5.8	1	07/16/19	07/16/19 17:04	GM
tert-Butanol (TBA)	ND		ug/kg dry	58.1	58.1	1	07/16/19	07/16/19 17:04	GM
2-Butanone (MEK)	ND		ug/kg dry	11.6	11.6	1	07/16/19	07/16/19 17:04	GM
n-Butylbenzene	ND		ug/kg dry	5.8	2.3	1	07/16/19	07/16/19 17:04	GM
sec-Butylbenzene	ND		ug/kg dry	5.8	2.3	1	07/16/19	07/16/19 17:04	GM
tert-Butylbenzene	ND		ug/kg dry	5.8	2.3	1	07/16/19	07/16/19 17:04	GM
Carbon disulfide	ND		ug/kg dry	5.8	2.3	1	07/16/19	07/16/19 17:04	GM
Carbon tetrachloride	ND		ug/kg dry	5.8	2.3	1	07/16/19	07/16/19 17:04	GM
Chlorobenzene	ND		ug/kg dry	5.8	2.3	1	07/16/19	07/16/19 17:04	GM
Chloroethane	ND		ug/kg dry	5.8	5.8	1	07/16/19	07/16/19 17:04	GM
Chloroform	ND		ug/kg dry	5.8	2.3	1	07/16/19	07/16/19 17:04	GM
Chloromethane	ND		ug/kg dry	5.8	5.8	1	07/16/19	07/16/19 17:04	GM
2-Chlorotoluene	ND		ug/kg dry	5.8	2.3	1	07/16/19	07/16/19 17:04	GM
4-Chlorotoluene	ND		ug/kg dry	5.8	2.3	1	07/16/19	07/16/19 17:04	GM
1,2-Dibromo-3-chloropropane	ND		ug/kg dry	5.8	2.3	1	07/16/19	07/16/19 17:04	GM
Dibromochloromethane	ND		ug/kg dry	5.8	2.3	1	07/16/19	07/16/19 17:04	GM
1,2-Dibromoethane (EDB)	ND		ug/kg dry	5.8	2.3	1	07/16/19	07/16/19 17:04	GM
Dibromomethane	ND		ug/kg dry	5.8	2.3	1	07/16/19	07/16/19 17:04	GM
1,2-Dichlorobenzene	ND		ug/kg dry	5.8	2.3	1	07/16/19	07/16/19 17:04	GM
1,3-Dichlorobenzene	ND		ug/kg dry	5.8	2.3	1	07/16/19	07/16/19 17:04	GM
1,4-Dichlorobenzene	ND		ug/kg dry	5.8	2.3	1	07/16/19	07/16/19 17:04	GM
Dichlorodifluoromethane	ND		ug/kg dry	5.8	2.3	1	07/16/19	07/16/19 17:04	GM
1,1-Dichloroethane	ND		ug/kg dry	5.8	2.3	1	07/16/19	07/16/19 17:04	GM
1,2-Dichloroethane	ND		ug/kg dry	5.8	2.3	1	07/16/19	07/16/19 17:04	GM
1,1-Dichloroethene	ND		ug/kg dry	5.8	2.3	1	07/16/19	07/16/19 17:04	GM

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Project: Annapolis Public Works

Project Number: 19-416A
Project Manager: Keith Progin

Reported:
07/23/19 17:23

SB-7

9071111-07 (Soil)
Sample Date: 07/11/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
VOLATILE ORGANICS BY EPA METHOD 8260B (GC/MS) (continued)									
cis-1,2-Dichloroethene	ND		ug/kg dry	5.8	2.3	1	07/16/19	07/16/19 17:04	GM
trans-1,2-Dichloroethene	ND		ug/kg dry	5.8	2.3	1	07/16/19	07/16/19 17:04	GM
Dichlorofluoromethane	ND		ug/kg dry	5.8	2.3	1	07/16/19	07/16/19 17:04	GM
1,2-Dichloropropane	ND		ug/kg dry	5.8	2.3	1	07/16/19	07/16/19 17:04	GM
1,3-Dichloropropane	ND		ug/kg dry	5.8	2.3	1	07/16/19	07/16/19 17:04	GM
2,2-Dichloropropane	ND		ug/kg dry	5.8	2.3	1	07/16/19	07/16/19 17:04	GM
1,1-Dichloropropene	ND		ug/kg dry	5.8	2.3	1	07/16/19	07/16/19 17:04	GM
cis-1,3-Dichloropropene	ND		ug/kg dry	5.8	2.3	1	07/16/19	07/16/19 17:04	GM
trans-1,3-Dichloropropene	ND		ug/kg dry	5.8	2.3	1	07/16/19	07/16/19 17:04	GM
Diisopropyl ether (DIPE)	ND		ug/kg dry	5.8	2.3	1	07/16/19	07/16/19 17:04	GM
Ethyl tert-butyl ether (ETBE)	ND		ug/kg dry	5.8	2.3	1	07/16/19	07/16/19 17:04	GM
Ethylbenzene	ND		ug/kg dry	5.8	2.3	1	07/16/19	07/16/19 17:04	GM
Hexachlorobutadiene	ND		ug/kg dry	5.8	2.3	1	07/16/19	07/16/19 17:04	GM
2-Hexanone	ND		ug/kg dry	11.6	11.6	1	07/16/19	07/16/19 17:04	GM
Isopropylbenzene (Cumene)	ND		ug/kg dry	5.8	2.3	1	07/16/19	07/16/19 17:04	GM
4-Isopropyltoluene	ND		ug/kg dry	5.8	2.3	1	07/16/19	07/16/19 17:04	GM
Methyl tert-butyl ether (MTBE)	ND		ug/kg dry	5.8	2.3	1	07/16/19	07/16/19 17:04	GM
4-Methyl-2-pentanone	ND		ug/kg dry	11.6	11.6	1	07/16/19	07/16/19 17:04	GM
Methylene chloride	ND		ug/kg dry	23.3	23.3	1	07/16/19	07/16/19 17:04	GM
Naphthalene	ND		ug/kg dry	5.8	2.3	1	07/16/19	07/16/19 17:04	GM
n-Propylbenzene	ND		ug/kg dry	5.8	2.3	1	07/16/19	07/16/19 17:04	GM
Styrene	ND		ug/kg dry	5.8	2.3	1	07/16/19	07/16/19 17:04	GM
1,1,1,2-Tetrachloroethane	ND		ug/kg dry	5.8	2.3	1	07/16/19	07/16/19 17:04	GM
1,1,2,2-Tetrachloroethane	ND		ug/kg dry	5.8	2.3	1	07/16/19	07/16/19 17:04	GM
Tetrachloroethene	ND		ug/kg dry	5.8	2.3	1	07/16/19	07/16/19 17:04	GM
Toluene	ND		ug/kg dry	5.8	2.3	1	07/16/19	07/16/19 17:04	GM
1,2,3-Trichlorobenzene	ND		ug/kg dry	5.8	2.3	1	07/16/19	07/16/19 17:04	GM
1,2,4-Trichlorobenzene	ND		ug/kg dry	5.8	2.3	1	07/16/19	07/16/19 17:04	GM
1,1,1-Trichloroethane	ND		ug/kg dry	5.8	2.3	1	07/16/19	07/16/19 17:04	GM
1,1,2-Trichloroethane	ND		ug/kg dry	5.8	2.3	1	07/16/19	07/16/19 17:04	GM
Trichloroethene	ND		ug/kg dry	5.8	2.3	1	07/16/19	07/16/19 17:04	GM
Trichlorofluoromethane (Freon 11)	ND		ug/kg dry	5.8	2.3	1	07/16/19	07/16/19 17:04	GM
1,2,3-Trichloropropane	ND		ug/kg dry	5.8	2.3	1	07/16/19	07/16/19 17:04	GM

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

Project: Annapolis Public Works

Project Number: 19-416A
Project Manager: Keith Progin

Reported:
07/23/19 17:23

SB-7

9071111-07 (Soil)
Sample Date: 07/11/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
VOLATILE ORGANICS BY EPA METHOD 8260B (GC/MS) (continued)									
1,2,4-Trimethylbenzene	ND		ug/kg dry	5.8	2.3	1	07/16/19	07/16/19 17:04	GM
1,3,5-Trimethylbenzene	ND		ug/kg dry	5.8	2.3	1	07/16/19	07/16/19 17:04	GM
Vinyl chloride	ND		ug/kg dry	5.8	2.3	1	07/16/19	07/16/19 17:04	GM
o-Xylene	ND		ug/kg dry	5.8	2.3	1	07/16/19	07/16/19 17:04	GM
m- & p-Xylenes	ND		ug/kg dry	5.8	2.3	1	07/16/19	07/16/19 17:04	GM
Surrogate: 1,2-Dichloroethane-d4			*70-130*	*107 %*	*07/16/19*		*07/16/19 17:04*		
Surrogate: Toluene-d8			*75-120*	*97 %*	*07/16/19*		*07/16/19 17:04*		
Surrogate: 4-Bromofluorobenzene			*65-120*	*96 %*	*07/16/19*		*07/16/19 17:04*		
SEMIVOLATILE ORGANICS BY EPA METHOD 3540/8270D (GC/MS)									
Acenaphthene	ND		ug/kg dry	291	116	1	07/11/19	07/12/19 15:38	WB
Acenaphthylene	ND		ug/kg dry	291	116	1	07/11/19	07/12/19 15:38	WB
Anthracene	ND		ug/kg dry	291	116	1	07/11/19	07/12/19 15:38	WB
Benzo[a]anthracene	ND		ug/kg dry	291	116	1	07/11/19	07/12/19 15:38	WB
Benzo[b]fluoranthene	ND		ug/kg dry	291	116	1	07/11/19	07/12/19 15:38	WB
Benzo[k]fluoranthene	ND		ug/kg dry	291	116	1	07/11/19	07/12/19 15:38	WB
Benzo[ghi]perylene	ND		ug/kg dry	291	116	1	07/11/19	07/12/19 15:38	WB
Benzo[a]pyrene	ND		ug/kg dry	291	116	1	07/11/19	07/12/19 15:38	WB
4-Bromophenyl phenyl ether	ND		ug/kg dry	291	116	1	07/11/19	07/12/19 15:38	WB
Butyl benzyl phthalate	ND		ug/kg dry	291	116	1	07/11/19	07/12/19 15:38	WB
Carbazole	ND		ug/kg dry	291	116	1	07/11/19	07/12/19 15:38	WB
4-Chloro-3-methylphenol	ND		ug/kg dry	291	116	1	07/11/19	07/12/19 15:38	WB
4-Chloroaniline	ND		ug/kg dry	291	116	1	07/11/19	07/12/19 15:38	WB
Bis(2-chloroethoxy)methane	ND		ug/kg dry	291	116	1	07/11/19	07/12/19 15:38	WB
Bis(2-chloroethyl) ether	ND		ug/kg dry	291	116	1	07/11/19	07/12/19 15:38	WB
2,2'-Oxybis(1-Chloropropane)	ND		ug/kg dry	291	116	1	07/11/19	07/12/19 15:38	WB
2-Chloronaphthalene	ND		ug/kg dry	291	116	1	07/11/19	07/12/19 15:38	WB
2-Chlorophenol	ND		ug/kg dry	291	116	1	07/11/19	07/12/19 15:38	WB
4-Chlorophenyl phenyl ether	ND		ug/kg dry	291	116	1	07/11/19	07/12/19 15:38	WB
Chrysene	ND		ug/kg dry	291	116	1	07/11/19	07/12/19 15:38	WB
Di-n-butyl phthalate	ND		ug/kg dry	291	116	1	07/11/19	07/12/19 15:38	WB
Di-n-octyl phthalate	ND		ug/kg dry	291	116	1	07/11/19	07/12/19 15:38	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	291	116	1	07/11/19	07/12/19 15:38	WB
Dibenzofuran	ND		ug/kg dry	291	116	1	07/11/19	07/12/19 15:38	WB

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Project: Annapolis Public Works

Project Number: 19-416A
Project Manager: Keith Progin

Reported:
07/23/19 17:23

SB-7

9071111-07 (Soil)
Sample Date: 07/11/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 3540/8270D (GC/MS) (continued)									
1,2-Dichlorobenzene	ND		ug/kg dry	291	116	1	07/11/19	07/12/19 15:38	WB
1,3-Dichlorobenzene	ND		ug/kg dry	291	116	1	07/11/19	07/12/19 15:38	WB
1,4-Dichlorobenzene	ND		ug/kg dry	291	116	1	07/11/19	07/12/19 15:38	WB
3,3-Dichlorobenzidine	ND		ug/kg dry	581	581	1	07/11/19	07/12/19 15:38	WB
2,4-Dichlorophenol	ND		ug/kg dry	291	116	1	07/11/19	07/12/19 15:38	WB
Diethyl phthalate	ND		ug/kg dry	291	116	1	07/11/19	07/12/19 15:38	WB
Dimethyl phthalate	ND		ug/kg dry	291	116	1	07/11/19	07/12/19 15:38	WB
2,4-Dimethylphenol	ND		ug/kg dry	291	116	1	07/11/19	07/12/19 15:38	WB
2-Methyl-4,6-dinitrophenol	ND		ug/kg dry	1450	1450	1	07/11/19	07/12/19 15:38	WB
2,4-Dinitrophenol	ND		ug/kg dry	1450	1450	1	07/11/19	07/12/19 15:38	WB
2,4-Dinitrotoluene	ND		ug/kg dry	291	116	1	07/11/19	07/12/19 15:38	WB
2,6-Dinitrotoluene	ND		ug/kg dry	291	116	1	07/11/19	07/12/19 15:38	WB
Bis(2-ethylhexyl) phthalate	ND		ug/kg dry	291	116	1	07/11/19	07/12/19 15:38	WB
Fluoranthene	ND		ug/kg dry	291	116	1	07/11/19	07/12/19 15:38	WB
Fluorene	ND		ug/kg dry	291	116	1	07/11/19	07/12/19 15:38	WB
Hexachlorobenzene	ND		ug/kg dry	291	116	1	07/11/19	07/12/19 15:38	WB
Hexachlorobutadiene	ND		ug/kg dry	291	116	1	07/11/19	07/12/19 15:38	WB
Hexachlorocyclopentadiene	ND		ug/kg dry	291	116	1	07/11/19	07/12/19 15:38	WB
Hexachloroethane	ND		ug/kg dry	291	116	1	07/11/19	07/12/19 15:38	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	291	116	1	07/11/19	07/12/19 15:38	WB
Isophorone	ND		ug/kg dry	291	116	1	07/11/19	07/12/19 15:38	WB
2-Methylnaphthalene	ND		ug/kg dry	291	116	1	07/11/19	07/12/19 15:38	WB
3&4-Methylphenol	ND		ug/kg dry	291	116	1	07/11/19	07/12/19 15:38	WB
2-Methylphenol	ND		ug/kg dry	291	116	1	07/11/19	07/12/19 15:38	WB
N-Nitroso-di-n-propylamine	ND		ug/kg dry	291	116	1	07/11/19	07/12/19 15:38	WB
N-Nitrosodiphenylamine	ND		ug/kg dry	291	116	1	07/11/19	07/12/19 15:38	WB
Naphthalene	ND		ug/kg dry	291	116	1	07/11/19	07/12/19 15:38	WB
2-Nitroaniline	ND		ug/kg dry	1450	1450	1	07/11/19	07/12/19 15:38	WB
3-Nitroaniline	ND		ug/kg dry	1450	1450	1	07/11/19	07/12/19 15:38	WB
4-Nitroaniline	ND		ug/kg dry	1450	1450	1	07/11/19	07/12/19 15:38	WB
Nitrobenzene	ND		ug/kg dry	291	116	1	07/11/19	07/12/19 15:38	WB
2-Nitrophenol	ND		ug/kg dry	291	116	1	07/11/19	07/12/19 15:38	WB
4-Nitrophenol	ND		ug/kg dry	1450	1450	1	07/11/19	07/12/19 15:38	WB

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Project: Annapolis Public Works

Project Number: 19-416A
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Reported:
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SB-7

9071111-07 (Soil)
Sample Date: 07/11/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 3540/8270D (GC/MS) (continued)									
Pentachlorophenol	ND		ug/kg dry	1450	1450	1	07/11/19	07/12/19 15:38	WB
Phenanthrene	ND		ug/kg dry	291	116	1	07/11/19	07/12/19 15:38	WB
Phenol	ND		ug/kg dry	291	116	1	07/11/19	07/12/19 15:38	WB
Pyrene	ND		ug/kg dry	291	116	1	07/11/19	07/12/19 15:38	WB
1,2,4-Trichlorobenzene	ND		ug/kg dry	291	116	1	07/11/19	07/12/19 15:38	WB
2,4,5-Trichlorophenol	ND		ug/kg dry	291	116	1	07/11/19	07/12/19 15:38	WB
2,4,6-Trichlorophenol	ND		ug/kg dry	291	116	1	07/11/19	07/12/19 15:38	WB
Surrogate: 2-Fluorophenol			*23-121*	*80 %*	*07/11/19*		*07/12/19 15:38*		
Surrogate: Phenol-d5			*24-113*	*79 %*	*07/11/19*		*07/12/19 15:38*		
Surrogate: Nitrobenzene-d5			*23-120*	*85 %*	*07/11/19*		*07/12/19 15:38*		
Surrogate: 2,4,6-Tribromophenol			*19-122*	*89 %*	*07/11/19*		*07/12/19 15:38*		
Surrogate: 2-Fluorobiphenyl			*30-115*	*85 %*	*07/11/19*		*07/12/19 15:38*		
Surrogate: Terphenyl-d14			*18-137*	*91 %*	*07/11/19*		*07/12/19 15:38*		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.12	0.12	1	07/17/19	07/17/19 18:13	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	ND		mg/kg dry	9.3	9.3	1	07/11/19	07/13/19 03:33	SJA
Surrogate: o-Terphenyl			*70-130*	*72 %*	*07/11/19*		*07/13/19 03:33*		
PERCENT SOLIDS BY ASTM D2216-05									
Percent Solids	**86**		%			1	07/17/19	07/18/19 11:22	CEB
POLYCHLORINATED BIPHENYLS BY EPA 3540/8082A (GC/ECD)									
Aroclor-1016	ND		ug/kg dry	96.5	96.5	1	07/11/19	07/12/19 20:17	SJA
Aroclor-1221	ND		ug/kg dry	198	198	1	07/11/19	07/12/19 20:17	SJA
Aroclor-1232	ND		ug/kg dry	96.5	96.5	1	07/11/19	07/12/19 20:17	SJA
Aroclor-1242	ND		ug/kg dry	96.5	96.5	1	07/11/19	07/12/19 20:17	SJA
Aroclor-1248	ND		ug/kg dry	96.5	96.5	1	07/11/19	07/12/19 20:17	SJA
Aroclor-1254	ND		ug/kg dry	96.5	96.5	1	07/11/19	07/12/19 20:17	SJA
Aroclor-1260	ND		ug/kg dry	96.5	96.5	1	07/11/19	07/12/19 20:17	SJA
Aroclor-1262	ND		ug/kg dry	96.5	96.5	1	07/11/19	07/12/19 20:17	SJA
Aroclor-1268	ND		ug/kg dry	96.5	96.5	1	07/11/19	07/12/19 20:17	SJA
Surrogate: Tetrachloro-m-xylene			*40-150*	*70 %*	*07/11/19*		*07/12/19 20:17*		
Surrogate: Decachlorobiphenyl			*40-150*	*64 %*	*07/11/19*		*07/12/19 20:17*		

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Maryland spectral Services

Analytical Chemistry Services

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Analytical Results

Project: Annapolis Public Works

Project Number: 19-416A
Project Manager: Keith Progin

Reported:
07/23/19 17:23

SB-7

9071111-07 (Soil)
Sample Date: 07/11/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
TOTAL METALS ANALYSIS BY EPA 3050B/6020A									
Antimony	ND		mg/kg dry	0.291	0.291	1	07/15/19	07/17/19 16:54	VVD
Arsenic	**10.6**		mg/kg dry	0.291	0.291	1	07/15/19	07/17/19 16:54	VVD
Beryllium	**1.00**		mg/kg dry	0.291	0.291	1	07/15/19	07/17/19 16:54	VVD
Cadmium	ND		mg/kg dry	0.291	0.291	1	07/15/19	07/17/19 16:54	VVD
Chromium	**86.8**		mg/kg dry	0.291	0.291	1	07/15/19	07/17/19 16:54	VVD
Copper	**3.27**		mg/kg dry	0.291	0.291	1	07/15/19	07/17/19 16:54	VVD
Lead	**6.00**		mg/kg dry	0.291	0.291	1	07/15/19	07/17/19 16:54	VVD
Mercury	ND		mg/kg dry	0.0145	0.0145	1	07/15/19	07/17/19 16:54	VVD
Nickel	**5.25**		mg/kg dry	0.291	0.291	1	07/15/19	07/17/19 16:54	VVD
Selenium	**0.958**		mg/kg dry	0.291	0.291	1	07/15/19	07/17/19 16:54	VVD
Silver	ND		mg/kg dry	0.291	0.291	1	07/15/19	07/17/19 16:54	VVD
Thallium	ND		mg/kg dry	0.291	0.291	1	07/15/19	07/17/19 16:54	VVD
Zinc	**31.2**		mg/kg dry	1.45	1.45	1	07/15/19	07/17/19 16:54	VVD
Wet Chemistry Performed at Enviro-Chem									
% Solids	**83.1**		%	1.00	1.00	1	07/15/19	07/15/19 16:08	FRD
Cyanide, Total	ND		mg/kg dry	0.543	0.543	1	07/17/19	07/18/19 13:19	FRD
Dioxins and Furans by Isotope Dilution HRGC/HRMS Performed at PACE-MN									
1,2,3,4,6,7,8-HpCDD	**6.5**		ng/Kg	5.0	0.37	1	07/16/19	07/22/19 20:28	SMT
1,2,3,4,6,7,8-HpCDF	ND		ng/Kg	5.0	0.26	1	07/16/19	07/22/19 20:28	SMT
1,2,3,4,7,8,9-HpCDF	ND		ng/Kg	5.0	0.17	1	07/16/19	07/22/19 20:28	SMT
1,2,3,4,7,8-HxCDD	ND		ng/Kg	5.0	0.34	1	07/16/19	07/22/19 20:28	SMT
1,2,3,4,7,8-HxCDF	ND		ng/Kg	5.0	0.17	1	07/16/19	07/22/19 20:28	SMT
1,2,3,6,7,8-HxCDD	ND		ng/Kg	5.0	0.36	1	07/16/19	07/22/19 20:28	SMT
1,2,3,6,7,8-HxCDF	ND		ng/Kg	5.0	0.15	1	07/16/19	07/22/19 20:28	SMT
1,2,3,7,8,9-HxCDD	ND		ng/Kg	5.0	0.30	1	07/16/19	07/22/19 20:28	SMT
1,2,3,7,8,9-HxCDF	ND		ng/Kg	5.0	0.10	1	07/16/19	07/22/19 20:28	SMT
1,2,3,7,8-PeCDD	ND		ng/Kg	5.0	0.20	1	07/16/19	07/22/19 20:28	SMT
1,2,3,7,8-PeCDF	ND		ng/Kg	5.0	0.23	1	07/16/19	07/22/19 20:28	SMT
2,3,4,6,7,8-HxCDF	ND		ng/Kg	5.0	0.12	1	07/16/19	07/22/19 20:28	SMT
2,3,4,7,8-PeCDF	ND		ng/Kg	5.0	0.11	1	07/16/19	07/22/19 20:28	SMT
2,3,7,8-TCDD	ND		ng/Kg	1.0	0.29	1	07/16/19	07/22/19 20:28	SMT
2,3,7,8-TCDF	ND		ng/Kg	1.0	0.25	1	07/16/19	07/22/19 20:28	SMT
OCDD	**630**		ng/Kg	10	1.4	1	07/16/19	07/22/19 20:28	SMT
OCDF	ND		ng/Kg	10	0.54	1	07/16/19	07/22/19 20:28	SMT

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Project: Annapolis Public Works

Project Number: 19-416A
Project Manager: Keith Progin

Reported:
07/23/19 17:23

SB-7

9071111-07 (Soil)
Sample Date: 07/11/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Dioxins and Furans by Isotope Dilution HRGC/HRMS Performed at PACE-MN (continued)									
Total HpCDD	**18**		ng/Kg	5.0	0.37	1	07/16/19	07/22/19 20:28	SMT
Total HpCDF	ND		ng/Kg	5.0	0.21	1	07/16/19	07/22/19 20:28	SMT
Total HxCDD	**9.7**		ng/Kg	5.0	0.34	1	07/16/19	07/22/19 20:28	SMT
Total HxCDF	ND		ng/Kg	5.0	0.14	1	07/16/19	07/22/19 20:28	SMT
Total PeCDD	ND		ng/Kg	5.0	0.20	1	07/16/19	07/22/19 20:28	SMT
Total PeCDF	ND		ng/Kg	5.0	0.17	1	07/16/19	07/22/19 20:28	SMT
Total TCDD	ND		ng/Kg	1.0	0.29	1	07/16/19	07/22/19 20:28	SMT
Total TCDF	ND		ng/Kg	1.0	0.25	1	07/16/19	07/22/19 20:28	SMT

Surrogate: 1,2,3,4,6,7,8-HpCDD-13C	*40.0-135.0*	*67 %*	*07/16/19*	*07/22/19 20:28*
Surrogate: 1,2,3,4,6,7,8-HpCDF-13C	*40.0-135.0*	*62 %*	*07/16/19*	*07/22/19 20:28*
Surrogate: 1,2,3,4,7,8,9-HpCDF-13C	*40.0-135.0*	*60 %*	*07/16/19*	*07/22/19 20:28*
Surrogate: 1,2,3,4,7,8-HxCDD-13C	*40.0-135.0*	*66 %*	*07/16/19*	*07/22/19 20:28*
Surrogate: 1,2,3,4,7,8-HxCDF-13C	*40.0-135.0*	*69 %*	*07/16/19*	*07/22/19 20:28*
Surrogate: 1,2,3,6,7,8-HxCDD-13C	*40.0-135.0*	*63 %*	*07/16/19*	*07/22/19 20:28*
Surrogate: 1,2,3,6,7,8-HxCDF-13C	*40.0-135.0*	*69 %*	*07/16/19*	*07/22/19 20:28*
Surrogate: 1,2,3,7,8,9-HxCDF-13C	*40.0-135.0*	*64 %*	*07/16/19*	*07/22/19 20:28*
Surrogate: 1,2,3,7,8-PeCDD-13C	*40.0-135.0*	*72 %*	*07/16/19*	*07/22/19 20:28*
Surrogate: 1,2,3,7,8-PeCDF-13C	*40.0-135.0*	*65 %*	*07/16/19*	*07/22/19 20:28*
Surrogate: 2,3,4,6,7,8-HxCDF-13C	*40.0-135.0*	*70 %*	*07/16/19*	*07/22/19 20:28*
Surrogate: 2,3,4,7,8-PeCDF-13C	*40.0-135.0*	*62 %*	*07/16/19*	*07/22/19 20:28*
Surrogate: 2,3,7,8-TCDD-13C	*40.0-135.0*	*68 %*	*07/16/19*	*07/22/19 20:28*
Surrogate: 2,3,7,8-TCDF-13C	*40.0-135.0*	*64 %*	*07/16/19*	*07/22/19 20:28*
Surrogate: OCDD-13C	*40.0-135.0*	*54 %*	*07/16/19*	*07/22/19 20:28*

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Maryland spectral Services

Analytical Chemistry Services

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Baltimore MD 21227
410-247-7600
www.mdspectral.com

Analytical Results

Project: Annapolis Public Works

Project Number: 19-416A
Project Manager: Keith Progin

Reported:
07/23/19 17:23

SB-8

9071111-08 (Soil)
Sample Date: 07/11/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
VOLATILE ORGANICS BY EPA METHOD 8260B (GC/MS)									
Acetone	**40.2**		ug/kg dry	10.8	10.8	1	07/16/19	07/16/19 17:32	GM
tert-Amyl alcohol (TAA)	ND		ug/kg dry	53.8	53.8	1	07/16/19	07/16/19 17:32	GM
tert-Amyl methyl ether (TAME)	ND		ug/kg dry	5.4	2.2	1	07/16/19	07/16/19 17:32	GM
Benzene	ND		ug/kg dry	5.4	2.2	1	07/16/19	07/16/19 17:32	GM
Bromobenzene	ND		ug/kg dry	5.4	2.2	1	07/16/19	07/16/19 17:32	GM
Bromochloromethane	ND		ug/kg dry	5.4	2.2	1	07/16/19	07/16/19 17:32	GM
Bromodichloromethane	ND		ug/kg dry	5.4	2.2	1	07/16/19	07/16/19 17:32	GM
Bromoform	ND		ug/kg dry	5.4	2.2	1	07/16/19	07/16/19 17:32	GM
Bromomethane	ND		ug/kg dry	5.4	5.4	1	07/16/19	07/16/19 17:32	GM
tert-Butanol (TBA)	ND		ug/kg dry	53.8	53.8	1	07/16/19	07/16/19 17:32	GM
2-Butanone (MEK)	ND		ug/kg dry	10.8	10.8	1	07/16/19	07/16/19 17:32	GM
n-Butylbenzene	ND		ug/kg dry	5.4	2.2	1	07/16/19	07/16/19 17:32	GM
sec-Butylbenzene	ND		ug/kg dry	5.4	2.2	1	07/16/19	07/16/19 17:32	GM
tert-Butylbenzene	ND		ug/kg dry	5.4	2.2	1	07/16/19	07/16/19 17:32	GM
Carbon disulfide	ND		ug/kg dry	5.4	2.2	1	07/16/19	07/16/19 17:32	GM
Carbon tetrachloride	ND		ug/kg dry	5.4	2.2	1	07/16/19	07/16/19 17:32	GM
Chlorobenzene	ND		ug/kg dry	5.4	2.2	1	07/16/19	07/16/19 17:32	GM
Chloroethane	ND		ug/kg dry	5.4	5.4	1	07/16/19	07/16/19 17:32	GM
Chloroform	ND		ug/kg dry	5.4	2.2	1	07/16/19	07/16/19 17:32	GM
Chloromethane	ND		ug/kg dry	5.4	5.4	1	07/16/19	07/16/19 17:32	GM
2-Chlorotoluene	ND		ug/kg dry	5.4	2.2	1	07/16/19	07/16/19 17:32	GM
4-Chlorotoluene	ND		ug/kg dry	5.4	2.2	1	07/16/19	07/16/19 17:32	GM
1,2-Dibromo-3-chloropropane	ND		ug/kg dry	5.4	2.2	1	07/16/19	07/16/19 17:32	GM
Dibromochloromethane	ND		ug/kg dry	5.4	2.2	1	07/16/19	07/16/19 17:32	GM
1,2-Dibromoethane (EDB)	ND		ug/kg dry	5.4	2.2	1	07/16/19	07/16/19 17:32	GM
Dibromomethane	ND		ug/kg dry	5.4	2.2	1	07/16/19	07/16/19 17:32	GM
1,2-Dichlorobenzene	ND		ug/kg dry	5.4	2.2	1	07/16/19	07/16/19 17:32	GM
1,3-Dichlorobenzene	ND		ug/kg dry	5.4	2.2	1	07/16/19	07/16/19 17:32	GM
1,4-Dichlorobenzene	ND		ug/kg dry	5.4	2.2	1	07/16/19	07/16/19 17:32	GM
Dichlorodifluoromethane	ND		ug/kg dry	5.4	2.2	1	07/16/19	07/16/19 17:32	GM
1,1-Dichloroethane	ND		ug/kg dry	5.4	2.2	1	07/16/19	07/16/19 17:32	GM
1,2-Dichloroethane	ND		ug/kg dry	5.4	2.2	1	07/16/19	07/16/19 17:32	GM
1,1-Dichloroethene	ND		ug/kg dry	5.4	2.2	1	07/16/19	07/16/19 17:32	GM

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Project: Annapolis Public Works

Project Number: 19-416A
Project Manager: Keith Progin

Reported:
07/23/19 17:23

SB-8

9071111-08 (Soil)
Sample Date: 07/11/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
VOLATILE ORGANICS BY EPA METHOD 8260B (GC/MS) (continued)									
cis-1,2-Dichloroethene	ND		ug/kg dry	5.4	2.2	1	07/16/19	07/16/19 17:32	GM
trans-1,2-Dichloroethene	ND		ug/kg dry	5.4	2.2	1	07/16/19	07/16/19 17:32	GM
Dichlorofluoromethane	ND		ug/kg dry	5.4	2.2	1	07/16/19	07/16/19 17:32	GM
1,2-Dichloropropane	ND		ug/kg dry	5.4	2.2	1	07/16/19	07/16/19 17:32	GM
1,3-Dichloropropane	ND		ug/kg dry	5.4	2.2	1	07/16/19	07/16/19 17:32	GM
2,2-Dichloropropane	ND		ug/kg dry	5.4	2.2	1	07/16/19	07/16/19 17:32	GM
1,1-Dichloropropene	ND		ug/kg dry	5.4	2.2	1	07/16/19	07/16/19 17:32	GM
cis-1,3-Dichloropropene	ND		ug/kg dry	5.4	2.2	1	07/16/19	07/16/19 17:32	GM
trans-1,3-Dichloropropene	ND		ug/kg dry	5.4	2.2	1	07/16/19	07/16/19 17:32	GM
Diisopropyl ether (DIPE)	ND		ug/kg dry	5.4	2.2	1	07/16/19	07/16/19 17:32	GM
Ethyl tert-butyl ether (ETBE)	ND		ug/kg dry	5.4	2.2	1	07/16/19	07/16/19 17:32	GM
Ethylbenzene	ND		ug/kg dry	5.4	2.2	1	07/16/19	07/16/19 17:32	GM
Hexachlorobutadiene	ND		ug/kg dry	5.4	2.2	1	07/16/19	07/16/19 17:32	GM
2-Hexanone	ND		ug/kg dry	10.8	10.8	1	07/16/19	07/16/19 17:32	GM
Isopropylbenzene (Cumene)	ND		ug/kg dry	5.4	2.2	1	07/16/19	07/16/19 17:32	GM
4-Isopropyltoluene	ND		ug/kg dry	5.4	2.2	1	07/16/19	07/16/19 17:32	GM
Methyl tert-butyl ether (MTBE)	ND		ug/kg dry	5.4	2.2	1	07/16/19	07/16/19 17:32	GM
4-Methyl-2-pentanone	ND		ug/kg dry	10.8	10.8	1	07/16/19	07/16/19 17:32	GM
Methylene chloride	ND		ug/kg dry	21.5	21.5	1	07/16/19	07/16/19 17:32	GM
Naphthalene	ND		ug/kg dry	5.4	2.2	1	07/16/19	07/16/19 17:32	GM
n-Propylbenzene	ND		ug/kg dry	5.4	2.2	1	07/16/19	07/16/19 17:32	GM
Styrene	ND		ug/kg dry	5.4	2.2	1	07/16/19	07/16/19 17:32	GM
1,1,1,2-Tetrachloroethane	ND		ug/kg dry	5.4	2.2	1	07/16/19	07/16/19 17:32	GM
1,1,2,2-Tetrachloroethane	ND		ug/kg dry	5.4	2.2	1	07/16/19	07/16/19 17:32	GM
Tetrachloroethene	ND		ug/kg dry	5.4	2.2	1	07/16/19	07/16/19 17:32	GM
Toluene	ND		ug/kg dry	5.4	2.2	1	07/16/19	07/16/19 17:32	GM
1,2,3-Trichlorobenzene	ND		ug/kg dry	5.4	2.2	1	07/16/19	07/16/19 17:32	GM
1,2,4-Trichlorobenzene	ND		ug/kg dry	5.4	2.2	1	07/16/19	07/16/19 17:32	GM
1,1,1-Trichloroethane	ND		ug/kg dry	5.4	2.2	1	07/16/19	07/16/19 17:32	GM
1,1,2-Trichloroethane	ND		ug/kg dry	5.4	2.2	1	07/16/19	07/16/19 17:32	GM
Trichloroethene	ND		ug/kg dry	5.4	2.2	1	07/16/19	07/16/19 17:32	GM
Trichlorofluoromethane (Freon 11)	ND		ug/kg dry	5.4	2.2	1	07/16/19	07/16/19 17:32	GM
1,2,3-Trichloropropane	ND		ug/kg dry	5.4	2.2	1	07/16/19	07/16/19 17:32	GM

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Analytical Results

Project: Annapolis Public Works

Project Number: 19-416A
Project Manager: Keith Progin

Reported:
07/23/19 17:23

SB-8

9071111-08 (Soil)
Sample Date: 07/11/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
VOLATILE ORGANICS BY EPA METHOD 8260B (GC/MS) (continued)									
1,2,4-Trimethylbenzene	ND		ug/kg dry	5.4	2.2	1	07/16/19	07/16/19 17:32	GM
1,3,5-Trimethylbenzene	ND		ug/kg dry	5.4	2.2	1	07/16/19	07/16/19 17:32	GM
Vinyl chloride	ND		ug/kg dry	5.4	2.2	1	07/16/19	07/16/19 17:32	GM
o-Xylene	ND		ug/kg dry	5.4	2.2	1	07/16/19	07/16/19 17:32	GM
m- & p-Xylenes	ND		ug/kg dry	5.4	2.2	1	07/16/19	07/16/19 17:32	GM
Surrogate: 1,2-Dichloroethane-d4			*70-130*	*109 %*	*07/16/19*		*07/16/19 17:32*		
Surrogate: Toluene-d8			*75-120*	*100 %*	*07/16/19*		*07/16/19 17:32*		
Surrogate: 4-Bromofluorobenzene			*65-120*	*94 %*	*07/16/19*		*07/16/19 17:32*		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.11	0.11	1	07/17/19	07/17/19 18:43	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	**1080**		mg/kg dry	43.0	43.0	1	07/11/19	07/13/19 03:59	SJA
Surrogate: o-Terphenyl			*70-130*	*129 %*	*07/11/19*		*07/13/19 03:59*		
PERCENT SOLIDS BY ASTM D2216-05									
Percent Solids	**93**		%			1	07/17/19	07/18/19 11:22	CEB
POLYCHLORINATED BIPHENYLS BY EPA 3540/8082A (GC/ECD)									
Aroclor-1016	ND		ug/kg dry	89.2	89.2	1	07/11/19	07/12/19 20:44	SJA
Aroclor-1221	ND		ug/kg dry	183	183	1	07/11/19	07/12/19 20:44	SJA
Aroclor-1232	ND		ug/kg dry	89.2	89.2	1	07/11/19	07/12/19 20:44	SJA
Aroclor-1242	ND		ug/kg dry	89.2	89.2	1	07/11/19	07/12/19 20:44	SJA
Aroclor-1248	ND		ug/kg dry	89.2	89.2	1	07/11/19	07/12/19 20:44	SJA
Aroclor-1254	ND		ug/kg dry	89.2	89.2	1	07/11/19	07/12/19 20:44	SJA
Aroclor-1260	ND		ug/kg dry	89.2	89.2	1	07/11/19	07/12/19 20:44	SJA
Aroclor-1262	ND		ug/kg dry	89.2	89.2	1	07/11/19	07/12/19 20:44	SJA
Aroclor-1268	ND		ug/kg dry	89.2	89.2	1	07/11/19	07/12/19 20:44	SJA
Surrogate: Tetrachloro-m-xylene			*40-150*	*74 %*	*07/11/19*		*07/12/19 20:44*		
Surrogate: Decachlorobiphenyl			*40-150*	*65 %*	*07/11/19*		*07/12/19 20:44*		

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Analytical Results

Project: Annapolis Public Works

Project Number: 19-416A
Project Manager: Keith Progin

Reported:
07/23/19 17:23

SB-8

9071111-08 (Soil)
Sample Date: 07/11/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
TOTAL METALS ANALYSIS BY EPA 3050B/6020A									
Antimony	**0.295**		mg/kg dry	0.269	0.269	1	07/15/19	07/17/19 16:56	VVD
Arsenic	**4.17**		mg/kg dry	0.269	0.269	1	07/15/19	07/17/19 16:56	VVD
Beryllium	**0.361**		mg/kg dry	0.269	0.269	1	07/15/19	07/17/19 16:56	VVD
Cadmium	ND		mg/kg dry	0.269	0.269	1	07/15/19	07/17/19 16:56	VVD
Chromium	**34.3**		mg/kg dry	0.269	0.269	1	07/15/19	07/17/19 16:56	VVD
Copper	**7.62**		mg/kg dry	0.269	0.269	1	07/15/19	07/17/19 16:56	VVD
Lead	**65.2**		mg/kg dry	0.269	0.269	1	07/15/19	07/17/19 16:56	VVD
Mercury	**0.0310**		mg/kg dry	0.0134	0.0134	1	07/15/19	07/17/19 16:56	VVD
Nickel	**13.0**		mg/kg dry	0.269	0.269	1	07/15/19	07/17/19 16:56	VVD
Selenium	**0.665**		mg/kg dry	0.269	0.269	1	07/15/19	07/17/19 16:56	VVD
Silver	ND		mg/kg dry	0.269	0.269	1	07/15/19	07/17/19 16:56	VVD
Thallium	ND		mg/kg dry	0.269	0.269	1	07/15/19	07/17/19 16:56	VVD
Zinc	**46.7**		mg/kg dry	1.34	1.34	1	07/15/19	07/17/19 16:56	VVD
Wet Chemistry Performed at Enviro-Chem									
% Solids	**91.5**		%	1.00	1.00	1	07/15/19	07/15/19 16:08	FRD
Cyanide, Total	**1.85**		mg/kg dry	0.530	0.530	1	07/17/19	07/18/19 13:23	FRD
Dioxins and Furans by Isotope Dilution HRGC/HRMS Performed at PACE-MN									
1,2,3,4,6,7,8-HpCDD	**62**		ng/Kg	5.0	0.47	1	07/16/19	07/22/19 21:15	SMT
1,2,3,4,6,7,8-HpCDF	**12**		ng/Kg	5.0	0.24	1	07/16/19	07/22/19 21:15	SMT
1,2,3,4,7,8,9-HpCDF	ND		ng/Kg	5.0	0.31	1	07/16/19	07/22/19 21:15	SMT
1,2,3,4,7,8-HxCDD	ND		ng/Kg	5.0	0.22	1	07/16/19	07/22/19 21:15	SMT
1,2,3,4,7,8-HxCDF	ND		ng/Kg	5.0	0.30	1	07/16/19	07/22/19 21:15	SMT
1,2,3,6,7,8-HxCDD	ND		ng/Kg	5.0	0.33	1	07/16/19	07/22/19 21:15	SMT
1,2,3,6,7,8-HxCDF	ND		ng/Kg	5.0	0.30	1	07/16/19	07/22/19 21:15	SMT
1,2,3,7,8,9-HxCDD	ND		ng/Kg	5.0	0.20	1	07/16/19	07/22/19 21:15	SMT
1,2,3,7,8,9-HxCDF	ND		ng/Kg	5.0	0.29	1	07/16/19	07/22/19 21:15	SMT
1,2,3,7,8-PeCDD	ND		ng/Kg	5.0	0.18	1	07/16/19	07/22/19 21:15	SMT
1,2,3,7,8-PeCDF	ND		ng/Kg	5.0	0.39	1	07/16/19	07/22/19 21:15	SMT
2,3,4,6,7,8-HxCDF	ND		ng/Kg	5.0	0.34	1	07/16/19	07/22/19 21:15	SMT
2,3,4,7,8-PeCDF	ND		ng/Kg	5.0	0.23	1	07/16/19	07/22/19 21:15	SMT
2,3,7,8-TCDD	ND		ng/Kg	1.0	0.36	1	07/16/19	07/22/19 21:15	SMT
2,3,7,8-TCDF	ND		ng/Kg	1.0	0.72	1	07/16/19	07/22/19 21:15	SMT
OCDD	**2700**		ng/Kg	10	1.1	1	07/16/19	07/22/19 21:15	SMT
OCDF	**30**		ng/Kg	10	1.1	1	07/16/19	07/22/19 21:15	SMT

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Project: Annapolis Public Works

Project Number: 19-416A
Project Manager: Keith Progin

Reported:
07/23/19 17:23

SB-8

9071111-08 (Soil)
Sample Date: 07/11/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Dioxins and Furans by Isotope Dilution HRGC/HRMS Performed at PACE-MN (continued)									
Total HpCDD	**130**		ng/Kg	5.0	0.47	1	07/16/19	07/22/19 21:15	SMT
Total HpCDF	**34**		ng/Kg	5.0	0.27	1	07/16/19	07/22/19 21:15	SMT
Total HxCDD	**7.6**		ng/Kg	5.0	0.25	1	07/16/19	07/22/19 21:15	SMT
Total HxCDF	**17**		ng/Kg	5.0	0.31	1	07/16/19	07/22/19 21:15	SMT
Total PeCDD	ND		ng/Kg	5.0	0.18	1	07/16/19	07/22/19 21:15	SMT
Total PeCDF	**19**		ng/Kg	5.0	0.31	1	07/16/19	07/22/19 21:15	SMT
Total TCDD	ND		ng/Kg	1.0	0.36	1	07/16/19	07/22/19 21:15	SMT
Total TCDF	**3.1**		ng/Kg	1.0	0.72	1	07/16/19	07/22/19 21:15	SMT
Surrogate: 1,2,3,4,6,7,8-HpCDD-13C		*40.0-135.0*		*51 %*		*07/16/19*	*07/22/19 21:15*		
Surrogate: 1,2,3,4,6,7,8-HpCDF-13C		*40.0-135.0*		*47 %*		*07/16/19*	*07/22/19 21:15*		
Surrogate: 1,2,3,4,7,8,9-HpCDF-13C		*40.0-135.0*		*46 %*		*07/16/19*	*07/22/19 21:15*		
Surrogate: 1,2,3,4,7,8-HxCDD-13C		*40.0-135.0*		*59 %*		*07/16/19*	*07/22/19 21:15*		
Surrogate: 1,2,3,4,7,8-HxCDF-13C		*40.0-135.0*		*62 %*		*07/16/19*	*07/22/19 21:15*		
Surrogate: 1,2,3,6,7,8-HxCDD-13C		*40.0-135.0*		*56 %*		*07/16/19*	*07/22/19 21:15*		
Surrogate: 1,2,3,6,7,8-HxCDF-13C		*40.0-135.0*		*64 %*		*07/16/19*	*07/22/19 21:15*		
Surrogate: 1,2,3,7,8,9-HxCDF-13C		*40.0-135.0*		*59 %*		*07/16/19*	*07/22/19 21:15*		
Surrogate: 1,2,3,7,8-PeCDD-13C		*40.0-135.0*		*53 %*		*07/16/19*	*07/22/19 21:15*		
Surrogate: 1,2,3,7,8-PeCDF-13C		*40.0-135.0*		*51 %*		*07/16/19*	*07/22/19 21:15*		
Surrogate: 2,3,4,6,7,8-HxCDF-13C		*40.0-135.0*		*62 %*		*07/16/19*	*07/22/19 21:15*		
Surrogate: 2,3,4,7,8-PeCDF-13C		*40.0-135.0*		*46 %*		*07/16/19*	*07/22/19 21:15*		
Surrogate: 2,3,7,8-TCDD-13C		*40.0-135.0*		*61 %*		*07/16/19*	*07/22/19 21:15*		
Surrogate: 2,3,7,8-TCDF-13C		*40.0-135.0*		*57 %*		*07/16/19*	*07/22/19 21:15*		
Surrogate: OCDD-13C		*40.0-135.0*		*39 %*		*07/16/19*	*07/22/19 21:15*		*P*

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Will Brewington, President

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

Project: Annapolis Public Works

Project Number: 19-416A
Project Manager: Keith Progin

Reported:
07/23/19 17:23

SB-8

9071111-08RE1 (Soil)
Sample Date: 07/11/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 3540/8270D (GC/MS)									
Acenaphthene	ND		ug/kg dry	2690	1080	2	07/11/19	07/12/19 18:41	WB
Acenaphthylene	ND		ug/kg dry	2690	1080	2	07/11/19	07/12/19 18:41	WB
Anthracene	ND		ug/kg dry	2690	1080	2	07/11/19	07/12/19 18:41	WB
Benzo[a]anthracene	ND		ug/kg dry	2690	1080	2	07/11/19	07/12/19 18:41	WB
Benzo[b]fluoranthene	ND		ug/kg dry	2690	1080	2	07/11/19	07/12/19 18:41	WB
Benzo[k]fluoranthene	ND		ug/kg dry	2690	1080	2	07/11/19	07/12/19 18:41	WB
Benzo[ghi]perylene	ND		ug/kg dry	2690	1080	2	07/11/19	07/12/19 18:41	WB
Benzo[a]pyrene	ND		ug/kg dry	2690	1080	2	07/11/19	07/12/19 18:41	WB
4-Bromophenyl phenyl ether	ND		ug/kg dry	2690	1080	2	07/11/19	07/12/19 18:41	WB
Butyl benzyl phthalate	ND		ug/kg dry	2690	1080	2	07/11/19	07/12/19 18:41	WB
Carbazole	ND		ug/kg dry	2690	1080	2	07/11/19	07/12/19 18:41	WB
4-Chloro-3-methylphenol	ND		ug/kg dry	2690	1080	2	07/11/19	07/12/19 18:41	WB
4-Chloroaniline	ND		ug/kg dry	2690	1080	2	07/11/19	07/12/19 18:41	WB
Bis(2-chloroethoxy)methane	ND		ug/kg dry	2690	1080	2	07/11/19	07/12/19 18:41	WB
Bis(2-chloroethyl) ether	ND		ug/kg dry	2690	1080	2	07/11/19	07/12/19 18:41	WB
2,2'-Oxybis(1-Chloropropane)	ND		ug/kg dry	2690	1080	2	07/11/19	07/12/19 18:41	WB
2-Chloronaphthalene	ND		ug/kg dry	2690	1080	2	07/11/19	07/12/19 18:41	WB
2-Chlorophenol	ND		ug/kg dry	2690	1080	2	07/11/19	07/12/19 18:41	WB
4-Chlorophenyl phenyl ether	ND		ug/kg dry	2690	1080	2	07/11/19	07/12/19 18:41	WB
Chrysene	ND		ug/kg dry	2690	1080	2	07/11/19	07/12/19 18:41	WB
Di-n-butyl phthalate	ND		ug/kg dry	2690	1080	2	07/11/19	07/12/19 18:41	WB
Di-n-octyl phthalate	ND		ug/kg dry	2690	1080	2	07/11/19	07/12/19 18:41	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	2690	1080	2	07/11/19	07/12/19 18:41	WB
Dibenzofuran	ND		ug/kg dry	2690	1080	2	07/11/19	07/12/19 18:41	WB
1,2-Dichlorobenzene	ND		ug/kg dry	2690	1080	2	07/11/19	07/12/19 18:41	WB
1,3-Dichlorobenzene	ND		ug/kg dry	2690	1080	2	07/11/19	07/12/19 18:41	WB
1,4-Dichlorobenzene	ND		ug/kg dry	2690	1080	2	07/11/19	07/12/19 18:41	WB
3,3-Dichlorobenzidine	ND		ug/kg dry	5380	5380	2	07/11/19	07/12/19 18:41	WB
2,4-Dichlorophenol	ND		ug/kg dry	2690	1080	2	07/11/19	07/12/19 18:41	WB
Diethyl phthalate	ND		ug/kg dry	2690	1080	2	07/11/19	07/12/19 18:41	WB
Dimethyl phthalate	ND		ug/kg dry	2690	1080	2	07/11/19	07/12/19 18:41	WB
2,4-Dimethylphenol	ND		ug/kg dry	2690	1080	2	07/11/19	07/12/19 18:41	WB
2-Methyl-4,6-dinitrophenol	ND		ug/kg dry	13400	13400	2	07/11/19	07/12/19 18:41	WB

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

Project: Annapolis Public Works

Project Number: 19-416A
Project Manager: Keith Progin

Reported:
07/23/19 17:23

SB-8

9071111-08RE1 (Soil)
Sample Date: 07/11/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 3540/8270D (GC/MS) (continued)									
2,4-Dinitrophenol	ND		ug/kg dry	13400	13400	2	07/11/19	07/12/19 18:41	WB
2,4-Dinitrotoluene	ND		ug/kg dry	2690	1080	2	07/11/19	07/12/19 18:41	WB
2,6-Dinitrotoluene	ND		ug/kg dry	2690	1080	2	07/11/19	07/12/19 18:41	WB
Bis(2-ethylhexyl) phthalate	ND		ug/kg dry	2690	1080	2	07/11/19	07/12/19 18:41	WB
Fluoranthene	ND		ug/kg dry	2690	1080	2	07/11/19	07/12/19 18:41	WB
Fluorene	ND		ug/kg dry	2690	1080	2	07/11/19	07/12/19 18:41	WB
Hexachlorobenzene	ND		ug/kg dry	2690	1080	2	07/11/19	07/12/19 18:41	WB
Hexachlorobutadiene	ND		ug/kg dry	2690	1080	2	07/11/19	07/12/19 18:41	WB
Hexachlorocyclopentadiene	ND		ug/kg dry	2690	1080	2	07/11/19	07/12/19 18:41	WB
Hexachloroethane	ND		ug/kg dry	2690	1080	2	07/11/19	07/12/19 18:41	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	2690	1080	2	07/11/19	07/12/19 18:41	WB
Isophorone	ND		ug/kg dry	2690	1080	2	07/11/19	07/12/19 18:41	WB
2-Methylnaphthalene	ND		ug/kg dry	2690	1080	2	07/11/19	07/12/19 18:41	WB
3&4-Methylphenol	ND		ug/kg dry	2690	1080	2	07/11/19	07/12/19 18:41	WB
2-Methylphenol	ND		ug/kg dry	2690	1080	2	07/11/19	07/12/19 18:41	WB
N-Nitroso-di-n-propylamine	ND		ug/kg dry	2690	1080	2	07/11/19	07/12/19 18:41	WB
N-Nitrosodiphenylamine	ND		ug/kg dry	2690	1080	2	07/11/19	07/12/19 18:41	WB
Naphthalene	ND		ug/kg dry	2690	1080	2	07/11/19	07/12/19 18:41	WB
2-Nitroaniline	ND		ug/kg dry	13400	13400	2	07/11/19	07/12/19 18:41	WB
3-Nitroaniline	ND		ug/kg dry	13400	13400	2	07/11/19	07/12/19 18:41	WB
4-Nitroaniline	ND		ug/kg dry	13400	13400	2	07/11/19	07/12/19 18:41	WB
Nitrobenzene	ND		ug/kg dry	2690	1080	2	07/11/19	07/12/19 18:41	WB
2-Nitrophenol	ND		ug/kg dry	2690	1080	2	07/11/19	07/12/19 18:41	WB
4-Nitrophenol	ND		ug/kg dry	13400	13400	2	07/11/19	07/12/19 18:41	WB
Pentachlorophenol	ND		ug/kg dry	13400	13400	2	07/11/19	07/12/19 18:41	WB
Phenanthrene	ND		ug/kg dry	2690	1080	2	07/11/19	07/12/19 18:41	WB
Phenol	ND		ug/kg dry	2690	1080	2	07/11/19	07/12/19 18:41	WB
Pyrene	ND		ug/kg dry	2690	1080	2	07/11/19	07/12/19 18:41	WB
1,2,4-Trichlorobenzene	ND		ug/kg dry	2690	1080	2	07/11/19	07/12/19 18:41	WB
2,4,5-Trichlorophenol	ND		ug/kg dry	2690	1080	2	07/11/19	07/12/19 18:41	WB
2,4,6-Trichlorophenol	ND		ug/kg dry	2690	1080	2	07/11/19	07/12/19 18:41	WB

Surrogate: 2-Fluorophenol	*23-121*	*101 %*	*07/11/19*	*07/12/19 18:41*
Surrogate: Phenol-d5	*24-113*	*108 %*	*07/11/19*	*07/12/19 18:41*

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

Project: Annapolis Public Works

Project Number: 19-416A
Project Manager: Keith Progin

Reported:
07/23/19 17:23

SB-8

9071111-08RE1 (Soil)
Sample Date: 07/11/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 3540/8270D (GC/MS) (continued)									
Surrogate: Nitrobenzene-d5			*23-120*	*116 %*		*07/11/19*	*07/12/19 18:41*		
Surrogate: 2,4,6-Tribromophenol			*19-122*	*127 %*		*07/11/19*	*07/12/19 18:41*		*S-04*
Surrogate: 2-Fluorobiphenyl			*30-115*	*120 %*		*07/11/19*	*07/12/19 18:41*		*S-04*
Surrogate: Terphenyl-d14			*18-137*	*142 %*		*07/11/19*	*07/12/19 18:41*		*S-04*

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Baltimore MD 21227
410-247-7600
www.mdspectral.com

Analytical Results

Project: Annapolis Public Works

Project Number: 19-416A
Project Manager: Keith Progin

Reported:
07/23/19 17:23

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

Enviro-Chem

Matrix , Method , Analyte	
Solid | TS-% | % Solids	Solid | CN-Soil | Cyanide, Total

Maryland Spectral Services

Matrix , Method , Analyte	
Soil | 8260 (Full List) | Hexachlorobutadiene	Soil | 6020 (PP Metals Total) | Antimony
Soil | 6020 (PP Metals Total) | Arsenic	Soil | 6020 (PP Metals Total) | Beryllium
Soil | 6020 (PP Metals Total) | Cadmium	Soil | 6020 (PP Metals Total) | Chromium
Soil | 6020 (PP Metals Total) | Copper	Soil | 6020 (PP Metals Total) | Lead
Soil | 6020 (PP Metals Total) | Mercury	Soil | 6020 (PP Metals Total) | Nickel
Soil | 6020 (PP Metals Total) | Selenium	Soil | 6020 (PP Metals Total) | Silver
Soil | 6020 (PP Metals Total) | Thallium	Soil | 6020 (PP Metals Total) | Zinc

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410-247-7600
www.mdspectral.com

Analytical Results

Project: Annapolis Public Works

Project Number: 19-416A
Project Manager: Keith Progin

Reported:
07/23/19 17:23

Notes and Definitions

S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
S-01	The surrogate recovery for this sample is not available due to sample dilution required from high analyte concentration and/or matrix interference.
P	Recovery outside of target range
Ja	Detected but below the reporting limit; therefore, result is an estimated concentration (CLP J-Flag).
J	Concentration detected is below the calibration range
I	Interference
A	Detection Limit based on signal-to-noise measurement
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

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CHAIN-OF-CUSTODY RECORD

Company Name: Hillis-Carnes Engineering Associates

Project Manager: Keith Progin

Project Name: Annapolis Public Works

Project ID: 19 916A

Sampler(s): Mark Harris

P.O. Number:

Maryland Spectral Services, Inc.
1500 Caton Center Drive, Suite G
Baltimore, MD 21227
410-247-7600 • Fax 410-247-7602
labman@mdspectral.com

Matrix Codes: NW (nonpotable water)
PW (potable water)

Analysis Requested

Field Sample ID	Date	Time	Water	Soil	Other	No. of Containers	PPI 3 Total Metals (6020)	DRO (10-C28)	GRO (C6-C10)	PCBs (8082)	VOCs (8260)	Semi-Volatile Organics (8270)	Dioxins/Furans (8290)	Total Cyanide			Preservative: 1+ 1 HCL, H_2SO_4, Methanol, $Na_2S_2O_3$, $NaHCO_3$	Field pH, Residual Chlorine, QC Request, Trip Blank, Field Blank	MSS Lab ID
SB-1	7/11/19	8:10-8:12		X		3	X	X	X	X	X	X	X	X			None		9071111-01
SB-2		8:40-8:42				3													-02
SB-3		9:05-9:07				3													-03
SB-4		9:45				2													-04
SB-5		10:25-10:27				3													-05
SB-6		11:00				3													-06
SB-7		11:40				3													-07
SB-8		12:19				3													-08

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
(Printed) Mark Harris	7/11/19 13:55	(Printed)	(Printed)		(Printed)

Relinquished by: (Signature)	Date/Time	Received by Lab: (Signature)
(Printed)	7/11/19 13:55	(Printed) Rabecka Koons

Turn Around Time:
- ☒ Normal (7 day)
- ☐ 5 day
- ☐ 4 day
- ☐ 3 day
- ☐ Rush (2 day)
- ☐ Next Day
- ☐ Other: _____
- ☐ Specific Due Date: _____

Lab Use:
Temp: 15.6 °C
- ☑ Received on Ice
- ☑ Received same day
- ☐ Preservation Appropriate

Delivery Method:
- ☐ Courier
- ☐ Client
- ☐ UPS
- ☐ FedEx
- ☐ USPS
- ☐ Other: _____

Special Instructions/QC Requirements & Comments:

Sample Disposal:
- ☐ Return to Client
- ☐ Disposal by lab
- ☐ Archive for _____ days

MSS-F001-03/13

SUBCONTRACT ORDER
Maryland Spectral Services

9071111

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

RECEIVING LABORATORY:

Enviro-Chem Laboratories, Inc
47 Loveton Circle, Suite K
Sparks, MD 21152
Phone :(410) 472-1112
Fax: (410) 472-1116

Auto-log Sent
Date/Initial
7/11/19 RH

Due 4:00 PM 07/22/19

				Laboratory ID	Comments
Sample ID: 9071111-01	**SB-1**	**Soil**	**Sampled:07/11/19 08:12**		
Cyanide (Total)					
Containers Supplied: Glass Jar, 4 oz (B)					
Sample ID: 9071111-02	**SB-2**	**Soil**	**Sampled:07/11/19 08:42**		
Cyanide (Total)					
Containers Supplied: Glass Jar, 4 oz (B)					
Sample ID: 9071111-03	**SB-3**	**Soil**	**Sampled:07/11/19 09:07**		
Cyanide (Total)					
Containers Supplied: Glass Jar, 4 oz (B)					
Sample ID: 9071111-04	**SB-4**	**Soil**	**Sampled:07/11/19 09:45**		
Cyanide (Total)					
Containers Supplied: Glass Jar, 4 oz (B)					

Released By	Date	Received By	Date
[signature]	7/12/19	[signature]	

T=2.8

SUBCONTRACT ORDER
Maryland Spectral Services

9071111

Due 4:00 PM 07/22/19

				Laboratory ID	Comments
Sample ID: 9071111-05	**SB-5**	**Soil**	**Sampled:07/11/19 10:27**		
Cyanide (Total)					
Containers Supplied: Glass Jar, 4 oz (B)					
Sample ID: 9071111-06	**SB-6**	**Soil**	**Sampled:07/11/19 11:00**		
Cyanide (Total)					
Containers Supplied: Glass Jar, 4 oz (B)					
Sample ID: 9071111-07	**SB-7**	**Soil**	**Sampled:07/11/19 11:40**		
Cyanide (Total)					
Containers Supplied: Glass Jar, 4 oz (B)					
Sample ID: 9071111-08	**SB-8**	**Soil**	**Sampled:07/11/19 12:10**		
Cyanide (Total)					
Containers Supplied: Glass Jar, 4 oz (B)					

leased By	Date	Received By	Date
leased By	Date	Received By	Date

SUBCONTRACT ORDER
Maryland Spectral Services

9071111

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

RECEIVING LABORATORY:

Pace Labs-Mn
1700 Elm Street SE
Minneapolis, MN 55414
Phone :(612) 607-1700
Fax:

WO# : 10482931

10482931

Due 4:00 PM 07/22/19

				Laboratory ID	Comments
Sample ID: 9071111-01	**SB-1**	**Soil**	**Sampled:07/11/19 08:12**	001	
8290 (Dioxins-Furans)					
Containers Supplied: Glass Jar, 4 oz (C)					
Sample ID: 9071111-02	**SB-2**	**Soil**	**Sampled:07/11/19 08:42**	002	
8290 (Dioxins-Furans)					
Containers Supplied: Glass Jar, 4 oz (C)					
Sample ID: 9071111-03	**SB-3**	**Soil**	**Sampled:07/11/19 09:07**	003	
8290 (Dioxins-Furans)					
Containers Supplied: Glass Jar, 4 oz (C)					
Sample ID: 9071111-04	**SB-4**	**Soil**	**Sampled:07/11/19 09:45**	004	
8290 (Dioxins-Furans)					
Containers Supplied: Glass Jar, 4 oz (C)					

Rachel [illegible]	7/11/19 16:18	David L Hillegonds/Pace	7/11/19 1618
Relinquished By	Date	Received By	Date
David L Hillegonds/Pace	7/11/19 1845	[illegible] Pace	7/12/19 8:40
Relinquished By	Date	Received By	Date

SUBCONTRACT ORDER
Maryland Spectral Services

9071111

Due 4:00 PM 07/22/19

				Laboratory ID	Comments
Sample ID: 9071111-05	**SB-5**	**Soil**	**Sampled:07/11/19 10:27**	~~007~~ 005 CEG 7/12/19	
8290 (Dioxins-Furans)					
Containers Supplied: Glass Jar, 4 oz (C)					
Sample ID: 9071111-06	**SB-6**	**Soil**	**Sampled:07/11/19 11:00**	CEG 7/12/19 ~~005~~ 006	
8290 (Dioxins-Furans)					
Containers Supplied: Glass Jar, 4 oz (C)					
Sample ID: 9071111-07	**SB-7**	**Soil**	**Sampled:07/11/19 11:40**	007	
8290 (Dioxins-Furans)					
Containers Supplied: Glass Jar, 4 oz (C)					
Sample ID: 9071111-08	**SB-8**	**Soil**	**Sampled:07/11/19 12:10**	008	
8290 (Dioxins-Furans)					
Containers Supplied: Glass Jar, 4 oz (C)					

Relinquished By	Date 7/11/19 16:18	Received By David L Hillegas/Pace	Date 7/11/19 1618
Relinquished By David L Hillegas/Pace	Date 7/11/19 1845 DLH 16:18 7/11/19	Received By WDR Pace	Date 7/12/19 8:40

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