ARCADIS
Infrastructure · Water · Environment · Buildings

ARCADIS U.S., Inc.
1114 Benfield Boulevard
Suite A
Millersville
Maryland 21108
Tel 410 987 0032
Fax 410 987 4392

Transmittal Letter

To:
Mr. Jim Richmond
Maryland Department of the Environment
Land Management Administration
1800 Washington Boulevard, Suite 620
Baltimore, MD 21230-1719

Copies:
S. Bull, MDE
A. Miller, MDE
W. Parry, CSXT – PS&E Web
R. Frazier, MTA

ENVIRONMENT

From:
Albert Buell

Date:
March 9, 2015

Subject:
Pipe Replacement Work Plan (PRWP)
CSXT Brunswick Yard, Brunswick, Maryland CSXT
Project # 9415381

ARCADIS Project No.:
MD000843.0011.00011

We are sending you:

☒ **Attached** ☐ **Under Separate Cover Via _____ the Following Items:**

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☐ Prints ☐ Samples ☐ Copy of Letter ☐ Reports
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1	03/09/15			Pipe Replacement Work Plan (PRWP)	AS

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Comments: On behalf of Mr. William Parry of CSXT, please find enclosed a copy of the Pipe Replacement Work Plan (PRWP) for the CSXT Brunswick Yard, Brunswick, Maryland. Two copies of the report were also delivered to Susan Bull with one electronic copy on CD. Please contact me with questions. – Albert Buell

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Imagine the result

CSX Transportation, Inc.

Pipe Replacement Work Plan

Brunswick Rail Yard/ C&O Canal,
Brunswick, Maryland
CSXT Project # 9415381

March 2015

ARCADIS



Joshua Wilson
Project Scientist



Ramzi Khuri
Principal Civil Engineer



Albert Buell
Project Manager

Pipe Replacement Work Plan

Brunswick Rail Yard,
Brunswick, Maryland
CSXT Project # 9415381

Prepared for:
CSX Transportation, Inc.

Prepared by:
ARCADIS U.S., Inc.
1114 Benfield Boulevard
Suite A
Millersville
Maryland 21108
Tel 410 987 0032
Fax 410 987 4392

Our Ref.:
MD000843.0011

Date:
March 2015

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Acronyms and Abbreviations

ARCADIS	ARCADIS U.S., Inc.
AST	aboveground storage tank
ASTM	America Society for Testing and Materials
BAMP	brick and mortar pipe
bgs	below ground surface
CCR	Construction Completion Report
CSXT	CSX Transportation, Inc.
E&SC	Erosion and Sediment Controls
EPA	United States Environmental Protection Agency
HDPE	high density polyethylene
LPH	liquid-phase hydrocarbons
MARC	Maryland Area Regional Commuter
MDE	Maryland Department of the Environment
mg/kg	milligrams per kilogram
MTA	Maryland Transit Administration
MW	monitoring well
NPS	National Park Service
OWS	oil water separator
PDIWP	Pre-Design Investigation Work Plan
PRWP	Pipe Replacement Work Plan
SCM	Site Conceptual Model
SPCC	Spill Prevention, Control, and Countermeasure
SVOC	semi-volatile organic compound
TCLP	Toxicity Characteristic Leaching Procedure
the Site	Brunswick Rail Yard located in Brunswick, Maryland
TPH-DRO	total petroleum hydrocarbons – diesel range organics
TPH-GRO	total petroleum hydrocarbons – gasoline range organics
VOC	volatile organic compound

ARCADIS

Pipe Replacement Work Plan

Brunswick Yard
Brunswick, Maryland

1. Introduction

This Pipe Replacement Work Plan (PRWP) has been prepared by ARCADIS U.S., Inc. (ARCADIS) on behalf of CSX Transportation, Inc. (CSXT), for the Brunswick Rail Yard (hereinafter referred to as "the Site") located in Brunswick, Maryland (**Figure 1**). This PRWP includes a description of the methods and materials for the implementation of the excavation and replacement of the brick and mortar pipe (BAMP) that currently conveys discharge from the Maryland Transit Administration (MTA) / Maryland Area Regional Commuter (MARC) aboveground storage tanks (ASTs) and fueling station to the on-Site oil water separator (OWS).

1.1 Project Background

Liquid-phase hydrocarbons (LPH) were observed in two Site monitoring wells (CSXT MW-39 and CSXT MW-70) in the first quarter of 2013. LPH had not been previously observed in CSXT MW-39 since its installation in November 2007. LPH was also not observed in CSXT MW-70, which was installed on January 9, 2013, the first time it was gauged on January 11, 2013. LPH thicknesses measured at CSXT MW-39 and CSXT MW-70 in January, February, March, and April 2013 were less than 0.10 feet. LPH has not been observed in CSXT MW-39 since April 11, 2013, but has been observed in CSXT MW-70 as recently as November 21, 2013. The locations of CSXT MW-39 and CSXT MW-70 are shown on **Figure 2**.

The occurrence of LPH in both wells was reported to the Maryland Department of the Environment (MDE) and LPH has been recovered using absorbent socks. The LPH observed in these wells was pink to red, which is consistent with the coloration seen in off-road diesel fuel. The coloration and location of this LPH relative to LPH historically observed at the Site, indicates a source unrelated to the historical diesel releases that have been the focus of previous Site investigations. A Supplemental LPH Delineation Work Plan (ARCADIS 2013a) to investigate the LPH occurrences in these wells using laser induced fluorescence was submitted to the MDE on August 14, 2013.

Subsequently, a small diesel spill at the fueling island north of the roundhouse on August 19, 2013, prompted spill response activities, and an investigation of the current Spill Prevention, Control, and Countermeasure (SPCC) and stormwater management mechanisms at the Site. The investigation involved both CSXT and MTA/ MARC contractors and consultants. It should be noted the fueling operations at the Brunswick Yard were historically managed by CSXT; however, as of July 2013, MTA/MARC started leasing portions of the CSXT property and took over management of all

permanent fueling operations at the Brunswick Yard, including SPCC and stormwater management activities associated with the fueling area. The investigations included a dye trace test and a closed-circuit television survey of the piping linking the spill catch pans at the fueling island to the OWS.

The dye trace investigation indicated piping from the fueling island does drain to the on-Site OWS; however, the piping is routed south around the turntable, not through the turntable as indicated in the SPCC drawings of the system. The closed-circuit television investigation showed a length of the piping is constructed of brick and mortar and is partially in disrepair, and is the expected source of the recent observations of diesel fuel east of the roundhouse.

Based on this new information, a Revised Supplemental LPH Delineation Work Plan (ARCADIS 2013b), including a laser induced fluorescence investigation, was submitted to the MDE on October 23, 2013. While awaiting MDE approval on the Revised Supplemental LPH Delineation Work Plan, ARCADIS and CSXT determined the pipe was likely going to require replacement, and a different remedial course of action should be considered rather than the activities outlined in the October 2013 work plan. A revised approach was communicated to the MDE via email correspondence dated January 9, 2014, and a Pre-Design Investigation Work Plan (PDIWP) (ARCADIS 2014) was submitted to MDE on April 21, 2014. The PDIWP was designed to evaluate the nature and extent of diesel fuel impacts to soils in the area around MW-39 and MW-70 and the soils surrounding the subsurface piping connecting the fueling island to the OWS. MDE approved the PDIWP on August 13, 2014 and the PDIWP investigative activities were completed in November 2014. The results of the PDIWP are discussed in Section 3.

1.2 Site Setting and History

The Site, which has been an active rail yard since 1892, is located adjacent to the C&O Canal in Brunswick, Maryland (**Figure 1**). The Brunswick Yard is bounded to the north by East Potomac Street, to the west by a MARC train commuter parking lot, and the C&O Canal to the south. The Potomac River is directly south of the C&O Canal. Site features include a former AST Fuel Pump House, former Roundhouse, and the currently-operating ASTs, Fueling Station and OWS. Historic and current potential source areas for total petroleum hydrocarbons- diesel-range organics (TPH-DRO) in groundwater are the former AST system, which included a fuel pumping house and a 500,000-gallon diesel fuel AST, and a current fueling area located near the former roundhouse (**Figure 3**). The Brunswick Yard handles both commuter and freight traffic.

The diesel fueling station is currently operated by MARC and their subcontractors. Other areas of the Brunswick Yard are used for railroad material and equipment staging.

A summary table of historical environmental activities associated with the Site and the C&O Canal completed through December 2014, including investigation and remediation activities, are included in **Table 1**.

1.3 Site Characteristics

The following subsections describe the physical and hydrogeologic setting of the Site based on previous investigations at the Site..

1.3.1 Geology

A full description of Site geology is presented in the Supplemental Investigation Report and Revised Site Conceptual Model (SCM) (ARCADIS 2013c); however, a brief summary of the geologic setting is provided here. In general, Site data indicate geologic conditions consistent with fluvial sediments deposited on a metamorphic bedrock surface. None of the on-Site borings penetrate the bedrock unit; however, some borings, such as National Park Service (NPS) MW-5, indicate the presence of a saprolite layer at least four feet thick. The alluvium overlying the saprolite is associated with the Potomac River and its tributaries, and consists of heterogeneous layers of clay, silt, sand, and gravel.

Underlying the Site and NPS Property are two distinct overburden deposits. Directly overlying the saprolite is an orange-brown medium- to coarse-grained sand and gravel unit. The sand and gravel unit thins south of the Site approaching the Potomac River. Overlying the sand and gravel is a silty-clay unit, described as greenish-gray or brown and up to 15 feet thick. This unit varies in composition and thickness across the Site, and is thought to thin to the south as it approaches the Potomac River. Various types of fill materials, including sand and cinders, overlie the silty-clay unit. The thickness of the fill unit varies from two to ten feet at the Site.

1.3.2 Local Hydrogeology

A full description of Site hydrogeology is presented in the Supplemental Investigation Report and Revised SCM; however, a brief summary of the hydrogeologic setting is provided here. The SCM identifies three general hydrogeologic units in the surficial

aquifer. These three units correspond to the fill materials and shallow sediments; the fine-grained silts and clays; and the underlying sand and gravel unit, which is partially confined by the silt and clays. The fate and transport of LPH and dissolved-phase TPH-DRO are governed by the shallow groundwater flow dynamics.

Groundwater flow regimes in the shallow water table unit, which is saturated in the vicinity of the Potomac River, and the lower sand and gravel water-bearing unit, are dominated by the Potomac River as a local and regional discharge feature. Primary groundwater flux at the Site occurs in the lower sand and gravel unit. Groundwater flow directions inferred from water-level measurements in both units are perpendicular to the canal and toward the Potomac River. Local perturbations in groundwater elevation and flow direction are attributed to variations in the thickness of the overburden units, local variability in the composition of the silt and clay semi-confining unit, and the influence observed around the roundhouse foundation. Groundwater flow directions in the eastern portion of the Site and NPS Property are more variable. Groundwater flow from the Site to the NPS property appears to be southeasterly. Large sections of concrete foundation remain in the footprint of the roundhouse, creating a slight mounding effect on groundwater flow within the footprint, and slightly redirecting flow around the roundhouse foundation. South of the C&O Canal, groundwater flow appears to transition to a southwesterly flow direction.

Figure 2 presents contoured groundwater elevations at the Site representing the Fourth Quarter of 2014. This figure indicates flow directions and groundwater gradients are consistent with the SCM. This figure presents a combination of data collected from wells screened within the silt-clay confining unit and the sand and gravel unit below, and is intended only for generalized flow direction information.

2. Pre-Design Investigation and Waste Characterization

The pre-design investigation was conducted in accordance with the approved PDIWP. Details regarding the implementation are described in the sections below.

2.1 Pre-Design Investigation Field Activities

2.1.1 Utility Locate and Pipe Tracing

An extensive utility location effort was completed on November 13 and 14, 2014 to locate and identify all utilities and other anomalies within the footprint of the investigation work area. Ground-penetrating radar and electromagnetic technologies were employed to identify subsurface equipment for the utility location. Air knifing was completed at nine test pit locations to verify the material, location, and depth of the piping associated with the OWS and to verify construction and elevations of remaining portions of subsurface structures associated with the former roundhouse. Two of the test pit locations were inconclusive in obtaining useful information regarding the location of subsurface utilities. The other seven test pits were able to identify the presence of subsurface structures and the locations of the test pits were surveyed by ARCADIS' surveying contractor. Test pits were installed using soft dig methodology (i.e., air knifing). Air knifing revealed the depth of the piping associated with the OWS to be variable, ranging from 2.78 to 6.2 feet below ground surface (bgs).

2.1.2 Monitoring Well Installation

In accordance with the PDIWP, a new monitoring well (CSXT MW-71) was installed up-gradient of CSXT MW-39 and CSXT MW-70 (**Figure 2**) to identify if a secondary source of LPH exists. CSXT MW-71 was installed to a depth of 20 feet bgs and screened from 5 to 20 feet bgs. Well installation was conducted on November 20, 2014 by a Maryland licensed driller with oversight from an ARCADIS geologist. LPH were not observed during the installation of the well and photo-ionization detector (PID) readings from the core samples were negligible. Well development was conducted on November 25, 2014 to ensure removal of fine grained sediments from the well screen. LPH was not observed at CSXT MW-71 during well development or during subsequent LPH monitoring events conducted on November 25 or December 29, 2015. Field forms including well construction diagrams, soil boring logs, and well development logs and are provided in **Appendix A**.

2.1.3 Direct Push Boring Installation and Sampling

A direct-push boring investigation was completed to delineate the nature and extent of diesel fuel impacts to soils surrounding the OWS piping and in the areas around MW-39 and MW-70. A total of 17 borings (**Figure 4**) were installed around and within the perimeter of the anticipated excavation area. Soil borings were advanced to the depth of the water table and did not exceed a depth of 20 feet bgs. Depth to groundwater within the area of investigation ranged from 13.5 feet bgs at GP-90 to 19 feet bgs at GP-80. Soil samples from each boring location were continuously logged and screened with a PID. Visual observations and PID readings were recorded on boring logs and are included in **Appendix A**.

LPH saturated soils were not observed at any of the soil borings. A sheen was observed in the saturated zone of the cores from five borings (GP-91, GP-92, GP-93, GP-95, and GP-96), as observed by the MDE on November 19, 2014 during the installation of GP-91. Groundwater was encountered at or below 16 feet bgs in the five borings.

Two soil samples were collected for laboratory analysis from each soil boring location, one from the depth exhibiting the highest PID response, and one sample from just above the water table. One soil sample was also collected from the boring of the new monitoring well (MW-71) at the soil/groundwater interface. Samples were analyzed for full-suite volatile organic compounds (VOCs) including fuel oxygenates by United States Environmental Protection Agency (EPA) Method 8260, semi-volatile organic compounds (SVOCs) by EPA Method 8270, and total petroleum hydrocarbons – diesel and gasoline range organics (TPH-DRO and TPH-GRO) by EPA Method 8015 under standard laboratory turnaround time. The analytical results for the PDI soil samples are discussed in Section 3.2.

2.1.4 Geotechnical Borings

Two geotechnical borings were installed via hollow-stem auger and split spoon sampler to a depth of 23 and 30 feet bgs. The locations of the borings are shown on **Figure 4**. Standard Penetration Testing America Society for Testing and Materials (ASTM) D1586 was performed continuously for the installation of the borings. Three of the samples collected from each geotechnical boring were shipped to a geotechnical laboratory for geotechnical testing. Samples were collected from various depth intervals via split spoon sampling. Samples were analyzed for grain size/hydrometer (ASTM D422), moisture content (ASTM D2216), Atterberg Limits (ASTM D4318), and

Soil Classification (ASTM D2487). Geotechnical boring logs are included in **Appendix C**.

2.2 Soil Analytical Results

A total of 35 soil samples were collected from the 17 soil borings within the footprint of the former roundhouse and MW-71. **Table 2** presents a summary of all analytical results from the PDI soil sampling investigation, and **Table 3** presents a summary of the only the detected constituents. **Figure 3** presents analytical results for soil samples; analytical results are presented only for concentrations of TPH-GRO and TPH-DRO. Laboratory analytical reports are included as **Appendix C**.

TPH-GRO was detected in 30 of the 35 samples collected. TPH-GRO concentrations ranged from 1.3 B mg/kg to 860 mg/kg in samples collected from borings located west/ southwest of the former roundhouse (GP-91 through GP-96). In comparison, sample concentrations from borings located south and east of the former roundhouse did not exceed 51 B mg/kg (GP-87[16-17]), with the exception of GP-81(14-15), which had a TPH-GRO concentration of 240 B mg/kg. The B qualifier for analytical results indicates TPH-GRO was detected in the blank as well as the field sample. All detected concentrations of TPH-GRO were from depth intervals several feet below the invert depth of the BAMP.

TPH-DRO was detected in 24 of the 35 soil samples collected. TPH-DRO concentrations ranged from 28 mg/kg to 3,000 mg/kg in samples collected from borings located west/ southwest of the former roundhouse (GP-91 through GP-96). Soil concentrations from borings located south and east of the former roundhouse did not have TPH-DRO concentrations greater than 77 mg/kg, with the exception of GP-82(16.5-17.5) and GP-88(15-16), which had concentrations of 400 mg/kg and 160 mg/kg, respectively. TPH-DRO was not detected in any soil samples collected from GP-83, GP-86, and GP-90.

Detected concentrations of both TPH-GRO and TPH-DRO suggests minimal LPH saturation or petroleum impacts to soils in the vicinity of MW-39 and MW-70 and the soils surrounding the BAMP connecting the fueling island to the OWS. This finding is also supported by the lack of significant PID readings and observations of LPH staining in the soil cores as described in sections above. Higher concentrations of TPH-GRO and TPH-DRO found in soil borings located west of the former roundhouse are likely connected to historical petroleum impacts and not an on-going source.

2.3 Geotechnical Results

Geotechnical results are consistent with the description of the Site geology presented in the Supplemental Investigation Report and Revised SCM (ARCADIS, 2013c). In the vicinity of the roundhouse, fill materials consist mostly of gravel, cinders and sand and vary in thickness from 1.5 to 10 feet. The unit immediately below the fill on the west side of the former roundhouse is a sandy silt that transitions to a sandy silty clay as you move counter clockwise around the former roundhouse. Below the sandy silt and sandy silty clay units lies a silty sand with gravel. **Figure 4** shows the locations of cross-section diagrams at the Site, and **Figure 5** presents a cross section of select borings within the PDI study area shown as Section O-O'. Cross-section locations A-A' through N-N', shown on **Figure 5**, are included in the Revised Site Conceptual Model Addendum 1 (ARCADIS 2013b). Geotechnical analytical reports from the PDI are included as **Appendix C**.

2.4 Waste Characterization Results

A composite waste characterization sample (WC-Petroleum Impacted Soils-120514) was collected from the drill cuttings to profile the waste material prior to transportation and disposal at the accepting disposal facility. The composite sample was analyzed for the following:

Benzene, Toluene, Ethylbenzene, Xylene, TPH, and Polychlorinated Biphenyls.

Toxicity Characteristic Leaching Procedure (TCLP) metals, TCLP VOCs, TCLP SVOCs, TCLP pesticides, and TCLP herbicides.

All waste characterization sample results for the soil cuttings were below the reporting limits for the respective constituents, and were reported as non-detect. Laboratory analytical reports for the soil cuttings are included in **Appendix B**.

2.5 Waste Characterization for Excavated Soil Management

The waste characterization data for samples collected during investigation activities will be used to establish waste disposal profiles for soil and pipe materials removed during excavation activities. The waste disposal profile will be approved prior to contractor mobilization so live loading of excavation materials will be possible.

2.6 Deviations from Work Plan

The PDIWP identified nine initial boring locations around the approximate perimeter of the anticipated excavation area. A total of 17 borings were installed along the perimeter of the former roundhouse in order to address data gaps based upon field screening of borings. The additional borings confirmed there is no source of diesel fuel located up gradient of MW-70 and MW-39 that would have contributed to the appearance of measureable LPH in those two monitoring wells in 2013.

Another deviation from the approved PDIWP involves the construction of MW-71. The PDIWP and MDE correspondence dated August 13, 2014 specified the new monitoring well, MW-71, would be installed to 25 feet bgs and constructed with 10 feet above and below the water table. During well installation the drill encountered refusal at 20 feet bgs. As a result, MW-71 was installed to 20 feet bgs with 15 feet of screen from 5 to 20 feet bgs.

3. Permitting

Activities proposed in this PRWP are regulated activities requiring permitting. Engineering design and construction documents have been prepared for the proposed activities. These documents will be included with permit application submittals submitted as a component of implementing the work activities proposed in this PRWP. Based upon the proposed remedial scope of work detailed herein, the following permit applications will be necessary:

- Non-Tidal Wetlands and Waterways Permit – To be submitted to MDE
- Minor Grading Plan/Standard Sediment Control Plan – To be submitted to Frederick County

Completed permit applications are provided in **Appendix E**.

4. Pipe Replacement Implementation

This section provides a narrative description of the pipe removal and replacement activities. In addition to this section, the appendices of this report will also serve to guide the implementation of the work activities. **Appendix D** contains the Design Drawings which consists of the following:

1. GENERAL NOTES AND SEQUENCE OF CONSTRUCTION
2. EXISTING CONDITIONS
3. TRAFFIC CONTROL PLAN
4. PIPE REPLACEMENT AND EROSION AND SEDIMENT CONTROL PLAN
5. PIPING DETAILS AND PROFILE
6. MANHOLE DETAILS
7. EROSION AND SEDIMENT CONTROL DETAILS AND NOTES

4.1 Pre-Mobilization Activities

The following subsections discuss the activities to be completed prior to or concurrent with mobilization and include the following: utility clearance, backfill geotechnical and analytical analyses, and removal of staged equipment and materials (performed by CSXT).

4.1.1 Utility Clearance

Prior to initiation of intrusive activities, utility locating activities using at least three lines of evidence will be conducted. The purpose of the utility locate will be to confirm the location and depth of the BAMP, determine the location of the pipe's tie-ins to other piping and location of utilities to remain in place adjacent to the BAMP. First, Miss Utility of Maryland will be contacted at least 48 hours in advance of land disturbance. Second, a private utility locator will locate and mark underground utilities within the excavation area and surrounding areas using a combination of ground penetrating radar and electromagnetic location methods. Finally, available Site plans including the results of the utility investigation summarized in Section 3.1.1 will be reviewed to identify existing utilities within the Site. Maryland Miss Utility Locate tickets will be updated every 10 days or as necessary. A record of the utility location efforts will be maintained by the ARCADIS construction manager.

The remedial contractor will then install a number of test pits using traditional and soft dig techniques to confirm the location of the BAMP and the tie-in locations to adjacent pipes.

4.1.2 Geotechnical and Analytical Testing of Backfill Material

Soil backfill materials will be sampled and tested for the following geotechnical properties once every 500 cubic yards of material:

- Moisture content (ASTM D-2216);
- Atterberg Limits (ASTM D-4318)
- Soil Classification (ASTM D-2487)
- Particle Size Analysis (ASTM D-422)
- Standard Proctor (ASTM D-698)

Backfill used to surround the replacement pipe and as a surficial cap will be American Association of State Highway and Transportation #57 stone. The remaining backfill will consist of Certified Clean Fill which meets Unified Soil Classification System classification of one of the following: GW, GP, SW or SP with a maximum particle size of 3/4 inches.

All backfill dimensions shall be in accordance with the Design Drawings found in **Appendix D** and will be free from root matter and other deleterious material.

Soil backfill materials are also subject to analytical testing prior to shipment to the Site and once every 250 cubic yards of material thereafter. Analytical testing will be conducted to ensure the backfill materials are in accordance with the MDE Clean Imported Fill Material Guidance:

- VOCs (USEPA Method 8260B)
- SVOCs (USEPA Method 8270)
- Lead (EPA Method 6020)

- Polycyclic aromatic hydrocarbons (EPA Method 8270C)
- TPH (Modified EPA Method 8015)
- pH
- Asbestos (Polarized Light Microscopy)
- Pesticides
    - Organochlorine Pesticides (EPA Method 8081A or 8080A)
    - Organophosphorus Pesticides (EPA Method 8141A)
    - Chlorinated Herbicides (EPA Method 8151A)
- Heavy Metals (EPA Method 6020)
- Polychlorinated biphenyls (USEPA Method 8082)

Detectable concentrations of compounds within the fill material will be lower than the cleanup standards for soil in accordance with the MDE Cleanup Standards for Soil and Groundwater (MDE 2008).

4.1.3 Removal of On-Site Staged Equipment

The Site currently operates to stage equipment and materials used for miscellaneous operations at the rail yard. ARCADIS will coordinate with the CSXT for removal of these items prior to conducting pipe replacement activities. Specifically, all equipment and temporary structures near the excavation area will require relocation and/or removal during pipe replacement activities.

4.2 Site Layout, Control, and Decontamination

This subsection describes how ARCADIS will maintain a controlled work site. The activities or requirements set forth in this section will be applicable to all aspects of the proposed remedial activities.

4.2.1 Site Controls and Access

The site layout will be established as part of the site preparation activities and will be accomplished using various site controls to include installation of survey stakes and/or flags to delineate the limits of excavation, limits of disturbance, and work zones. The goals of site controls are to prevent access to project areas by unauthorized persons, identify and delineate the various locations within the project area and manage flow of activity within and between various work locations. The following areas will be established prior to initiation of excavation activities:

Limits of disturbance;
Staging areas for equipment, materials, and waste;
Locations for the loading and unloading of materials; and
Establishment of the exclusion zone, contaminant reduction zone, and the support zone (Section 5.2.2).
All work associated with the Site will be limited to these areas to minimize the footprint of disturbance. Site preparation will be conducted in accordance with the Design Drawings presented within **Appendix D** (**Drawings 3 and 4**). One stabilized construction entrance is proposed to provide access to the excavation area to reduce tracking of sediment onto roadways and provide a stable area for entrance and exit from the Site. The stabilized construction entrance will be placed on the site access road north of the Exclusion Zone and within the Contamination-Reduction Zone.

Truck traffic associated with delivery of equipment and materials or transportation of impacted materials from the Site will be relegated to the traffic pattern shown on **Drawing 3 within Appendix D**. Contractor personnel will direct on-Site traffic associated with construction activities to ensure trucks are queued in the approved locations and truck traffic does not interfere with Site operations.

Upon completion of the Site work, the stabilized construction entrances will be removed. The stone and geotextile material used to construct these temporary features will be disposed of within a CSXT-approved permitted landfill. The Site will be restored in accordance with the Section 5.9. Damage to the Site features will be repaired in kind.

4.2.2 Exclusion Contaminant-Reduction, and Support Zones

Establishing suitable work zones will be necessary to limit the potential for exposure of workers to contamination, protect the public and surrounding environment from Site

hazards, and prevent unauthorized entry into the work area. To accomplish these goals, the Site will be divided into the following three zones: Support Zone, Contamination-Reduction Zone, and an Exclusion Zone. The location of the Support Zone will be established to allow access to the Contamination-Reduction Zone, to reduce traffic flow in the Contamination-Reduction Zone, and reduce potential exposures to site hazards. Excavation activities will commence only after preparation of the Contamination-Reduction and Support Zone.

The Support Zone will contain the Site access road, portable toilets, potable water, and supplies. All traffic entering and leaving the Site will pass through this zone. Access to the Support Zone will be restricted to individuals involved with the project. Access to the Contaminant-Reduction Zone and Exclusion Zone will be limited to project personnel with the requisite training (e.g., 40-hour HAZWOPER training with current 8-hour refresher). In addition, truck drivers delivering fill material and transporting impacted materials off-Site will also be permitted within the Contaminant-Reduction Zone and Exclusion Zone. The truck drivers will not be allowed to exit the cab of their trucks once within the Exclusion Zone or Contamination-Reduction Zone, as truck drivers do not typically obtain the requisite 40-hour HAZWOPER training.

A Contamination-Reduction Zone will be established between the Exclusion Zone and the Support Zone. Allowing the Contamination-Reduction Zone to be constructed next to the Support Zone enables the movement of equipment and personnel in and out of the excavation area. Equipment and personnel decontamination activities will occur in this zone. The Exclusion Zone will fully encompass the perimeter of the proposed excavation area.

4.2.3 Surveying

Construction layout surveys will be performed as necessary to establish excavation limits, depths, and grades to maintain horizontal and vertical control of the Site. Surveys will be performed throughout construction to ensure correct installation of the new piping and manholes. In addition, a final survey will be conducted to document as-built conditions. Surveying will be performed by a registered surveyor licensed in the state of Maryland.

4.2.4 Decontamination

Due to the size and depth of the excavation needed to remove and replace the existing BAMP, heavy equipment will not be required to enter the excavation. Any portion of the

earth moving equipment (e.g., excavator buckets) coming in contact with impacted soils will be decontaminated using dry and wet decontamination techniques. A temporary decontamination pad will be installed at the Site within the Contamination-Reduction Zone and will be utilized for dry and wet decontamination of equipment that comes in contact with impacted soils. Waste generated during the decontamination of equipment (e.g, impacted soil and water) will be disposed of with the remainder of excavated soil at a CSXT-approved landfill.

4.3 Erosion and Sediment Controls

Erosion and Sediment Controls (E&SC) will be installed prior to initiation of earth disturbing activities in accordance with the E&SC plan presented on **Drawing 4 and 7 of Appendix D**. These E&SCs will remain in place and maintained until site restoration activities are complete. Additional E&SCs may be added as determined by the design engineer.

A silt fence will be installed around the Exclusion Zone and portions of the Contamination-Reduction and Support Zones used to stage materials. The purpose of the silt fence is to intercept sediment-laden surface runoff and prevent sediment deposition. Accumulated sediment and debris will be removed when bulges develop in the silt fence or when sediment reaches 25 percent of the fence height. The geotextile will be replaced if torn and the fence will be reinstalled if any undermining occurs.

4.4 BAMP Replacement

The BAMP is used convey waste from the MTA/MARC ASTs and fueling station to the OWS lift station. The BAMP is connected on its up gradient limit to the pipes from the MARC tank containment and fueling island. The down gradient limit of the BAMP is connected to the OWS pipe leading to the OWS lift station. The BAMP is approximately 5 to 8 feet bgs and is approximately 294 lineal feet long. The horizontal and vertical extent of the BAMP is shown on **Drawing 5 of Appendix D**.

The integrity of the BAMP has degraded over time, resulting in diesel fuel leaking into the subsurface. The BAMP will be replaced with a 30 inch diameter high density polyethylene (HDPE) pipe. The size of the replacement pipe may be able to be reduced if additional information is obtained regarding the flow being contributed to the proposed pipe. The up-gradient extent of HDPE pipe will tie into the existing vault shown on **Drawing 5 of Appendix D**. Two concrete manholes will be placed throughout the extent of the pipe to facilitate cleanout of the HDPE pipe. A third

manhole will be installed as a replacement for the existing Vault B; it is not anticipated the structural integrity of Vault B can be maintained following removal of the BAMP from both sides of the vault, therefore the vault will be removed and replaced by a manhole. Manhole locations are shown on **Drawing 4 and 5 of Appendix D**. Details showing the HDPE pipe and the manholes are shown on **Drawing 6 of Appendix D**.

4.5 Excavation

The horizontal and vertical limits of excavation are depicted on the **Drawings 4 and 5 of Appendix A** and will be limited to the soil removal required to replace the BAMP.

Excavation will be performed using conventional earthmoving equipment (e.g., tracked excavator, trench boxes). The excavation will be backfilled with clean backfill in a "rolling" excavation/pipe replacement/backfill process, with excavation and backfilling conducted to the minimum extent practical in order to accommodate the pipe replacement.

The excavation will be conducted in accordance with the regulations of Occupational Safety and Health Administration 40 Code of Federal Regulations 1926 Subpart P – Excavations. Further, the on-Site excavation competent person will dictate the manner in which excavation stability and security will be employed during excavation, trenching, and backfill activities. The excavation competent person will utilize modular shoring components such as trench boxes in order support the excavation sidewalls.

Excavation security will be maintained at all times during the excavation and backfill process. The excavation will be secured with high visibility orange safety fencing when the construction crew is not in direct line of site of the excavation (e.g., lunch breaks, conclusion of the work day). In addition to the orange safety fencing, portions of the Site are surrounded by a chain link fence which may be utilized to enhance excavation security.

4.6 Dust Control

Dust control measures will be implemented to mitigate environmental and health risks posed by dust generated during earth disturbing activities. Potable water will be applied to the open excavation and/or staged material until the surface is moist. Water will be applied at rates precluding the generation of run-off. Potable water will be obtained from an on-Site fire hydrant, if practicable. If an on-Site fire hydrant is not available, water will be delivered to the Site in a water truck.

4.7 Air Monitoring

A plan for appropriate air monitoring activities will be developed and implemented by the contractor prior to the start of construction activities. The plan will involve real time work zone monitoring for organic vapors and particulates to monitor and identify the need for engineering controls or other actions to minimize exposure to the general public from remediation activities.

4.8 Transportation and Disposal

Excavated soils and BAMP material will be loaded into covered dump trucks and/or roll-offs and transported to a preapproved permitted disposal facility. Pre-characterization data collected during implementation of the Pre-Design Investigation will be used to establish waste disposal profiles with the CSXT-approved landfill prior to mobilization.

A vehicle log denoting truck entrance and exit times will be maintained and include each truck's identification number, driver identification, and the approximate volume of material hauled. A CSXT representative will review, approve, and sign the waste profiles and manifests prior to the transportation of waste from the Site. This documentation will be signed in advance and kept at the on-Site administrative office. On days when waste load out is anticipated, the ARCADIS Site Manager will sign out the anticipated number of manifests for that day's work.

Transportation of the impacted material (i.e., soils and the BAMP) will be conducted in accordance with all applicable local, state, and federal regulations. In addition, all material transporters will be appropriately licensed, permitted, and in compliance with federal, state, and local regulations. The waste disposal contractor will submit copies of all manifests to the CSXT representative for approval and signatures. Copies of the final waste manifests and weigh tickets will also be provided.

A Traffic Control Plan has been created to mitigate the potential hazards associated with the increased traffic resulting from the trucking of material to and from the Site. Trucks ingress and egress from the Site will occur from the parking lot west of the Site. The Traffic Control Plan can be found on **Drawing 3 of Appendix D**.

4.9 Site Restoration

The following subsections detail the implementation of site restoration including backfill and grading activities and demobilization.

4.9.1 Backfill and Site Grading

All excavations will be backfilled in maximum lifts of 12 inches in thickness and mechanically compacted prior to the application of the next lift. Material requirements and backfill thicknesses are shown on **Drawing 5 in Appendix D**. Compaction of Certified Clean Fill will be performed to a minimum standard Proctor density of 90 percent of the maximum dry density (in accordance with the ASTM Method D-698). Areas disturbed as a result of construction activities will be restored to pre-construction conditions consisting of a gravel cover in accordance with **Drawing 5 of Appendix D**. The pipe replacement activities at the Site will not result in the development or redevelopment of impervious areas. No additional runoff will be generated following completion of construction.

4.10 Demobilization

Following completion of soil removal and backfill activities, demobilization activities will be conducted. Demobilization will consist of equipment decontamination; removal of all temporary work-related facilities, equipment, and materials; and final inspection of all work and restored areas.

Any refuse, such as waste construction materials and personal protective equipment utilized during removal activities will be removed and properly disposed. A final Site inspection will be conducted following the aforementioned activities.

5. Project Reporting and Documentation

A summary of the project reporting and documentation requirements provided during the pipe replacement activities is presented below.

5.1 Daily Project Monitoring

While performing the pipe replacement activities, field notes, daily project records including daily and to date completion of pipe replacement activities, and photography documentation will be prepared to document project status. A summary of this documentation will be included in the Construction Completion Report (CCR).

5.2 Construction Completion Report

Following completion of the construction activities proposed herein, a CCR will be prepared and submitted to the MDE. The overall objective of the CCR is to demonstrate the construction activities were completed in accordance with this PRWP. The CCR will summarize the construction activities performed at the Site, and will include as-built drawings documenting the final limits of excavation, the final pipe layout, summary of waste manifests generated, any deviations from the design, and the site conditions following completion of restoration activities.

6. Project Schedule

The scope of work discussed above will proceed upon acceptance of the PRWP. A preliminary schedule is provided below.

1. Bid Procurement: 4 weeks
2. Permitting (concurrent with bid procurement):
    - MDE Wetland and Waterways Permit: 2 weeks
    - Frederick County Minor Grading Plan: 2 weeks
3. Contracting, Pre-Construction Submittals, and Mobilization: 3 weeks
4. Site Preparation (Erosion and Sediment controls, survey, Utility clearance): 1 week
5. Replacement of BAMP: 2 weeks
6. Demobilization: 3 days

7. References

MDE 2008. State of Maryland Department of the Environment Cleanup Standards for Soil and Groundwater. June.

ARCADIS 2013a. Supplemental LPH Delineation Work Plan. C&O Canal/Brunswick Railyard, Brunswick Maryland. August 14.

ARCADIS 2013b. Revised Supplemental LPH Delineation Work Plan. C&O Canal/Brunswick Railyard, Brunswick Maryland. October 23.

ARCADIS 2013 c. Supplemental Investigation Report and Revised Site Conceptual Model. C&O Canal/Brunswick Railyard, Brunswick Maryland. April 18.

ARCADIS 2013d. Revised Site Conceptual Model Addendum 1: C&O Canal Investigation and MW-18 Well Installation Summary Report. November 27.

ARCADIS 2014. Pre-Design Investigation Work Plan (PDIWP). C&O Canal/Brunswick Railyard, Brunswick Maryland. April 21.

ARCADIS

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Figures

Appendix A

Field Forms

Appendix B

Analytical Laboratory Reports

(Provided on CD)

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Appendix C

Geotechnical Laboratory Reports

Appendix D

Design Drawings

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Appendix E

Permit Applications

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Tables

Table 1
History of Environmental Activities Associated with the Site and the C&O Canal
C&O Canal/Brunswick Rail Yard
Brunswick, Maryland

Date/Year	Company/Agency	Action Type	Description
September 1991	NPS	Investigation	National Park Service (NPS) conducted a soil survey evaluating the presence of petroleum residuals in the C&O canal silt near CSXT property in support of a bid for a rewatering permit. Reportedly, visual identification of petroleum was made in three areas; however, no samples were submitted for analysis of petroleum constituents.
March 1992	CSXT/Eder	Remediation	CSXT/Eder Associates (Eder) provided oversight for removal of a 16,000 gallon diesel underground storage tank (UST) adjacent to the former pump house and 500,000 gallon aboveground storage tank (former AST System). The UST had been previously pumped out and taken out of service in 1974. Approximately 100 cubic yards of impacted soils related to the UST were excavated and properly treated/disposed off-site. Analysis of soil confirmation sampling from the excavation showed total petroleum hydrocarbon (TPH) concentrations below the current MDE non-residential cleanup level of 620 mg/kg.
March 1992	CSXT/Eder	Investigation	CSXT/Eder collected soil samples to characterize soils identified in the 1991 NPS report as petroleum impacted.
July 1993	CSXT/Eder	Investigation	CSXT/Eder conducted a focused sediment/soil boring investigation performed to further investigate the extent of residual petroleum compounds in the C&O Canal in the three primary areas of concern and a small area near Lock #30.
January 20, 1994	MDE	Correspondence	Maryland Department of the Environment (MDE) required that CSXT install four monitoring wells on CSXT property between the C&O Canal and four suspected source areas, including the 500,000 gallon AST, the tank car diesel fuel unloading racks, the diesel fueling pump house, and the roundhouse.
July 1994	CSXT/Eder	Investigation	CSXT/Eder installed four monitoring wells (CSXT MW-1, 2, 3, and 4) to investigate the groundwater quality between the suspected source areas and the C&O Canal. Groundwater samples collected from the four monitoring wells were analyzed for BTEX and TPH-DRO. Liquid-phase hydrocarbons (LPH) were later observed at MW-2. CSXT/Eder recommended installation of two additional monitoring wells downgradient of CSXT MW-1, 2, and 4 on the northern canal tow path.
August 30, 1994	MDE	Correspondence	MDE approves the installation of the two additional wells and requests that CSXT install three additional monitoring wells with at least one installed on the south side of the C&O Canal.

Table 1
History of Environmental Activities Associated with the Site and the C&O Canal
C&O Canal/Brunswick Rail Yard
Brunswick, Maryland

Date/Year	Company/Agency	Action Type	Description
November 1994	CSXT/Eder	Investigation	CSXT/Eder conducts a product baildown test at MW-2. Results indicate a very slow LPH recovery rate. Based upon the slow recovery rate, a passive product recovery system was recommended by Eder.
January 1995	CSXT/Eder	Remediation	CSXT/Eder initiated passive free product recovery utilizing a Siphons Without a Pump (SWAP) 4 unit at MW-2.
August-September 1995	CSXT/Eder	Investigation	After coordination with NPS for property access, CSXT/Eder installed additional monitoring wells (CSXT MW-5, 6, 8, and 9) to further evaluate groundwater quality downgradient and in the vicinity of the former AST System. Groundwater samples were collected from CSXT MW-1, 3, 5, 6, 8, & 9 (LPH at CSXT MW-2 and CSXT MW-4). Groundwater samples were analyzed for BTEX, naphthalene, and TPH-DRO.
March 1996	NPS/E&E	Site Assessment and Characterization	On behalf of the NPS, Ecology and Environment, Inc. (E&E) prepared a Draft Site Assessment and Characterization Report based on additional sediment and soil sampling. The results of the collection of subsurface soils within the canal prism indicated that there were no PAH compounds exceeding the EPA Region III Risk-Based Concentrations for industrial exposure.
August – September 1996	NPS/E&E	Investigation	E&E installed five monitoring wells (NPS MW-1, 2, 3, 4, and 5) along the Canal on NPS property to determine if there has been any migration of residual petroleum compounds onto NPS property. Groundwater samples were collected from the five NPS wells and three CSXT wells (MW-6, 8, and 9) by NPS and analyzed for VOCs, SVOCs, and TPH. Dissolved phase total petroleum hydrocarbons (TPH) were detected in seven of the eight samples (all except NPS MW-4). PAH concentrations in groundwater were detected at two monitoring wells (NPS MW-4, and MW-6). These results were reported in the July 1997 Investigation Report (below).

Table 1
History of Environmental Activities Associated with the Site and the C&O Canal
C&O Canal/Brunswick Rail Yard
Brunswick, Maryland

Date/Year	Company/Agency	Action Type	Description
July 1997	NPS/E&E	Investigation Report	On behalf of the NPS, E&E prepared and submitted an investigation report including the results of the surface and subsurface soil sampling conducted in August and September 1996 and monitoring well installation and groundwater sampling conducted during the same timeframe. Groundwater sampling results are discussed above. Surface soil analytical results indicated detectable PAH concentrations below screening criteria in all three samples and one TPH concentration above the MDE cleanup standard at NPS-SS-1 collected in the canal. The other TPH concentrations collected from surface soils were below MDE cleanup standards. Results of subsurface soil sampling (10 samples collected from 9 borings) indicated detectable PAH concentrations in 8 of the samples (all below screening criteria) and one TPH concentration (1,000 mg/kg) above the MDE cleanup standard detected in sample NPS-SB-4 collect from 8 to 10 ft below ground surface.
February 1998	CSXT/Eder	Investigation	LPH baildown tests were conducted at two CSXT wells (MW-1 and MW-6). The results of the baildown tests indicated that free product entered both wells at an extremely low rate. The water table rose several feet in November and no product was measured in either well, suggesting a strong association between water table fluctuations and the presence of free product.
1998	CSXT/Eder/ Gannett-Fleming	Remediation	CSXT/Gannett Fleming (purchased Eder) expanded LPH recovery to include MWs 1, 2, 4, and 6.
February 8, 1999	CSXT/Gannett-Fleming	Investigation	CSXT/Gannett Fleming submitted a Conceptual Investigation Plan (CIP) to evaluate any potential threat to surface water and to consider scenarios for adjusting the product recovery program, if necessary. The CIP also included a remedial alternatives analysis.
November 1999 – August 2000	CSXT/Gannett-Fleming	Investigation	Eleven soil borings and temporary piezometers (TP-1 through TP-11) were installed near the area with LPH to delineate the extent of LPH. Two soil samples are collected for geotechnical purposes.
December 2000	CSXT/Gannett-Fleming	Feasibility Report	CSXT/Gannett-Fleming submitted a Site Investigation Report including feasibility of remedial alternatives. The conclusion of the evaluation of remedial alternatives was that a collection trench recovery system located along the CSXT/NPS property line should be considered, carefully evaluating safety and constructability due to rail operations.

Table 1
History of Environmental Activities Associated with the Site and the C&O Canal
C&O Canal/Brunswick Rail Yard
Brunswick, Maryland

Date/Year	Company/Agency	Action Type	Description
2001	NPS/E&E	Investigation	E&E installed eight additional wells NPS MW-10 through NPS MW-17.
June 2003	NPS/E&E	Investigation	E&E conducted groundwater sampling of the NPS wells for analysis of TPH-DRO, LPH is observed at NPS-MW-4.
October 2003 – March 2004	CSXT/Gannett-Fleming	Remediation	CSXT/Gannett-Fleming constructs a barrier/recovery trench to stop migration of petroleum to NPS property. The initial design was to approximately 525 ft long and 12-15 feet deep. However, the design was revised after it could not be constructed solely on CSXT property. The design was revised a second time when the trench, running from west to east, could not be extended to a point south of TP-4 because construction would subvert a utility pole. The trench as constructed includes five collector sumps, accumulated LPH is removed via a vacuum truck. CSXT/Gannett Fleming installed barrier/recovery trench (BRT) with 5 internal collection sumps (CS-1 through CS-5).
July 2004	CSXT/Gannett-Fleming	Remediation	CSXT/Gannett-Fleming initiated monthly enhanced fluid recovery (EFR) events at monitoring wells/collector sumps with LPH. CSXT/Gannett Fleming began enhanced fluid recovery (EFR) activities to reduce measurable liquid phase hydrocarbons (LPH) at MW-2, EW-3, EW-4, and EW-5 and BRT collections sumps. EFR activities expanded to include all wells with measurable LPH.
January 2005	CSXT/ARCADIS	Remediation	CSXT/ARCADIS continued with monthly EFR events, Approximately 32,466 gallons of total fluids (LPH and water) were removed from July 2004 through June 2009.
September 2006	CSXT/ARCADIS	Remediation	CSXT/ARCADIS installed an automated LPH recovery pump in MW-2. A total of 54 gallons of LPH were recovered from September 2006 through July 2008.
January 30, 2007	CSXT/ARCADIS	SCM and Work Plan Submittal	CSXT/ARCADIS submitted the *Site Conceptual Model and Supplemental Work Plan* including installation of additional monitoring wells and abandonment of temporary wells.
April 16, 2007	MDE	Correspondence	MDE approved the *Site Conceptual Model and Supplemental Work Plan* dated January 30, 2007.
June 2007	CSXT/ARCADIS	Investigation	CSXT/ARCADIS abandoned 6 temporary wells (TP-1, TP-3, TP-4, TP-5, TP-10, and TP-11) and installed 8 permanent groundwater monitoring wells (MW-4R and MW-21 through MW-27).

Table 1
History of Environmental Activities Associated with the Site and the C&O Canal
C&O Canal/Brunswick Rail Yard
Brunswick, Maryland

Date/Year	Company/Agency	Action Type	Description
July 18, 2007	CSXT/MDE	Consent Order	MDE and CSXT signed the Consent Order.
July/August 2007	CSXT/ARCADIS	Investigation	CSXT/ARCADIS installed 24 direct-push borings (GP-20 and GP-26 through GP-49) with soil and groundwater sampling.
October 3, 2007	CSXT/ARCADIS	Work Plan Submittal	CSXT/ARCADIS submitted the *Work Plan for Monitoring Well Installation and Groundwater Sampling*.
November 9, 2007	MDE	Correspondence	MDE approved the *Work Plan for Monitoring Well Installation and Groundwater Sampling* dated October 3, 2007.
November 2007	CSXT/ARCADIS	Investigation	CSXT/ARCADIS installed 17 permanent groundwater monitoring wells (MW-20, MW-28 through MW-33, MW-35, MW-37, MW-38, MW-39, MW-41, MW-43, and MW-49 through MW-52).
February 8, 2008	CSXT/ARCADIS	SCM Submittal	CSXT/ARCADIS submitted the *Revised Site Conceptual Model (SCM)* (second version of the SCM).
March 12, 2008	CSXT/ARCADIS	Work Plan Submittal	CSXT/ARCADIS submitted the *Additional Site Characterization Work Plan*.
May 30, 2008	MDE	Correspondence	MDE approved the *Additional Site Characterization Work Plan* dated March 12, 2008.
June 2008	CSXT/ARCADIS	Investigation	CSXT/ARCADIS installed 24 direct-push borings (GP-53 through GP-76) with soil and groundwater sampling.
August 29, 2008	CSXT/ARCADIS	SCM and CAP Submittal	CSXT/ARCADIS submitted the *Revised SCM* (third version of the SCM) and the *Corrective Action Plan*, including the Dual-Phase Extraction (DPE) pilot test.
October 28, 2008	MDE	Correspondence	MDE approved the DPE pilot test portion of the *Corrective Action Plan*, with modifications.
December 16-18, 2008	CSXT/ARCADIS	Investigation	CSXT/ARCADIS installed 6 permanent groundwater monitoring wells (MW-53 to MW-58) as monitoring points for the DPE pilot test.
January 7 - 13, 2009	CSXT/ARCADIS	Investigation	CSXT/ARCADIS conducted DPE Pilot Test at MW-41 and EW-2.

Table 1
History of Environmental Activities Associated with the Site and the C&O Canal
C&O Canal/Brunswick Rail Yard
Brunswick, Maryland

Date/Year	Company/Agency	Action Type	Description
March 2, 2009	CSXT/ARCADIS	CAP Addendum Submittal	CSXT/ARCADIS submitted the *Corrective Action Plan Addendum* which included the *Dual-Phase Extraction Pilot Test Results*.
May 27, 2009	MDE	Consent Order Milestone	MDE approved the *Corrective Action Plan Addendum* dated March 2, 2009, start of three year remedial goal specified in Consent Order.
July 14, 2009	CSXT/ARCADIS	Remediation	CSXT/ARCADIS implemented LPH removal activities in accordance with the *Corrective Action Plan Addendum* dated March 2, 2009. Activities included the installation of 3 LPH skimmer pumps and 5 passive LPH skimmers.
May 2010	CSXT/ARCADIS	Remediation	Approximately 267 gallons of LPH recovered since implementation of LPH removal activities in accordance with the *Corrective Action Plan Addendum* in July 2009.
June 4, 2010	CSXT/ARCADIS	Remediation	CSXT/ARCADIS submitted *Proposed LPH Recovery System Enhancements.*
July 8, 2010	MDE	Correspondence	MDE approved *Proposed LPH Recovery System Enhancements*, dated June 4, 2010.
September 2, 2010	CSXT/ARCADIS	Remediation	CSXT/ARCADIS installed 3 additional LPH skimmer pumps per the *Proposed LPH Recovery System Enhancements*, dated June 4, 2010.
December 15, 2011	CSXT/ARCADIS	Investigation	CSXT/ARCADIS submitted a Proposed Additional Well Installation Letter Work Plan which included the installation of 8 additional monitoring wells (MW-59 through MW-66).
January 25, 2012	MDE	Correspondence	MDE approved the Proposed Additional Well Installation Letter Work Plan and requested the submittal of a Well Installation Summary Report by March 31, 2012 and an Updated SCM by April 30, 2012. CSXT/ARCADIS requested that the documents be combined into one for submittal on April 30, 2012.
March 2012	CSXT/ARCADIS	Investigation	Seven of the 8 proposed monitoring wells (MW-59 through MW-65) were installed and developed. MW-66 could not be installed due to subsurface infrastructure obstructions (i.e. the former roundhouse foundation).
April 30, 2012	CSXT/ARCADIS	Remediation	Approximately 600 gallons of LPH have been recovered since implementation of LPH removal activities in accordance with the *Corrective Action Plan Addendum* in July 2009. A Revised Site Conceptual Model was submitted to MDE.

Table 1
History of Environmental Activities Associated with the Site and the C&O Canal
C&O Canal/Brunswick Rail Yard
Brunswick, Maryland

Date/Year	Company/Agency	Action Type	Description
July 18, 2012	CSXT/ARCADIS	Investigation	The Supplemental Investigation Work Plan (SIWP) was submitted to the MDE. The SIWP outlined investigation activities to support soil characterization of the C&O Canal prism, dissolved phase hydrocarbon fate and transport evaluation (monitoring well development, groundwater sampling, and rising head testing), and further evaluation of liquid phase hydrocarbons (monitoring well installation, LPH characterization, short-term LPH stress testing, and a LPH mobility/recoverability analysis) at the Site.
August 17, 2012	NPS	Correspondence	NPS provided comments to CSXT regarding the SIWP.
September 6, 2012	MDE	Correspondence	MDE conditionally approved the SIWP, provided several modifications were made to the SIWP.
October 12, 2012	CSXT/ARCADIS	Investigation	The SIWP was revised based on the comments provided by the MDE and NPS, and was resubmitted.
November 2012	CSXT/ARCADIS	Investigation	Well redevelopment activities outlined in the SIWP were completed.
January 15, 2013	MDE	Correspondence	MDE conditionally approved the Revised SIWP, provided several modifications were made to the Revised SIWP.
January 2013	CSXT/ARCADIS	Investigation	Well installations, semi-annual and SIWP groundwater sampling, hydraulic testing, and LPH stress testing was completed as outlined in the SIWP.
February 1, 2013	CSXT/ARCADIS	Correspondence	SIWP progress update was provided to the MDE.
March 5, 2013	MDE/CSXT/ ARCADIS	Correspondence	MDE correspondence was provided approving the progress schedule CSXT/ARCADIS submitted on February 1, 2013. CSXT/ARCADIS letter was submitted to MDE, documenting the presence of LPH in new well CSXT MW-70.
March 8, 2013	CSXT/ARCADIS	Investigation	A Well Installation Summary Report was submitted to the MDE, documenting well installation activities at four new wells, CSXT MW-67, CSXT MW-68, CSXT MW-69, and CSXT MW-70.
March 15, 2013	CSXT/ARCADIS	Remediation	Approximately 720 gallons of LPH have been recovered since implementation of LPH removal activities in accordance with the *Corrective Action Plan Addendum* in July 2009.
April 19, 2013	CSXT/ARCADIS	Remediation	The Supplemental Investigation Report and Revised Site Conceptual Model was submitted to MDE.
May, 2013	CSXT/ ARCADIS	Investigation	Site wide gauging and quarterly groundwater sampling of wells installed in 2012 and 2013 completed as outlined in the SIWP.
June 18, 2013	MDE/CSXT/ ARCADIS	Correspondence	MDE correspondence was provided acknowledging ARCADIS development of a work plan to investigate the presence of LPH in CSXT MW-39 and CSXT MW-70.

Table 1
History of Environmental Activities Associated with the Site and the C&O Canal
C&O Canal/Brunswick Rail Yard
Brunswick, Maryland

Date/Year	Company/Agency	Action Type	Description
June 24, 2013	CSXT/ ARCADIS	Investigation	Well installed at NPS MW-18 to replace NPS MW-11.
July 25, 2013	CSXT/ ARCADIS	Investigation	Hydraulic testing (slug tests) conducted at NPS MW-18.
August 20, 2013	MDE/CSXT/ ARCADIS	Investigation	A Supplemental LPH Delineation Work Plan aimed at delineating LPH occurrence near CSXT MW-39 and CSXT MW-70 was submitted to MDE.
August, 2013	CSXT/ ARCADIS	Investigation	Direct push C&O Canal Investigation installed 30 soil borings and 6 temporary piezometers in the C&O Canal, and collected soil and water samples as outlined in the SIWP.
September 12 and 16, 2013	CSXT/ ARCADIS	Investigation	LPH samples were collected from 5 on site monitoring wells for chemical fingerprinting by NewFields Companies, LLC. as part of the Canal Investigation.
September, 2013	CSXT/ ARCADIS	Investigation	Semi-annual and SIWP groundwater sampling was completed as outlined in the SIWP.
October 9, 2013	CSXT/ ARCADIS	Investigation	Closed circuit television investigation (CCTV) conducted for the underground pipe connecting the MTA fueling station spill pans with the oil-water separator.
October 25, 2013	MDE/CSXT/ ARCADIS	Remediation	A revised Supplemental LPH Delineation Work Plan was submitted to MDE. The revised work plan included observations made during the CCTV investigation.
December, 2013	CSXT/ ARCADIS	Investigation	Site wide gauging and quarterly groundwater sampling of wells installed in 2012 and 2013 completed as outlined in the SIWP.
January 9, 2014	MDE/CSXT/ ARCADIS	Correspondence	CSXT/ ARCADIS determined that the underground pipe connecting the MTA fueling station spill pans with the oil-water separator was likely going to require replacement, and that a different remedial course of action should be considered rather than activities outlined in the October 2013 work plan. A revised remedial approach was communicated to the MDE vie e-mail correspondence.
March, 2014	CSXT/ ARCADIS	Investigation	Semi-annual and SIWP groundwater sampling was completed as outlined in the SIWP.
April 21, 2014	CSXT/ ARCADIS	Remediation	A Pre-Design Investigation Work Plan (PDIWP) was designed to evaluate the nature and extent of diesel fuel impacts to soils in the area around MW-39 and MW-70 and the soils surrounding the underground piping.
June, 2014	CSXT/ ARCADIS	Investigation	Site wide gauging and quarterly groundwater sampling of wells installed in 2012 and 2013 completed as outlined in the SIWP.
August 13, 2014	MDE/CSXT/ ARCADIS	Correspondence	MDE approved the PDIWP.
September, 2014	CSXT/ ARCADIS	Investigation	Semi-annual and SIWP groundwater sampling was completed as outlined in the SIWP.

Table 1
History of Environmental Activities Associated with the Site and the C&O Canal
C&O Canal/Brunswick Rail Yard
Brunswick, Maryland

Date/Year	Company/Agency	Action Type	Description
November, 2014	CSXT/ ARCADIS	Investigation	CSXT/ ARCADIS installed 16 direct push borings, 2 geotechnical borings and one new monitoring well (MW-71), as outlined in the PDIWP. _
December, 2014	CSXT/ ARCADIS	Investigation	Site wide gauging and quarterly groundwater sampling of wells installed in 2012 and 2013 completed as outlined in the SIWP.

Table 2
PDI Soil Sample Analytical Results
Brunswick Yard
Brunswick, Maryland

field_sdg	MDE Non-Res Soil Cleanup Standards	6801074531	6801074531	6801074531	6801074531	6801074531	6801074531	6801074531	6801074531	6801074531	6801074531	6801074531	6801074531
sys_loc_code		GP-80	GP-80	GP-81	GP-81	GP-82	GP-82	GP-83	GP-83	GP-84	GP-84	GP-85	GP-85
sys_sample_code		GP-80(14-15) (111814)	GP-80(18-19) (111814)	GP-81(13-14)(111814)	GP-81(14-15)(111814)	GP-82(14-15)(111814)	GP-82(16.5-17.5)(111814)	GP-83(13-14)(111814)	GP-83(14-15)(111814)	GP-84(14-15)(111814)	GP-84(15.5-16.5)(111814)	GP-85(15.5-16.5)(111814)	GP-85(6-7)(111814)
sample_date		11/18/2014	11/18/2014	11/18/2014	11/18/2014	11/18/2014	11/18/2014	11/18/2014	11/18/2014	11/18/2014	11/18/2014	11/18/2014	11/18/2014
VOCs (ug/kg)													
1,1,1-Trichloroethane	200000000	< 4.5 U	< 5.0 U	< 5.5 U	< 4.8 U	< 4.9 U	< 4.4 U	< 4.4 U	< 5.4 U	< 4.6 U	< 4.3 U	< 5.2 U	< 4.5 U
1,1,2,2-Tetrachloroethane	14000	< 4.5 U	< 5.0 U	< 5.5 U	< 4.8 U	< 4.9 U	< 4.4 U	< 4.4 U	< 5.4 U	< 4.6 U	< 4.3 U	< 5.2 U	< 4.5 U
1,1,2-trichloro-1,2,2-trifluoroethane	--	< 4.5 U	< 5.0 U	< 5.5 U	< 4.8 U	< 4.9 U	< 4.4 U	< 4.4 U	< 5.4 U	< 4.6 U	< 4.3 U	< 5.2 U	< 4.5 U
1,1,2-Trichloroethane	50000	< 4.5 U	< 5.0 U	< 5.5 U	< 4.8 U	< 4.9 U	< 4.4 U	< 4.4 U	< 5.4 U	< 4.6 U	< 4.3 U	< 5.2 U	< 4.5 U
1,1-Dichloroethane	2000000	< 4.5 U	< 5.0 U	< 5.5 U	< 4.8 U	< 4.9 U	< 4.4 U	< 4.4 U	< 5.4 U	< 4.6 U	< 4.3 U	< 5.2 U	< 4.5 U
1,1-Dichloroethene	5100000	< 4.5 U	< 5.0 U	< 5.5 U	< 4.8 U	< 4.9 U	< 4.4 U	< 4.4 U	< 5.4 U	< 4.6 U	< 4.3 U	< 5.2 U	< 4.5 U
1,2,4-Trichlorobenzene	1000000	< 4.5 U	< 5.0 U	< 5.5 U	< 4.8 U	< 4.9 U	< 4.4 U	< 4.4 U	< 5.4 U	< 4.6 U	< 4.3 U	< 5.2 U	< 4.5 U
1,2-Dibromo-3-chloropropane	3600	< 4.5 U	< 5.0 U	< 5.5 U	< 4.8 U	< 4.9 U	< 4.4 U	< 4.4 U	< 5.4 U	< 4.6 U	< 4.3 U	< 5.2 U	< 4.5 U
1,2-Dibromoethane	1400	< 4.5 U	< 5.0 U	< 5.5 U	< 4.8 U	< 4.9 U	< 4.4 U	< 4.4 U	< 5.4 U	< 4.6 U	< 4.3 U	< 5.2 U	< 4.5 U
1,2-Dichlorobenzene	9200000	< 4.5 U	< 5.0 U	< 5.5 U	< 4.8 U	< 4.9 U	< 4.4 U	< 4.4 U	< 5.4 U	< 4.6 U	< 4.3 U	< 5.2 U	< 4.5 U
1,2-Dichloroethane	31000	< 4.5 U	< 5.0 U	< 5.5 U	< 4.8 U	< 4.9 U	< 4.4 U	< 4.4 U	< 5.4 U	< 4.6 U	< 4.3 U	< 5.2 U	< 4.5 U
1,2-Dichloropropane	42000	< 4.5 U	< 5.0 U	< 5.5 U	< 4.8 U	< 4.9 U	< 4.4 U	< 4.4 U	< 5.4 U	< 4.6 U	< 4.3 U	< 5.2 U	< 4.5 U
1,3-Dichlorobenzene	310000	< 4.5 U	< 5.0 U	< 5.5 U	< 4.8 U	< 4.9 U	< 4.4 U	< 4.4 U	< 5.4 U	< 4.6 U	< 4.3 U	< 5.2 U	< 4.5 U
1,4-Dichlorobenzene	120000	< 4.5 U	< 5.0 U	< 5.5 U	< 4.8 U	< 4.9 U	< 4.4 U	< 4.4 U	< 5.4 U	< 4.6 U	< 4.3 U	< 5.2 U	< 4.5 U
2-Butanone	61000000	< 22 U	< 25 U	< 27 U	< 24 U	< 25 U	< 22 U	< 22 U	< 27 U	< 23 U	< 21 U	< 26 U	< 22 U
4-Methyl-2-Pentanone	--	< 22 U	< 25 U	< 27 U	< 24 U	< 25 U	< 22 U	< 22 U	< 27 U	< 23 U	< 21 U	< 26 U	< 22 U
Acetone	92000000	**10 J**	**8.9 J**	< 27 U	**23 J**	**9.3 J**	**14 J**	< 22 U	< 27 U	**7.7 J**	**15 J**	**30**	**37**
Benzene	52000	< 4.5 U	< 5.0 U	< 5.5 U	< 4.8 U	< 4.9 U	< 4.4 U	< 4.4 U	< 5.4 U	< 4.6 U	< 4.3 U	< 5.2 U	< 4.5 U
Bromodichloromethane	46000	< 4.5 U	< 5.0 U	< 5.5 U	< 4.8 U	< 4.9 U	< 4.4 U	< 4.4 U	< 5.4 U	< 4.6 U	< 4.3 U	< 5.2 U	< 4.5 U
Bromoform	360000	< 4.5 U	< 5.0 U	< 5.5 U	< 4.8 U	< 4.9 U	< 4.4 U	< 4.4 U	< 5.4 U	< 4.6 U	< 4.3 U	< 5.2 U	< 4.5 U
Bromomethane	140000	< 4.5 U	< 5.0 U	< 5.5 U	< 4.8 U	< 4.9 U	< 4.4 U	< 4.4 U	< 5.4 U	< 4.6 U	< 4.3 U	< 5.2 U	< 4.5 U
Carbon Disulfide	1000000	< 4.5 U	< 5.0 U	< 5.5 U	< 4.8 U	< 4.9 U	< 4.4 U	< 4.4 U	< 5.4 U	< 4.6 U	< 4.3 U	< 5.2 U	< 4.5 U
Carbon Tetrachloride	22000	< 4.5 U	< 5.0 U	< 5.5 U	< 4.8 U	< 4.9 U	< 4.4 U	< 4.4 U	< 5.4 U	< 4.6 U	< 4.3 U	< 5.2 U	< 4.5 U
CFC-11	--	< 4.5 U	< 5.0 U	< 5.5 U	< 4.8 U	< 4.9 U	< 4.4 U	< 4.4 U	< 5.4 U	< 4.6 U	< 4.3 U	< 5.2 U	< 4.5 U
CFC-12	--	< 4.5 U	< 5.0 U	< 5.5 U	< 4.8 U	< 4.9 U	< 4.4 U	< 4.4 U	< 5.4 U	< 4.6 U	< 4.3 U	< 5.2 U	< 4.5 U
Chlorobenzene	2000000	< 4.5 U	< 5.0 U	< 5.5 U	< 4.8 U	< 4.9 U	< 4.4 U	< 4.4 U	< 5.4 U	< 4.6 U	< 4.3 U	< 5.2 U	< 4.5 U
Chlorodibromomethane	34000	< 4.5 U	< 5.0 U	< 5.5 U	< 4.8 U	< 4.9 U	< 4.4 U	< 4.4 U	< 5.4 U	< 4.6 U	< 4.3 U	< 5.2 U	< 4.5 U
Chloroethane	990000	< 4.5 U	< 5.0 U	< 5.5 U	< 4.8 U	< 4.9 U	< 4.4 U	< 4.4 U	< 5.4 U	< 4.6 U	< 4.3 U	< 5.2 U	< 4.5 U
Chloroform	100000	< 4.5 U	< 5.0 U	< 5.5 U	< 4.8 U	< 4.9 U	< 4.4 U	< 4.4 U	< 5.4 U	< 4.6 U	< 4.3 U	< 5.2 U	< 4.5 U
Chloromethane	--	< 4.5 U	< 5.0 U	< 5.5 U	< 4.8 U	< 4.9 U	< 4.4 U	< 4.4 U	< 5.4 U	< 4.6 U	< 4.3 U	< 5.2 U	< 4.5 U
cis-1,2-Dichloroethene	1000000	< 4.5 U	< 5.0 U	< 5.5 U	< 4.8 U	< 4.9 U	< 4.4 U	< 4.4 U	< 5.4 U	< 4.6 U	< 4.3 U	< 5.2 U	< 4.5 U
cis-1,3-Dichloropropene	29000	< 4.5 U	< 5.0 U	< 5.5 U	< 4.8 U	< 4.9 U	< 4.4 U	< 4.4 U	< 5.4 U	< 4.6 U	< 4.3 U	< 5.2 U	< 4.5 U
Cyclohexane	--	< 4.5 U	< 5.0 U	< 5.5 U	< 4.8 U	< 4.9 U	< 4.4 U	< 4.4 U	< 5.4 U	< 4.6 U	< 4.3 U	< 5.2 U	< 4.5 U
Dichloromethane	380000	< 13 U	< 15 U	< 16 U	< 14 U	< 15 U	< 13 U	< 13 U	< 16 U	< 14 U	< 13 U	< 16 U	< 13 U
Diisopropyl ether	--	< 4.5 U	< 5.0 U	< 5.5 U	< 4.8 U	< 4.9 U	< 4.4 U	< 4.4 U	< 5.4 U	< 4.6 U	< 4.3 U	< 5.2 U	< 4.5 U
Ethylbenzene	10000000	< 4.5 U	< 5.0 U	< 5.5 U	< 4.8 U	< 4.9 U	< 4.4 U	< 4.4 U	< 5.4 U	< 4.6 U	< 4.3 U	< 5.2 U	< 4.5 U
Isopropylbenzene	10000000	< 4.5 U	< 5.0 U	< 5.5 U	**16**	< 4.9 U	**6.5**	< 4.4 U	< 5.4 U	< 4.6 U	< 4.3 U	< 5.2 U	< 4.5 U
Methyl Acetate	--	< 4.5 U	< 5.0 U	< 5.5 U	< 4.8 U	< 4.9 U	< 4.4 U	< 4.4 U	< 5.4 U	< 4.6 U	< 4.3 U	< 5.2 U	< 4.5 U
Methyl N-Butyl Ketone	--	< 22 U	< 25 U	< 27 U	< 24 U	< 25 U	< 22 U	< 22 U	< 27 U	< 23 U	< 21 U	< 26 U	< 22 U
Methylcyclohexane	--	< 4.5 U	< 5.0 U	< 5.5 U	< 4.8 U	< 4.9 U	**6.8**	< 4.4 U	< 5.4 U	< 4.6 U	< 4.3 U	< 5.2 U	< 4.5 U
Methyl-tert-butylether	720000	< 4.5 U	< 5.0 U	< 5.5 U	< 4.8 U	< 4.9 U	< 4.4 U	< 4.4 U	< 5.4 U	< 4.6 U	< 4.3 U	< 5.2 U	< 4.5 U
Naphthalene	2000000	< 4.5 U	< 5.0 U	< 5.5 U	< 4.8 U	< 4.9 U	< 4.4 U	< 4.4 U	< 5.4 U	< 4.6 U	< 4.3 U	< 5.2 U	< 4.5 U
Styrene (Monomer)	20000000	< 4.5 U	< 5.0 U	< 5.5 U	< 4.8 U	< 4.9 U	< 4.4 U	< 4.4 U	< 5.4 U	< 4.6 U	< 4.3 U	< 5.2 U	< 4.5 U
tert-Amyl methyl ether	--	< 4.5 U	< 5.0 U	< 5.5 U	< 4.8 U	< 4.9 U	< 4.4 U	< 4.4 U	< 5.4 U	< 4.6 U	< 4.3 U	< 5.2 U	< 4.5 U
tert-Butyl alcohol	--	< 8.9 U	< 9.9 U	< 11 U	< 9.5 U	< 9.9 U	< 8.8 U	< 8.8 U	< 11 U	< 9.1 U	< 8.5 U	**11**	< 9.0 U
tert-Butyl ethyl ether	--	< 4.5 U	< 5.0 U	< 5.5 U	< 4.8 U	< 4.9 U	< 4.4 U	< 4.4 U	< 5.4 U	< 4.6 U	< 4.3 U	< 5.2 U	< 4.5 U
Tetrachloroethene	5300	< 4.5 U	< 5.0 U	< 5.5 U	< 4.8 U	< 4.9 U	< 4.4 U	< 4.4 U	< 5.4 U	< 4.6 U	< 4.3 U	< 5.2 U	< 4.5 U
Toluene	8200000	< 4.5 U	< 5.0 U	< 5.5 U	< 4.8 U	< 4.9 U	< 4.4 U	< 4.4 U	< 5.4 U	< 4.6 U	< 4.3 U	< 5.2 U	< 4.5 U
Total Xylenes	20000000	< 4.5 U	< 5.0 U	< 5.5 U	< 4.8 U	< 4.9 U	< 4.4 U	< 4.4 U	< 5.4 U	< 4.6 U	< 4.3 U	< 5.2 U	< 4.5 U
trans-1,2-Dichloroethene	2000000	< 4.5 U	< 5.0 U	< 5.5 U	< 4.8 U	< 4.9 U	< 4.4 U	< 4.4 U	< 5.4 U	< 4.6 U	< 4.3 U	< 5.2 U	< 4.5 U
trans-1,3-Dichloropropene	29000	< 4.5 U	< 5.0 U	< 5.5 U	< 4.8 U	< 4.9 U	< 4.4 U	< 4.4 U	< 5.4 U	< 4.6 U	< 4.3 U	< 5.2 U	< 4.5 U
Trichloroethene	7200	< 4.5 U	< 5.0 U	< 5.5 U	< 4.8 U	< 4.9 U	< 4.4 U	< 4.4 U	< 5.4 U	< 4.6 U	< 4.3 U	< 5.2 U	< 4.5 U
Vinyl chloride	4000	< 4.5 U	< 5.0 U	< 5.5 U	< 4.8 U	< 4.9 U	< 4.4 U	< 4.4 U	< 5.4 U	< 4.6 U	< 4.3 U	< 5.2 U	< 4.5 U

Notes:
U - Compound not detected above specified limit.
J - Estimated value above method detection limit but below reporting limit.
B - Compound was detected in the blank and sample
Bold indicates the compound was detected
NE - Not Established.

Table 2
PDI Soil Sample Analytical Results
Brunswick Yard
Brunswick, Maryland

field_sdg	MDE Non-Res Soil Cleanup Standards	6801074531	6801074531	6801074531	6801074531	6801074531	6801074531	6801074531	6801074531	6801074531	6801074531	6801074531	6801074531	6801074531
sys_loc_code		GP-80	GP-80	GP-81	GP-81	GP-82	GP-82	GP-83	GP-83	GP-84	GP-84	GP-85	GP-85	
sys_sample_code		GP-80(14-15) (111814)	GP-80(18-19) (111814)	GP-81(13-14)(111814)	GP-81(14-15)(111814)	GP-82(14-15)(111814)	GP-82(16.5-17.5)(111814)	GP-83(13-14)(111814)	GP-83(14-15)(111814)	GP-84(14-15)(111814)	GP-84(15.5-16.5)(111814)	GP-85(15.5-16.5)(111814)	GP-85(6-7)(111814)	
sample_date		11/18/2014	11/18/2014	11/18/2014	11/18/2014	11/18/2014	11/18/2014	11/18/2014	11/18/2014	11/18/2014	11/18/2014	11/18/2014	11/18/2014	
SVOCs (ug/kg)														
1,1-Biphenyl	--	< 2000 U	< 2000 U	< 2100 U	< 2000 U	< 2100 U	< 2000 U	< 2000 U	< 2000 U	< 2000 U	< 2000 U	< 2000 U	< 2000 U	
2,4,5-Trichlorophenol	10000000	< 390 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 390 U	< 380 U	< 380 U	< 390 U	< 390 U	< 390 U	
2,4,6-Trichlorophenol	260000	< 390 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 390 U	< 380 U	< 380 U	< 390 U	< 390 U	< 390 U	
2,4-Dichlorophenol	310000	< 390 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 390 U	< 380 U	< 380 U	< 390 U	< 390 U	< 390 U	
2,4-Dimethylphenol	2000000	< 390 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 390 U	< 380 U	< 380 U	< 390 U	< 390 U	< 390 U	
2,4-Dinitrophenol	200000	< 2000 U	< 2000 U	< 2100 U	< 2000 U	< 2100 U	< 2000 U	< 2000 U	< 2000 U	< 2000 U	< 2000 U	< 2000 U	< 2000 U	
2,4-Dinitrotoluene	200000	< 390 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 390 U	< 380 U	< 380 U	< 390 U	< 390 U	< 390 U	
2,6-Dinitrotoluene	100000	< 390 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 390 U	< 380 U	< 380 U	< 390 U	< 390 U	< 390 U	
2-Chloronaphthalene	8200000	< 390 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 390 U	< 380 U	< 380 U	< 390 U	< 390 U	< 390 U	
2-Chlorophenol	510000	< 390 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 390 U	< 380 U	< 380 U	< 390 U	< 390 U	< 390 U	
2-Methyl-4,6-dinitrophenol	--	< 2000 U	< 2000 U	< 2100 U	< 2000 U	< 2100 U	< 2000 U	< 2000 U	< 2000 U	< 2000 U	< 2000 U	< 2000 U	< 2000 U	
2-Methylnaphthalene	410000	< 390 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 390 U	< 380 U	< 380 U	< 390 U	< 390 U	< 390 U	
2-Methylphenol	5100000	< 390 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 390 U	< 380 U	< 380 U	< 390 U	< 390 U	< 390 U	
2-Nitroaniline	--	< 2000 U	< 2000 U	< 2100 U	< 2000 U	< 2100 U	< 2000 U	< 2000 U	< 2000 U	< 2000 U	< 2000 U	< 2000 U	< 2000 U	
2-Nitrophenol	--	< 390 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 390 U	< 380 U	< 380 U	< 390 U	< 390 U	< 390 U	
3,3-Dichlorobenzidine	6400	< 790 U	< 780 U	< 810 U	< 780 U	< 810 U	< 780 U	< 790 U	< 770 U	< 760 U	< 780 U	< 780 U	< 780 U	
3-Nitroaniline	--	< 2000 U	< 2000 U	< 2100 U	< 2000 U	< 2100 U	< 2000 U	< 2000 U	< 2000 U	< 2000 U	< 2000 U	< 2000 U	< 2000 U	
4-Bromophenyl phenyl ether	--	< 390 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 390 U	< 380 U	< 380 U	< 390 U	< 390 U	< 390 U	
4-Chloro-3-Methylphenol	--	< 390 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 390 U	< 380 U	< 380 U	< 390 U	< 390 U	< 390 U	
4-Chlorophenyl phenyl ether	--	< 390 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 390 U	< 380 U	< 380 U	< 390 U	< 390 U	< 390 U	
4-Methylphenol	510000	< 390 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 390 U	< 380 U	< 380 U	< 390 U	< 390 U	< 390 U	
4-Nitroaniline	--	< 2000 U	< 2000 U	< 2100 U	< 2000 U	< 2100 U	< 2000 U	< 2000 U	< 2000 U	< 2000 U	< 2000 U	< 2000 U	< 2000 U	
4-Nitrophenol	--	< 2000 U	< 2000 U	< 2100 U	< 2000 U	< 2100 U	< 2000 U	< 2000 U	< 2000 U	< 2000 U	< 2000 U	< 2000 U	< 2000 U	
Acenaphthene	6100000	< 390 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 390 U	< 380 U	< 380 U	< 390 U	< 390 U	< 390 U	
Acenaphthylene	6100000	< 390 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 390 U	< 380 U	< 380 U	< 390 U	< 390 U	< 390 U	
Acetophenone	--	< 390 U	< 390 U	< 400 U	< 390 U	< 400 U	**250 J**	< 390 U	< 380 U	< 380 U	< 390 U	< 390 U	< 390 U	
Anthracene	31000000	< 390 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 390 U	< 380 U	< 380 U	< 390 U	< 390 U	< 390 U	
Atrazine	13000	< 390 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 390 U	< 380 U	< 380 U	< 390 U	< 390 U	< 390 U	
Benzaldehyde	--	< 390 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 390 U	< 380 U	< 380 U	< 390 U	< 390 U	< 390 U	
Benzo(a)anthracene	3900	< 390 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 390 U	< 380 U	< 380 U	< 390 U	< 390 U	< 390 U	
Benzo(a)pyrene	3900	< 390 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 390 U	< 380 U	< 380 U	< 390 U	< 390 U	< 390 U	
Benzo(b)fluoranthene	3900	< 390 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 390 U	< 380 U	< 380 U	< 390 U	< 390 U	< 390 U	
Benzo(g,h,i)perylene	3100000	< 390 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 390 U	< 380 U	< 380 U	< 390 U	< 390 U	< 390 U	
Benzo(k)fluoranthene	39000	< 390 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 390 U	< 380 U	< 380 U	< 390 U	< 390 U	< 390 U	
bis(2-Chloroethoxy)methane	--	< 390 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 390 U	< 380 U	< 380 U	< 390 U	< 390 U	< 390 U	
bis(2-Chloroethyl)ether	2600	< 390 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 390 U	< 380 U	< 380 U	< 390 U	< 390 U	< 390 U	
bis(2-Chloroisopropyl)ether	41000	< 390 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 390 U	< 380 U	< 380 U	< 390 U	< 390 U	< 390 U	
bis(2-Ethylhexyl)phthalate	200000	< 390 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 390 U	< 380 U	< 380 U	< 390 U	< 390 U	< 390 U	
Butyl benzyl phthalate	--	< 390 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 390 U	< 380 U	< 380 U	< 390 U	< 390 U	< 390 U	
Caprolactam	--	< 390 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 390 U	< 380 U	< 380 U	< 390 U	< 390 U	< 390 U	
Carbazole	140000	< 390 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 390 U	< 380 U	< 380 U	< 390 U	< 390 U	< 390 U	
Chrysene	390000	< 390 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 390 U	< 380 U	< 380 U	**26 J**	< 390 U	< 390 U	
Dibenzo(a,h)anthracene	390	< 390 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 390 U	< 380 U	< 380 U	< 390 U	< 390 U	< 390 U	
Dibenzofuran	100000	< 390 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 390 U	< 380 U	< 380 U	< 390 U	< 390 U	< 390 U	
Diethyl phthalate	82000000	< 390 U	< 390 U	< 400 U	**160 J**	< 400 U	< 390 U	< 390 U	< 380 U	< 380 U	< 390 U	< 390 U	< 390 U	
Dimethyl phthalate	--	< 390 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 390 U	< 380 U	< 380 U	< 390 U	< 390 U	< 390 U	
Di-n-butyl phthalate	10000000	< 390 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 390 U	< 380 U	< 380 U	< 390 U	< 390 U	< 390 U	
Di-n-octyl phthalate	--	< 390 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 390 U	< 380 U	< 380 U	< 390 U	< 390 U	< 390 U	
Fluoranthene	4100000	< 390 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 390 U	< 380 U	< 380 U	< 390 U	< 390 U	< 390 U	
Fluorene	4100000	< 390 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 390 U	< 380 U	< 380 U	< 390 U	< 390 U	< 390 U	
Hexachloro-1,3-butadiene	37000	< 390 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 390 U	< 380 U	< 380 U	< 390 U	< 390 U	< 390 U	
Hexachlorobenzene	1800	< 390 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 390 U	< 380 U	< 380 U	< 390 U	< 390 U	< 390 U	
Hexachlorocyclopentadiene	610000	< 390 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 390 U	< 380 U	< 380 U	< 390 U	< 390 U	< 390 U	
Hexachloroethane	200000	< 390 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 390 U	< 380 U	< 380 U	< 390 U	< 390 U	< 390 U	
Indeno(1,2,3-cd)pyrene	3900	< 390 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 390 U	< 380 U	< 380 U	< 390 U	< 390 U	< 390 U	
Isophorone	300000	< 390 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 390 U	< 380 U	< 380 U	< 390 U	< 390 U	< 390 U	
Naphthalene	2000000	< 390 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 390 U	< 380 U	< 380 U	< 390 U	< 390 U	< 390 U	
Nitrobenzene	51000	< 390 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 390 U	< 380 U	< 380 U	< 390 U	< 390 U	< 390 U	
n-Nitrosodi-n-propylamine	410	< 390 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 390 U	< 380 U	< 380 U	< 390 U	< 390 U	< 390 U	
N-nitrosodiphenylamine	580000	< 390 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 390 U	< 380 U	< 380 U	< 390 U	< 390 U	< 390 U	
p-Chloroaniline	410000	< 790 U	< 780 U	< 810 U	< 780 U	< 810 U	< 780 U	< 790 U	< 770 U	< 760 U	< 780 U	< 780 U	< 780 U	
Pentachlorophenol	24000	< 2000 U	< 2000 U	< 2100 U	< 2000 U	< 2100 U	< 2000 U	< 2000 U	< 2000 U	< 2000 U	< 2000 U	< 2000 U	< 2000 U	
Phenanthrene	31000000	< 390 U	< 390 U	< 400 U	< 390 U	< 400 U	**40 J**	< 390 U	< 380 U	< 380 U	**39 J**	< 390 U	< 390 U	
Phenol	31000000	< 390 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 390 U	< 380 U	< 380 U	< 390 U	< 390 U	< 390 U	
Pyrene	3100000	< 390 U	< 390 U	< 400 U	< 390 U	< 400 U	**42 J**	< 390 U	< 380 U	**41 J**	**32 J**	< 390 U	< 390 U	
TPH (mg/kg)														
Diesel C10-C28	620	< 4.0 U	**3.0 J**	**50**	< 3.9 U	< 4.0 U	**400**	< 4.0 U	< 3.8 U	**25**	**18**	**4.1**	< 3.9 U	
Gasoline C6-C10	620	< 0.22 U	**0.055 JB**	< 0.25 U	**240 B**	**0.14 JB**	**1.4 B**	**1.3 B**	**0.23 J**	**0.10 J**	**0.38 J**	**0.091 J**	**0.22 J**	

Notes:
U - Compound not detected above specified limit.
J - Estimated value above method detection limit but below reporting limit.
B - Compound was detected in the blank and sample
Bold indicates the compound was detected
NE - Not Established.

Table 2
PDI Soil Sample Analytical Results
Brunswick Yard
Brunswick, Maryland

field_sdg	MDE Non-Res Soil Cleanup Standards	6801074531	6801074531	6801074531	6801074531	6801074531	6801074531	6801074531	6801074531	6801074531	6801074531	6801074531	6801074531
sys_loc_code		GP-86	GP-86	GP-87	GP-87	GP-88	GP-88	GP-89	GP-89	GP-90	GP-90	GP-91	GP-91
sys_sample_code		GP-86(14-15)(111814)	GP-86(16-17)(111814)	GP-87(14-15)(111914)	GP-87(16-17)(111914)	GP-88(12-13)(111914)	GP-88(15-16)(111914)	GP-89(12-13)(111914)	GP-89(15.5-16.5)(111914)	GP-90(12.5-13.5)(111914)	GP-90(9-10)(111914)	GP-91(11-12)(111914)	GP-91(15-16)(111914)
sample_date		11/18/2014	11/18/2014	11/19/2014	11/19/2014	11/19/2014	11/19/2014	11/19/2014	11/19/2014	11/19/2014	11/19/2014	11/19/2014	11/19/2014
VOCs (ug/kg)													
1,1,1-Trichloroethane	200000000	< 4.5 U	< 4.7 U	< 5.7 U	< 11 U	< 5.2 U	< 4.9 U	< 5.1 U	< 4.6 U	< 4.2 U	< 5.2 U	< 220 U	< 220 U
1,1,2,2-Tetrachloroethane	14000	< 4.5 U	< 4.7 U	< 5.7 U	< 11 U	< 5.2 U	< 4.9 U	< 5.1 U	< 4.6 U	< 4.2 U	< 5.2 U	< 220 U	< 220 U
1,1,2-trichloro-1,2,2-trifluoroethane	--	< 4.5 U	< 4.7 U	< 5.7 U	< 11 U	< 5.2 U	< 4.9 U	< 5.1 U	< 4.6 U	< 4.2 U	< 5.2 U	< 220 U	< 220 U
1,1,2-Trichloroethane	50000	< 4.5 U	< 4.7 U	< 5.7 U	< 11 U	< 5.2 U	< 4.9 U	< 5.1 U	< 4.6 U	< 4.2 U	< 5.2 U	< 220 U	< 220 U
1,1-Dichloroethane	2000000	< 4.5 U	< 4.7 U	< 5.7 U	< 11 U	< 5.2 U	< 4.9 U	< 5.1 U	< 4.6 U	< 4.2 U	< 5.2 U	< 220 U	< 220 U
1,1-Dichloroethene	5100000	< 4.5 U	< 4.7 U	< 5.7 U	< 11 U	< 5.2 U	< 4.9 U	< 5.1 U	< 4.6 U	< 4.2 U	< 5.2 U	< 220 U	< 220 U
1,2,4-Trichlorobenzene	1000000	< 4.5 U	< 4.7 U	< 5.7 U	< 11 U	< 5.2 U	< 4.9 U	< 5.1 U	< 4.6 U	< 4.2 U	< 5.2 U	< 220 U	< 220 U
1,2-Dibromo-3-chloropropane	3600	< 4.5 U	< 4.7 U	< 5.7 U	< 11 U	< 5.2 U	< 4.9 U	< 5.1 U	< 4.6 U	< 4.2 U	< 5.2 U	< 220 U	< 220 U
1,2-Dibromoethane	1400	< 4.5 U	< 4.7 U	< 5.7 U	< 11 U	< 5.2 U	< 4.9 U	< 5.1 U	< 4.6 U	< 4.2 U	< 5.2 U	< 220 U	< 220 U
1,2-Dichlorobenzene	9200000	< 4.5 U	< 4.7 U	< 5.7 U	< 11 U	< 5.2 U	< 4.9 U	< 5.1 U	< 4.6 U	< 4.2 U	< 5.2 U	< 220 U	< 220 U
1,2-Dichloroethane	31000	< 4.5 U	< 4.7 U	< 5.7 U	< 11 U	< 5.2 U	< 4.9 U	< 5.1 U	< 4.6 U	< 4.2 U	< 5.2 U	< 220 U	< 220 U
1,2-Dichloropropane	42000	< 4.5 U	< 4.7 U	< 5.7 U	< 11 U	< 5.2 U	< 4.9 U	< 5.1 U	< 4.6 U	< 4.2 U	< 5.2 U	< 220 U	< 220 U
1,3-Dichlorobenzene	310000	< 4.5 U	< 4.7 U	< 5.7 U	< 11 U	< 5.2 U	< 4.9 U	< 5.1 U	< 4.6 U	< 4.2 U	< 5.2 U	< 220 U	< 220 U
1,4-Dichlorobenzene	120000	< 4.5 U	< 4.7 U	< 5.7 U	< 11 U	< 5.2 U	< 4.9 U	< 5.1 U	< 4.6 U	< 4.2 U	< 5.2 U	< 220 U	< 220 U
2-Butanone	61000000	< 22 U	< 24 U	< 28 U	< 54 U	< 26 U	< 25 U	< 25 U	< 23 U	< 21 U	< 26 U	< 1100 U	< 1100 U
4-Methyl-2-Pentanone	--	< 22 U	< 24 U	< 28 U	< 54 U	< 26 U	< 25 U	< 25 U	< 23 U	< 21 U	< 26 U	< 1100 U	< 1100 U
Acetone	92000000	**16 J**	**19 J**	**43**	**30 J**	< 26 U	< 25 U	< 25 U	**12 J**	< 21 U	< 26 U	< 1100 U	< 1100 U
Benzene	52000	< 4.5 U	< 4.7 U	< 5.7 U	< 11 U	< 5.2 U	< 4.9 U	< 5.1 U	< 4.6 U	< 4.2 U	< 5.2 U	< 220 U	< 220 U
Bromodichloromethane	46000	< 4.5 U	< 4.7 U	< 5.7 U	< 11 U	< 5.2 U	< 4.9 U	< 5.1 U	< 4.6 U	< 4.2 U	< 5.2 U	< 220 U	< 220 U
Bromoform	360000	< 4.5 U	< 4.7 U	< 5.7 U	< 11 U	< 5.2 U	< 4.9 U	< 5.1 U	< 4.6 U	< 4.2 U	< 5.2 U	< 220 U	< 220 U
Bromomethane	140000	< 4.5 U	< 4.7 U	< 5.7 U	< 11 U	< 5.2 U	< 4.9 U	< 5.1 U	< 4.6 U	< 4.2 U	< 5.2 U	< 220 U	< 220 U
Carbon Disulfide	1000000	< 4.5 U	< 4.7 U	< 5.7 U	< 11 U	< 5.2 U	< 4.9 U	< 5.1 U	< 4.6 U	< 4.2 U	< 5.2 U	< 220 U	< 220 U
Carbon Tetrachloride	22000	< 4.5 U	< 4.7 U	< 5.7 U	< 11 U	< 5.2 U	< 4.9 U	< 5.1 U	< 4.6 U	< 4.2 U	< 5.2 U	< 220 U	< 220 U
CFC-11	--	< 4.5 U	< 4.7 U	< 5.7 U	< 11 U	< 5.2 U	< 4.9 U	< 5.1 U	< 4.6 U	< 4.2 U	< 5.2 U	< 220 U	< 220 U
CFC-12	--	< 4.5 U	< 4.7 U	< 5.7 U	< 11 U	< 5.2 U	< 4.9 U	< 5.1 U	< 4.6 U	< 4.2 U	< 5.2 U	< 220 U	< 220 U
Chlorobenzene	2000000	< 4.5 U	< 4.7 U	< 5.7 U	< 11 U	< 5.2 U	< 4.9 U	< 5.1 U	< 4.6 U	< 4.2 U	< 5.2 U	< 220 U	< 220 U
Chlorodibromomethane	34000	< 4.5 U	< 4.7 U	< 5.7 U	< 11 U	< 5.2 U	< 4.9 U	< 5.1 U	< 4.6 U	< 4.2 U	< 5.2 U	< 220 U	< 220 U
Chloroethane	990000	< 4.5 U	< 4.7 U	< 5.7 U	< 11 U	< 5.2 U	< 4.9 U	< 5.1 U	< 4.6 U	< 4.2 U	< 5.2 U	< 220 U	< 220 U
Chloroform	100000	< 4.5 U	< 4.7 U	< 5.7 U	< 11 U	< 5.2 U	< 4.9 U	< 5.1 U	< 4.6 U	< 4.2 U	< 5.2 U	< 220 U	< 220 U
Chloromethane	--	< 4.5 U	< 4.7 U	< 5.7 U	< 11 U	< 5.2 U	< 4.9 U	< 5.1 U	< 4.6 U	< 4.2 U	< 5.2 U	< 220 U	< 220 U
cis-1,2-Dichloroethene	1000000	< 4.5 U	< 4.7 U	< 5.7 U	< 11 U	< 5.2 U	< 4.9 U	< 5.1 U	< 4.6 U	< 4.2 U	< 5.2 U	< 220 U	< 220 U
cis-1,3-Dichloropropene	29000	< 4.5 U	< 4.7 U	< 5.7 U	< 11 U	< 5.2 U	< 4.9 U	< 5.1 U	< 4.6 U	< 4.2 U	< 5.2 U	< 220 U	< 220 U
Cyclohexane	--	< 4.5 U	< 4.7 U	< 5.7 U	< 11 U	< 5.2 U	< 4.9 U	< 5.1 U	< 4.6 U	< 4.2 U	< 5.2 U	< 220 U	**130 J**
Dichloromethane	380000	< 13 U	< 14 U	< 17 U	< 32 U	< 16 U	< 15 U	< 15 U	< 14 U	< 13 U	< 16 U	< 670 U	< 650 U
Diisopropyl ether	--	< 4.5 U	< 4.7 U	< 5.7 U	< 11 U	< 5.2 U	< 4.9 U	< 5.1 U	< 4.6 U	< 4.2 U	< 5.2 U	< 220 U	< 220 U
Ethylbenzene	10000000	< 4.5 U	< 4.7 U	< 5.7 U	< 11 U	< 5.2 U	< 4.9 U	< 5.1 U	< 4.6 U	< 4.2 U	< 5.2 U	< 220 U	< 220 U
Isopropylbenzene	10000000	< 4.5 U	< 4.7 U	< 5.7 U	< 11 U	< 5.2 U	< 4.9 U	< 5.1 U	< 4.6 U	< 4.2 U	< 5.2 U	< 220 U	**1600**
Methyl Acetate	--	< 4.5 U	< 4.7 U	< 5.7 U	< 11 U	< 5.2 U	< 4.9 U	< 5.1 U	< 4.6 U	< 4.2 U	< 5.2 U	< 220 U	< 220 U
Methyl N-Butyl Ketone	--	< 22 U	< 24 U	< 28 U	< 54 U	< 26 U	< 25 U	< 25 U	< 23 U	< 21 U	< 26 U	< 1100 U	< 1100 U
Methylcyclohexane	--	< 4.5 U	< 4.7 U	< 5.7 U	< 11 U	< 5.2 U	< 4.9 U	< 5.1 U	< 4.6 U	< 4.2 U	< 5.2 U	< 220 U	**1300**
Methyl-tert-butylether	720000	< 4.5 U	< 4.7 U	< 5.7 U	< 11 U	< 5.2 U	< 4.9 U	< 5.1 U	< 4.6 U	< 4.2 U	< 5.2 U	< 220 U	< 220 U
Naphthalene	2000000	< 4.5 U	< 4.7 U	< 5.7 U	< 11 U	< 5.2 U	< 4.9 U	< 5.1 U	< 4.6 U	< 4.2 U	< 5.2 U	< 220 U	< 220 U
Styrene (Monomer)	20000000	< 4.5 U	< 4.7 U	< 5.7 U	< 11 U	< 5.2 U	< 4.9 U	< 5.1 U	< 4.6 U	< 4.2 U	< 5.2 U	< 220 U	< 220 U
tert-Amyl methyl ether	--	< 4.5 U	< 4.7 U	< 5.7 U	< 11 U	< 5.2 U	< 4.9 U	< 5.1 U	< 4.6 U	< 4.2 U	< 5.2 U	< 220 U	< 220 U
tert-Butyl alcohol	--	< 8.9 U	< 9.5 U	< 11 U	< 21 U	**32**	< 9.8 U	< 10 U	**9.8**	< 8.5 U	< 10 U	< 450 U	< 440 U
tert-Butyl ethyl ether	--	< 4.5 U	< 4.7 U	< 5.7 U	< 11 U	< 5.2 U	< 4.9 U	< 5.1 U	< 4.6 U	< 4.2 U	< 5.2 U	< 220 U	< 220 U
Tetrachloroethene	5300	< 4.5 U	< 4.7 U	< 5.7 U	< 11 U	< 5.2 U	< 4.9 U	< 5.1 U	< 4.6 U	< 4.2 U	< 5.2 U	< 220 U	< 220 U
Toluene	8200000	< 4.5 U	< 4.7 U	< 5.7 U	< 11 U	< 5.2 U	< 4.9 U	< 5.1 U	< 4.6 U	< 4.2 U	< 5.2 U	< 220 U	< 220 U
Total Xylenes	20000000	< 4.5 U	< 4.7 U	< 5.7 U	< 11 U	< 5.2 U	< 4.9 U	< 5.1 U	< 4.6 U	< 4.2 U	< 5.2 U	< 220 U	< 220 U
trans-1,2-Dichloroethene	2000000	< 4.5 U	< 4.7 U	< 5.7 U	< 11 U	< 5.2 U	< 4.9 U	< 5.1 U	< 4.6 U	< 4.2 U	< 5.2 U	< 220 U	< 220 U
trans-1,3-Dichloropropene	29000	< 4.5 U	< 4.7 U	< 5.7 U	< 11 U	< 5.2 U	< 4.9 U	< 5.1 U	< 4.6 U	< 4.2 U	< 5.2 U	< 220 U	< 220 U
Trichloroethene	7200	< 4.5 U	< 4.7 U	< 5.7 U	< 11 U	< 5.2 U	< 4.9 U	< 5.1 U	< 4.6 U	< 4.2 U	< 5.2 U	< 220 U	< 220 U
Vinyl chloride	4000	< 4.5 U	< 4.7 U	< 5.7 U	< 11 U	< 5.2 U	< 4.9 U	< 5.1 U	< 4.6 U	< 4.2 U	< 5.2 U	< 220 U	< 220 U

Notes:
U - Compound not detected above specified limit.
J - Estimated value above method detection limit but below reporting limit.
B - Compound was detected in the blank and sample
Bold indicates the compound was detected
NE - Not Established.

Table 2
PDI Soil Sample Analytical Results
Brunswick Yard
Brunswick, Maryland

field_sdg	MDE Non-Res Soil Cleanup Standards	6801074531	6801074531	6801074531	6801074531	6801074531	6801074531	6801074531	6801074531	6801074531	6801074531	6801074531	6801074531
sys_loc_code		GP-86	GP-86	GP-87	GP-87	GP-88	GP-88	GP-89	GP-89	GP-90	GP-90	GP-91	GP-91
sys_sample_code		GP-86(14-15)(111814)	GP-86(16-17)(111814)	GP-87(14-15)(111914)	GP-87(16-17)(111914)	GP-88(12-13)(111914)	GP-88(15-16)(111914)	GP-89(12-13)(111914)	GP-89(15.5-16.5)(111914)	GP-90(12.5-13.5)(111914)	GP-90(9-10)(111914)	GP-91(11-12)(111914)	GP-91(15-16)(111914)
sample_date		11/18/2014	11/18/2014	11/19/2014	11/19/2014	11/19/2014	11/19/2014	11/19/2014	11/19/2014	11/19/2014	11/19/2014	11/19/2014	11/19/2014
SVOCs (ug/kg)													
1,1-Biphenyl	--	< 1900 U	< 2000 U	< 2100 U	< 2000 U	< 2000 U	< 2000 U	< 2100 U	< 2000 U	< 2100 U	< 2000 U	< 2100 U	< 2100 U
2,4,5-Trichlorophenol	10000000	< 370 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 400 U
2,4,6-Trichlorophenol	260000	< 370 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 400 U
2,4-Dichlorophenol	310000	< 370 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 400 U
2,4-Dimethylphenol	2000000	< 370 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 400 U
2,4-Dinitrophenol	200000	< 1900 U	< 2000 U	< 2100 U	< 2000 U	< 2000 U	< 2000 U	< 2100 U	< 2000 U	< 2100 U	< 2000 U	< 2100 U	< 2100 U
2,4-Dinitrotoluene	200000	< 370 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 400 U
2,6-Dinitrotoluene	100000	< 370 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 400 U
2-Chloronaphthalene	8200000	< 370 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 400 U
2-Chlorophenol	510000	< 370 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 400 U
2-Methyl-4,6-dinitrophenol	--	< 1900 U	< 2000 U	< 2100 U	< 2000 U	< 2000 U	< 2000 U	< 2100 U	< 2000 U	< 2100 U	< 2000 U	< 2100 U	< 2100 U
2-Methylnaphthalene	410000	< 370 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 400 U
2-Methylphenol	5100000	< 370 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 400 U
2-Nitroaniline	--	< 1900 U	< 2000 U	< 2100 U	< 2000 U	< 2000 U	< 2000 U	< 2100 U	< 2000 U	< 2100 U	< 2000 U	< 2100 U	< 2100 U
2-Nitrophenol	--	< 370 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 400 U
3,3-Dichlorobenzidine	6400	< 740 U	< 790 U	< 800 U	< 780 U	< 800 U	< 790 U	< 800 U	< 780 U	< 810 U	< 790 U	< 810 U	< 810 U
3-Nitroaniline	--	< 1900 U	< 2000 U	< 2100 U	< 2000 U	< 2000 U	< 2000 U	< 2100 U	< 2000 U	< 2100 U	< 2000 U	< 2100 U	< 2100 U
4-Bromophenyl phenyl ether	--	< 370 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 400 U
4-Chloro-3-Methylphenol	--	< 370 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 400 U
4-Chlorophenyl phenyl ether	--	< 370 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 400 U
4-Methylphenol	510000	< 370 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 400 U
4-Nitroaniline	--	< 1900 U	< 2000 U	< 2100 U	< 2000 U	< 2000 U	< 2000 U	< 2100 U	< 2000 U	< 2100 U	< 2000 U	< 2100 U	< 2100 U
4-Nitrophenol	--	< 1900 U	< 2000 U	< 2100 U	< 2000 U	< 2000 U	< 2000 U	< 2100 U	< 2000 U	< 2100 U	< 2000 U	< 2100 U	< 2100 U
Acenaphthene	6100000	< 370 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	**1200**
Acenaphthylene	6100000	< 370 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 400 U
Acetophenone	--	< 370 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 400 U
Anthracene	31000000	< 370 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	**850**
Atrazine	13000	< 370 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 400 U
Benzaldehyde	--	< 370 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 400 U
Benzo(a)anthracene	3900	< 370 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 400 U
Benzo(a)pyrene	3900	< 370 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 400 U
Benzo(b)fluoranthene	3900	< 370 U	< 390 U	< 400 U	< 390 U	< 400 U	**75 J**	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 400 U
Benzo(g,h,i)perylene	3100000	< 370 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 400 U
Benzo(k)fluoranthene	39000	< 370 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 400 U
bis(2-Chloroethoxy)methane	--	< 370 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 400 U
bis(2-Chloroethyl)ether	2600	< 370 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 400 U
bis(2-Chloroisopropyl)ether	41000	< 370 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 400 U
bis(2-Ethylhexyl)phthalate	200000	< 370 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 400 U
Butyl benzyl phthalate	--	< 370 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 400 U
Caprolactam	--	< 370 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 400 U
Carbazole	140000	< 370 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 400 U
Chrysene	390000	< 370 U	< 390 U	< 400 U	< 390 U	< 400 U	**63 J**	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	**69 J**
Dibenzo(a,h)anthracene	390	< 370 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 400 U
Dibenzofuran	100000	< 370 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 400 U
Diethyl phthalate	82000000	< 370 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 400 U
Dimethyl phthalate	--	< 370 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 400 U
Di-n-butyl phthalate	10000000	< 370 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 400 U
Di-n-octyl phthalate	--	< 370 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 400 U
Fluoranthene	4100000	< 370 U	< 390 U	< 400 U	< 390 U	< 400 U	**220 J**	< 400 U	< 390 U	< 400 U	< 390 U	**57 J**	**180 J**
Fluorene	4100000	< 370 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	**350 J**	**2000**
Hexachloro-1,3-butadiene	37000	< 370 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 400 U
Hexachlorobenzene	1800	< 370 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 400 U
Hexachlorocyclopentadiene	610000	< 370 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 400 U
Hexachloroethane	200000	< 370 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 400 U
Indeno(1,2,3-cd)pyrene	3900	< 370 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 400 U
Isophorone	300000	< 370 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 400 U
Naphthalene	2000000	< 370 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 400 U
Nitrobenzene	51000	< 370 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 400 U
n-Nitrosodi-n-propylamine	410	< 370 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 400 U
N-nitrosodiphenylamine	580000	< 370 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 400 U
p-Chloroaniline	410000	< 740 U	< 790 U	< 800 U	< 780 U	< 800 U	< 790 U	< 800 U	< 780 U	< 810 U	< 790 U	< 810 U	< 810 U
Pentachlorophenol	24000	< 1900 U	< 2000 U	< 2100 U	< 2000 U	< 2000 U	< 2000 U	< 2100 U	< 2000 U	< 2100 U	< 2000 U	< 2100 U	< 2100 U
Phenanthrene	31000000	< 370 U	< 390 U	< 400 U	**33 J**	< 400 U	**48 J**	< 400 U	< 390 U	< 400 U	< 390 U	**1000**	**5900**
Phenol	31000000	< 370 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 400 U
Pyrene	3100000	< 370 U	< 390 U	< 400 U	< 390 U	< 400 U	**180 J**	< 400 U	< 390 U	< 400 U	< 390 U	**130 J**	**460**
TPH (mg/kg)													
Diesel C10-C28	620	< 3.7 U	< 3.9 U	**77**	**29**	< 4.0 U	**160**	< 4.0 U	**3.1 J**	< 4.0 U	< 3.9 U	**130**	**1300**
Gasoline C6-C10	620	**0.15 J**	**0.096 J**	< 0.31 U	**51 B**	**0.068 JB**	< 0.26 U	< 0.27 U	**0.080 J**	**0.11 J**	**0.46**	**300 B**	**860 B**

Notes:
U - Compound not detected above specified limit.
J - Estimated value above method detection limit but below reporting limit.
B - Compound was detected in the blank and sample
Bold indicates the compound was detected
NE - Not Established.

Table 2
PDI Soil Sample Analytical Results
Brunswick Yard
Brunswick, Maryland

field_sdg	MDE Non-Res Soil Cleanup Standards	6801074531	6801074531	6801074531	6801074531	6801074531	6801074531	6801074531	6801074531	6801074531	6801074531	6801074991
sys_loc_code		GP-92	GP-92	GP-93	GP-93	GP-94	GP-94	GP-95	GP-95	GP-96	GP-96	CSXT MW-71
sys_sample_code		GP-92(14-15)(111914)	GP-92(15.5-16.5)(111914)	GP-93(14-15)(111914)	GP-93(15.5-16.5)(111914)	GP-94(13-14)(111914)	GP-94(14-15)(111914)	GP-95(12-13)(111914)	GP-95(15-16)(111914)	GP-96(15-16)(111914)	GP-96(7-8)(111914)	MW-71(15-16)(112014)
sample_date		11/19/2014	11/19/2014	11/19/2014	11/19/2014	11/19/2014	11/19/2014	11/19/2014	11/19/2014	11/19/2014	11/19/2014	11/20/2014
VOCs (ug/kg)												
1,1,1-Trichloroethane	200000000	< 260 U	< 250 U	< 240 U	< 240 U	< 4.5 U	< 4.5 U	< 4.3 U	< 4.3 U	< 7.0 U	< 4.6 U	< 9.6 U
1,1,2,2-Tetrachloroethane	14000	< 260 U	< 250 U	< 240 U	< 240 U	< 4.5 U	< 4.5 U	< 4.3 U	< 4.3 U	< 7.0 U	< 4.6 U	< 9.6 U
1,1,2-trichloro-1,2,2-trifluoroethane	--	< 260 U	< 250 U	< 240 U	< 240 U	< 4.5 U	< 4.5 U	< 4.3 U	< 4.3 U	< 7.0 U	< 4.6 U	< 9.6 U
1,1,2-Trichloroethane	50000	< 260 U	< 250 U	< 240 U	< 240 U	< 4.5 U	< 4.5 U	< 4.3 U	< 4.3 U	< 7.0 U	< 4.6 U	< 9.6 U
1,1-Dichloroethane	2000000	< 260 U	< 250 U	< 240 U	< 240 U	< 4.5 U	< 4.5 U	< 4.3 U	< 4.3 U	< 7.0 U	< 4.6 U	< 9.6 U
1,1-Dichloroethene	5100000	< 260 U	< 250 U	< 240 U	< 240 U	< 4.5 U	< 4.5 U	< 4.3 U	< 4.3 U	< 7.0 U	< 4.6 U	< 9.6 U
1,2,4-Trichlorobenzene	1000000	< 260 U	< 250 U	< 240 U	< 240 U	< 4.5 U	< 4.5 U	< 4.3 U	< 4.3 U	< 7.0 U	< 4.6 U	< 9.6 U
1,2-Dibromo-3-chloropropane	3600	< 260 U	< 250 U	< 240 U	< 240 U	< 4.5 U	< 4.5 U	< 4.3 U	< 4.3 U	< 7.0 U	< 4.6 U	< 9.6 U
1,2-Dibromoethane	1400	< 260 U	< 250 U	< 240 U	< 240 U	< 4.5 U	< 4.5 U	< 4.3 U	< 4.3 U	< 7.0 U	< 4.6 U	< 9.6 U
1,2-Dichlorobenzene	9200000	< 260 U	< 250 U	< 240 U	< 240 U	< 4.5 U	< 4.5 U	< 4.3 U	< 4.3 U	< 7.0 U	< 4.6 U	< 9.6 U
1,2-Dichloroethane	31000	< 260 U	< 250 U	< 240 U	< 240 U	< 4.5 U	< 4.5 U	< 4.3 U	< 4.3 U	< 7.0 U	< 4.6 U	< 9.6 U
1,2-Dichloropropane	42000	< 260 U	< 250 U	< 240 U	< 240 U	< 4.5 U	< 4.5 U	< 4.3 U	< 4.3 U	< 7.0 U	< 4.6 U	< 9.6 U
1,3-Dichlorobenzene	310000	< 260 U	< 250 U	< 240 U	< 240 U	< 4.5 U	< 4.5 U	< 4.3 U	< 4.3 U	< 7.0 U	< 4.6 U	< 9.6 U
1,4-Dichlorobenzene	120000	< 260 U	< 250 U	< 240 U	< 240 U	< 4.5 U	< 4.5 U	< 4.3 U	< 4.3 U	< 7.0 U	< 4.6 U	< 9.6 U
2-Butanone	61000000	< 1300 U	< 1200 U	< 1200 U	< 1200 U	< 22 U	< 23 U	< 22 U	< 21 U	**10 J**	< 23 U	< 48 U
4-Methyl-2-Pentanone	--	< 1300 U	< 1200 U	< 1200 U	< 1200 U	< 22 U	< 23 U	< 22 U	< 21 U	< 35 U	< 23 U	< 48 U
Acetone	92000000	< 1300 U	< 1200 U	< 1200 U	< 1200 U	**17 J**	**26**	**31**	**22**	**45**	**31**	**30 J**
Benzene	52000	< 260 U	< 250 U	< 240 U	< 240 U	< 4.5 U	< 4.5 U	< 4.3 U	< 4.3 U	< 7.0 U	< 4.6 U	< 9.6 U
Bromodichloromethane	46000	< 260 U	< 250 U	< 240 U	< 240 U	< 4.5 U	< 4.5 U	< 4.3 U	< 4.3 U	< 7.0 U	< 4.6 U	< 9.6 U
Bromoform	360000	< 260 U	< 250 U	< 240 U	< 240 U	< 4.5 U	< 4.5 U	< 4.3 U	< 4.3 U	< 7.0 U	< 4.6 U	< 9.6 U
Bromomethane	140000	< 260 U	< 250 U	< 240 U	< 240 U	< 4.5 U	< 4.5 U	< 4.3 U	< 4.3 U	< 7.0 U	< 4.6 U	< 9.6 U
Carbon Disulfide	1000000	< 260 U	< 250 U	< 240 U	< 240 U	< 4.5 U	< 4.5 U	< 4.3 U	< 4.3 U	< 7.0 U	< 4.6 U	< 9.6 U
Carbon Tetrachloride	22000	< 260 U	< 250 U	< 240 U	< 240 U	< 4.5 U	< 4.5 U	< 4.3 U	< 4.3 U	< 7.0 U	< 4.6 U	< 9.6 U
CFC-11	--	< 260 U	< 250 U	< 240 U	< 240 U	< 4.5 U	< 4.5 U	< 4.3 U	< 4.3 U	< 7.0 U	< 4.6 U	< 9.6 U
CFC-12	--	< 260 U	< 250 U	< 240 U	< 240 U	< 4.5 U	< 4.5 U	< 4.3 U	< 4.3 U	< 7.0 U	< 4.6 U	< 9.6 U
Chlorobenzene	2000000	< 260 U	< 250 U	< 240 U	< 240 U	< 4.5 U	< 4.5 U	< 4.3 U	< 4.3 U	< 7.0 U	< 4.6 U	< 9.6 U
Chlorodibromomethane	34000	< 260 U	< 250 U	< 240 U	< 240 U	< 4.5 U	< 4.5 U	< 4.3 U	< 4.3 U	< 7.0 U	< 4.6 U	< 9.6 U
Chloroethane	990000	< 260 U	< 250 U	< 240 U	< 240 U	< 4.5 U	< 4.5 U	< 4.3 U	< 4.3 U	< 7.0 U	< 4.6 U	< 9.6 U
Chloroform	100000	< 260 U	< 250 U	< 240 U	< 240 U	< 4.5 U	< 4.5 U	< 4.3 U	< 4.3 U	< 7.0 U	< 4.6 U	< 9.6 U
Chloromethane	--	< 260 U	< 250 U	< 240 U	< 240 U	< 4.5 U	< 4.5 U	< 4.3 U	< 4.3 U	< 7.0 U	< 4.6 U	< 9.6 U
cis-1,2-Dichloroethene	1000000	< 260 U	< 250 U	< 240 U	< 240 U	< 4.5 U	< 4.5 U	< 4.3 U	< 4.3 U	< 7.0 U	< 4.6 U	< 9.6 U
cis-1,3-Dichloropropene	29000	< 260 U	< 250 U	< 240 U	< 240 U	< 4.5 U	< 4.5 U	< 4.3 U	< 4.3 U	< 7.0 U	< 4.6 U	< 9.6 U
Cyclohexane	--	< 260 U	**58 J**	< 240 U	< 240 U	< 4.5 U	< 4.5 U	**11**	**13**	**1.5 J**	< 4.6 U	< 9.6 U
Dichloromethane	380000	< 780 U	< 740 U	< 730 U	< 730 U	< 13 U	< 14 U	< 13 U	< 13 U	< 21 U	< 14 U	< 29 U
Diisopropyl ether	--	< 260 U	< 250 U	< 240 U	< 240 U	< 4.5 U	< 4.5 U	< 4.3 U	< 4.3 U	< 7.0 U	< 4.6 U	< 9.6 U
Ethylbenzene	10000000	< 260 U	< 250 U	< 240 U	< 240 U	< 4.5 U	< 4.5 U	< 4.3 U	< 4.3 U	< 7.0 U	< 4.6 U	< 9.6 U
Isopropylbenzene	10000000	**53 J**	**240 J**	**960**	**190 J**	< 4.5 U	< 4.5 U	**3.5 J**	**29**	< 7.0 U	< 4.6 U	< 9.6 U
Methyl Acetate	--	< 260 U	< 250 U	< 240 U	< 240 U	< 4.5 U	< 4.5 U	< 4.3 U	< 4.3 U	< 7.0 U	< 4.6 U	< 9.6 U
Methyl N-Butyl Ketone	--	< 1300 U	< 1200 U	< 1200 U	< 1200 U	< 22 U	< 23 U	< 22 U	< 21 U	< 35 U	< 23 U	< 48 U
Methylcyclohexane	--	**450**	**650**	**440**	< 240 U	< 4.5 U	**5.9**	**110**	**120**	**8.1**	< 4.6 U	< 9.6 U
Methyl-tert-butylether	720000	< 260 U	< 250 U	< 240 U	< 240 U	< 4.5 U	< 4.5 U	< 4.3 U	< 4.3 U	< 7.0 U	< 4.6 U	< 9.6 U
Naphthalene	2000000	< 260 U	< 250 U	< 240 U	< 240 U	< 4.5 U	< 4.5 U	< 4.3 U	< 4.3 U	< 7.0 U	< 4.6 U	< 9.6 U
Styrene (Monomer)	20000000	< 260 U	< 250 U	< 240 U	< 240 U	< 4.5 U	< 4.5 U	< 4.3 U	< 4.3 U	< 7.0 U	< 4.6 U	< 9.6 U
tert-Amyl methyl ether	--	< 260 U	< 250 U	< 240 U	< 240 U	< 4.5 U	< 4.5 U	< 4.3 U	< 4.3 U	< 7.0 U	< 4.6 U	< 9.6 U
tert-Butyl alcohol	--	< 520 U	< 490 U	< 490 U	< 490 U	< 9.0 U	< 9.1 U	< 8.7 U	< 8.6 U	< 14 U	< 9.1 U	< 19 U
tert-Butyl ethyl ether	--	< 260 U	< 250 U	< 240 U	< 240 U	< 4.5 U	< 4.5 U	< 4.3 U	< 4.3 U	< 7.0 U	< 4.6 U	< 9.6 U
Tetrachloroethene	5300	< 260 U	< 250 U	< 240 U	< 240 U	< 4.5 U	< 4.5 U	< 4.3 U	< 4.3 U	< 7.0 U	< 4.6 U	< 9.6 U
Toluene	8200000	< 260 U	< 250 U	< 240 U	< 240 U	< 4.5 U	< 4.5 U	< 4.3 U	< 4.3 U	< 7.0 U	< 4.6 U	< 9.6 U
Total Xylenes	20000000	< 260 U	< 250 U	< 240 U	< 240 U	< 4.5 U	< 4.5 U	< 4.3 U	< 4.3 U	< 7.0 U	< 4.6 U	< 9.6 U
trans-1,2-Dichloroethene	2000000	< 260 U	< 250 U	< 240 U	< 240 U	< 4.5 U	< 4.5 U	< 4.3 U	< 4.3 U	< 7.0 U	< 4.6 U	< 9.6 U
trans-1,3-Dichloropropene	29000	< 260 U	< 250 U	< 240 U	< 240 U	< 4.5 U	< 4.5 U	< 4.3 U	< 4.3 U	< 7.0 U	< 4.6 U	< 9.6 U
Trichloroethene	7200	< 260 U	< 250 U	< 240 U	< 240 U	< 4.5 U	< 4.5 U	< 4.3 U	< 4.3 U	< 7.0 U	< 4.6 U	< 9.6 U
Vinyl chloride	4000	< 260 U	< 250 U	< 240 U	< 240 U	< 4.5 U	< 4.5 U	< 4.3 U	< 4.3 U	< 7.0 U	< 4.6 U	< 9.6 U

Notes:
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J - Estimated value above method detection limit but below reporting limit.
B - Compound was detected in the blank and sample
Bold indicates the compound was detected
NE - Not Established.

Table 2
PDI Soil Sample Analytical Results
Brunswick Yard
Brunswick, Maryland

field_sdg		6801074531	6801074531	6801074531	6801074531	6801074531	6801074531	6801074531	6801074531	6801074531	6801074531	6801074531	6801074991
sys_loc_code	**MDE Non-Res Soil Cleanup Standards**	GP-92	GP-92	GP-93	GP-93	GP-94	GP-94	GP-95	GP-95	GP-96	GP-96	GP-96	CSXT MW-71
sys_sample_code		GP-92(14-15)(111914)	GP-92(15.5-16.5)(111914)	GP-93(14-15)(111914)	GP-93(15.5-16.5)(111914)	GP-94(13-14)(111914)	GP-94(14-15)(111914)	GP-95(12-13)(111914)	GP-95(15-16)(111914)	GP-96(15-16)(111914)	GP-96(7-8)(111914)	MW-71(15-16)(112014)	
sample_date		11/19/2014	11/19/2014	11/19/2014	11/19/2014	11/19/2014	11/19/2014	11/19/2014	11/19/2014	11/19/2014	11/19/2014	11/20/2014	
SVOCs (ug/kg)													
1,1-Biphenyl	--	< 2100 U	< 2100 U	< 20000 U	< 2000 U	< 2000 U	< 2100 U	< 2000 U	< 2000 U	< 2100 U	< 2100 U	< 2100 U	
2,4,5-Trichlorophenol	10000000	< 400 U	< 400 U	< 4000 U	< 390 U	< 390 U	< 400 U	< 390 U	< 390 U	< 400 U	< 400 U	< 400 U	
2,4,6-Trichlorophenol	260000	< 400 U	< 400 U	< 4000 U	< 390 U	< 390 U	< 400 U	< 390 U	< 390 U	< 400 U	< 400 U	< 400 U	
2,4-Dichlorophenol	310000	< 400 U	< 400 U	< 4000 U	< 390 U	< 390 U	< 400 U	< 390 U	< 390 U	< 400 U	< 400 U	< 400 U	
2,4-Dimethylphenol	2000000	< 400 U	< 400 U	< 4000 U	< 390 U	< 390 U	< 400 U	< 390 U	< 390 U	< 400 U	< 400 U	< 400 U	
2,4-Dinitrophenol	200000	< 2100 U	< 2100 U	< 20000 U	< 2000 U	< 2000 U	< 2100 U	< 2000 U	< 2000 U	< 2100 U	< 2100 U	< 2100 U	
2,4-Dinitrotoluene	200000	< 400 U	< 400 U	< 4000 U	< 390 U	< 390 U	< 400 U	< 390 U	< 390 U	< 400 U	< 400 U	< 400 U	
2,6-Dinitrotoluene	100000	< 400 U	< 400 U	< 4000 U	< 390 U	< 390 U	< 400 U	< 390 U	< 390 U	< 400 U	< 400 U	< 400 U	
2-Chloronaphthalene	8200000	< 400 U	< 400 U	< 4000 U	< 390 U	< 390 U	< 400 U	< 390 U	< 390 U	< 400 U	< 400 U	< 400 U	
2-Chlorophenol	510000	< 400 U	< 400 U	< 4000 U	< 390 U	< 390 U	< 400 U	< 390 U	< 390 U	< 400 U	< 400 U	< 400 U	
2-Methyl-4,6-dinitrophenol	--	< 2100 U	< 2100 U	< 20000 U	< 2000 U	< 2000 U	< 2100 U	< 2000 U	< 2000 U	< 2100 U	< 2100 U	< 2100 U	
2-Methylnaphthalene	410000	< 400 U	< 400 U	< 4000 U	< 390 U	< 390 U	< 400 U	< 390 U	< 390 U	< 400 U	< 400 U	< 400 U	
2-Methylphenol	5100000	< 400 U	< 400 U	< 4000 U	< 390 U	< 390 U	< 400 U	< 390 U	< 390 U	< 400 U	< 400 U	< 400 U	
2-Nitroaniline	--	< 2100 U	< 2100 U	< 20000 U	< 2000 U	< 2000 U	< 2100 U	< 2000 U	< 2000 U	< 2100 U	< 2100 U	< 2100 U	
2-Nitrophenol	--	< 400 U	< 400 U	< 4000 U	< 390 U	< 390 U	< 400 U	< 390 U	< 390 U	< 400 U	< 400 U	< 400 U	
3,3-Dichlorobenzidine	6400	< 800 U	< 800 U	< 7900 U	< 780 U	< 790 U	< 810 U	< 780 U	< 790 U	< 800 U	< 800 U	< 810 U	
3-Nitroaniline	--	< 2100 U	< 2100 U	< 20000 U	< 2000 U	< 2000 U	< 2100 U	< 2000 U	< 2000 U	< 2100 U	< 2100 U	< 2100 U	
4-Bromophenyl phenyl ether	--	< 400 U	< 400 U	< 4000 U	< 390 U	< 390 U	< 400 U	< 390 U	< 390 U	< 400 U	< 400 U	< 400 U	
4-Chloro-3-Methylphenol	--	< 400 U	< 400 U	< 4000 U	< 390 U	< 390 U	< 400 U	< 390 U	< 390 U	< 400 U	< 400 U	< 400 U	
4-Chlorophenyl phenyl ether	--	< 400 U	< 400 U	< 4000 U	< 390 U	< 390 U	< 400 U	< 390 U	< 390 U	< 400 U	< 400 U	< 400 U	
4-Methylphenol	510000	< 400 U	< 400 U	< 4000 U	< 390 U	< 390 U	< 400 U	< 390 U	< 390 U	< 400 U	< 400 U	< 400 U	
4-Nitroaniline	--	< 2100 U	< 2100 U	< 20000 U	< 2000 U	< 2000 U	< 2100 U	< 2000 U	< 2000 U	< 2100 U	< 2100 U	< 2100 U	
4-Nitrophenol	--	< 2100 U	< 2100 U	< 20000 U	< 2000 U	< 2000 U	< 2100 U	< 2000 U	< 2000 U	< 2100 U	< 2100 U	< 2100 U	
Acenaphthene	6100000	**270 J**	**440**	**1900 J**	< 390 U	< 390 U	< 400 U	< 390 U	< 390 U	< 400 U	< 400 U	< 400 U	
Acenaphthylene	6100000	< 400 U	< 400 U	< 4000 U	< 390 U	< 390 U	< 400 U	< 390 U	< 390 U	< 400 U	< 400 U	< 400 U	
Acetophenone	--	< 400 U	< 400 U	< 4000 U	< 390 U	< 390 U	< 400 U	< 390 U	< 390 U	< 400 U	< 400 U	< 400 U	
Anthracene	31000000	< 400 U	< 400 U	< 4000 U	**270 J**	**170 J**	**220 J**	**110 J**	< 390 U	< 400 U	**40 J**	< 400 U	
Atrazine	13000	< 400 U	< 400 U	< 4000 U	< 390 U	< 390 U	< 400 U	< 390 U	< 390 U	< 400 U	< 400 U	< 400 U	
Benzaldehyde	--	< 400 U	< 400 U	< 4000 U	< 390 U	< 390 U	< 400 U	< 390 U	< 390 U	< 400 U	< 400 U	< 400 U	
Benzo(a)anthracene	3900	< 400 U	< 400 U	< 4000 U	< 390 U	**57 J**	**74 J**	< 390 U	< 390 U	< 400 U	< 400 U	< 400 U	
Benzo(a)pyrene	3900	< 400 U	< 400 U	< 4000 U	< 390 U	< 390 U	< 400 U	< 390 U	< 390 U	< 400 U	< 400 U	< 400 U	
Benzo(b)fluoranthene	3900	< 400 U	< 400 U	< 4000 U	< 390 U	**46 J**	**64 J**	< 390 U	< 390 U	< 400 U	< 400 U	< 400 U	
Benzo(g,h,i)perylene	3100000	< 400 U	< 400 U	< 4000 U	< 390 U	< 390 U	< 400 U	< 390 U	< 390 U	< 400 U	< 400 U	< 400 U	
Benzo(k)fluoranthene	39000	< 400 U	< 400 U	< 4000 U	< 390 U	< 390 U	< 400 U	< 390 U	< 390 U	< 400 U	< 400 U	< 400 U	
bis(2-Chloroethoxy)methane	--	< 400 U	< 400 U	< 4000 U	< 390 U	< 390 U	< 400 U	< 390 U	< 390 U	< 400 U	< 400 U	< 400 U	
bis(2-Chloroethyl)ether	2600	< 400 U	< 400 U	< 4000 U	< 390 U	< 390 U	< 400 U	< 390 U	< 390 U	< 400 U	< 400 U	< 400 U	
bis(2-Chloroisopropyl)ether	41000	< 400 U	< 400 U	< 4000 U	< 390 U	< 390 U	< 400 U	< 390 U	< 390 U	< 400 U	< 400 U	< 400 U	
bis(2-Ethylhexyl)phthalate	200000	< 400 U	< 400 U	< 4000 U	< 390 U	< 390 U	< 400 U	< 390 U	< 390 U	< 400 U	< 400 U	< 400 U	
Butyl benzyl phthalate	--	< 400 U	< 400 U	< 4000 U	< 390 U	< 390 U	< 400 U	< 390 U	< 390 U	< 400 U	< 400 U	< 400 U	
Caprolactam	--	< 400 U	< 400 U	< 4000 U	< 390 U	< 390 U	< 400 U	< 390 U	< 390 U	< 400 U	< 400 U	< 400 U	
Carbazole	140000	< 400 U	< 400 U	< 4000 U	< 390 U	< 390 U	< 400 U	< 390 U	< 390 U	< 400 U	< 400 U	< 400 U	
Chrysene	390000	**31 J**	< 400 U	< 4000 U	**26 J**	**64 J**	**89 J**	< 390 U	< 390 U	**28 J**	< 400 U	< 400 U	
Dibenzo(a,h)anthracene	390	< 400 U	< 400 U	< 4000 U	< 390 U	< 390 U	< 400 U	< 390 U	< 390 U	< 400 U	< 400 U	< 400 U	
Dibenzofuran	100000	< 400 U	< 400 U	< 4000 U	< 390 U	< 390 U	< 400 U	< 390 U	< 390 U	< 400 U	< 400 U	< 400 U	
Diethyl phthalate	82000000	< 400 U	< 400 U	< 4000 U	< 390 U	< 390 U	< 400 U	< 390 U	< 390 U	< 400 U	< 400 U	< 400 U	
Dimethyl phthalate	--	< 400 U	< 400 U	< 4000 U	< 390 U	< 390 U	< 400 U	< 390 U	< 390 U	< 400 U	< 400 U	< 400 U	
Di-n-butyl phthalate	10000000	< 400 U	< 400 U	< 4000 U	< 390 U	< 390 U	< 400 U	< 390 U	< 390 U	< 400 U	< 400 U	< 400 U	
Di-n-octyl phthalate	--	< 400 U	< 400 U	< 4000 U	< 390 U	< 390 U	< 400 U	< 390 U	< 390 U	< 400 U	< 400 U	< 400 U	
Fluoranthene	4100000	**70 J**	**72 J**	< 4000 U	**71 J**	**230 J**	**340 J**	< 390 U	**79 J**	**40 J**	< 400 U	< 400 U	
Fluorene	4100000	< 400 U	< 400 U	**3100 J**	< 390 U	< 390 U	< 400 U	< 390 U	< 390 U	< 400 U	< 400 U	< 400 U	
Hexachloro-1,3-butadiene	37000	< 400 U	< 400 U	< 4000 U	< 390 U	< 390 U	< 400 U	< 390 U	< 390 U	< 400 U	< 400 U	< 400 U	
Hexachlorobenzene	1800	< 400 U	< 400 U	< 4000 U	< 390 U	< 390 U	< 400 U	< 390 U	< 390 U	< 400 U	< 400 U	< 400 U	
Hexachlorocyclopentadiene	610000	< 400 U	< 400 U	< 4000 U	< 390 U	< 390 U	< 400 U	< 390 U	< 390 U	< 400 U	< 400 U	< 400 U	
Hexachloroethane	200000	< 400 U	< 400 U	< 4000 U	< 390 U	< 390 U	< 400 U	< 390 U	< 390 U	< 400 U	< 400 U	< 400 U	
Indeno(1,2,3-cd)pyrene	3900	< 400 U	< 400 U	< 4000 U	< 390 U	< 390 U	< 400 U	< 390 U	< 390 U	< 400 U	< 400 U	< 400 U	
Isophorone	300000	< 400 U	< 400 U	< 4000 U	< 390 U	< 390 U	< 400 U	< 390 U	< 390 U	< 400 U	< 400 U	< 400 U	
Naphthalene	2000000	< 400 U	< 400 U	< 4000 U	< 390 U	< 390 U	< 400 U	< 390 U	< 390 U	< 400 U	< 400 U	< 400 U	
Nitrobenzene	51000	< 400 U	< 400 U	< 4000 U	< 390 U	< 390 U	< 400 U	< 390 U	< 390 U	< 400 U	< 400 U	< 400 U	
n-Nitrosodi-n-propylamine	410	< 400 U	< 400 U	< 4000 U	< 390 U	< 390 U	< 400 U	< 390 U	< 390 U	< 400 U	< 400 U	< 400 U	
N-nitrosodiphenylamine	580000	< 400 U	< 400 U	< 4000 U	< 390 U	< 390 U	< 400 U	< 390 U	< 390 U	< 400 U	< 400 U	< 400 U	
p-Chloroaniline	410000	< 800 U	< 800 U	< 7900 U	< 780 U	< 790 U	< 810 U	< 780 U	< 790 U	< 800 U	< 800 U	< 810 U	
Pentachlorophenol	24000	< 2100 U	< 2100 U	< 20000 U	< 2000 U	< 2000 U	< 2100 U	< 2000 U	< 2000 U	< 2100 U	< 2100 U	< 2100 U	
Phenanthrene	31000000	**1600**	**2100**	**8300**	**1600**	**170 J**	**320 J**	**560**	**1900**	**53 J**	< 400 U	**38 J**	
Phenol	31000000	< 400 U	< 400 U	< 4000 U	< 390 U	< 390 U	< 400 U	< 390 U	< 390 U	< 400 U	< 400 U	< 400 U	
Pyrene	3100000	**120 J**	**160 J**	**630 J**	**150 J**	**260 J**	**350 J**	**66 J**	**190 J**	**33 J**	**41 J**	< 400 U	
TPH (mg/kg)													
Diesel C10-C28	620	**670**	**640**	**3000**	**1300**	**210**	**1400**	**2500**	**530**	**28**	**37**	**3.2 J**	
Gasoline C6-C10	620	**76 B**	**60 B**	**440 B**	**72 B**	**63 B**	**230 B**	**30 B**	**88 B**	**11 B**	**1.3 B**	**0.68 JB**	

Notes:
U - Compound not detected above specified limit.
J - Estimated value above method detection limit but below reporting limit.
B - Compound was detected in the blank and sample
Bold indicates the compound was detected
NE - Not Established.

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Table 3
PDI Soil Sample Analytical Detects Summary
CSXT Brunswick Yard
Brunswick, Maryland

field_sdg sys_loc_code sys_sample_code sample_date	MDE Non-Res Soil Cleanup Standards	6801074531 GP-80 GP-80(14-15) (111814) 11/18/2014	6801074531 GP-80 GP-80(18-19) (111814) 11/18/2014	6801074531 GP-81 GP-81(13-14)(111814) 11/18/2014	6801074531 GP-81 GP-81(14-15)(111814) 11/18/2014	6801074531 GP-82 GP-82(14-15)(111814) 11/18/2014	6801074531 GP-82 GP-82(16.5-17.5)(111814) 11/18/2014	6801074531 GP-83 GP-83(13-14)(111814) 11/18/2014	6801074531 GP-83 GP-83(14-15)(111814) 11/18/2014
VOCs (ug/kg)									
2-Butanone	61000000	< 22 U	< 25 U	< 27 U	< 24 U	< 25 U	< 22 U	< 22 U	< 27 U
Acetone	92000000	**10 J**	**8.9 J**	< 27 U	**23 J**	**9.3 J**	**14 J**	< 22 U	< 27 U
Cyclohexane	NE	< 4.5 U	< 5.0 U	< 5.5 U	< 4.8 U	< 4.9 U	< 4.4 U	< 4.4 U	< 5.4 U
Isopropylbenzene	10000000	< 4.5 U	< 5.0 U	< 5.5 U	**16**	< 4.9 U	**6.5**	< 4.4 U	< 5.4 U
Methylcyclohexane	NE	< 4.5 U	< 5.0 U	< 5.5 U	< 4.8 U	< 4.9 U	**6.8**	< 4.4 U	< 5.4 U
tert-Butyl alcohol	NE	< 8.9 U	< 9.9 U	< 11 U	< 9.5 U	< 9.9 U	< 8.8 U	< 8.8 U	< 11 U
SVOCs (ug/kg)									
Acenaphthene	6100000	< 390 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 390 U	< 380 U
Acetophenone	NE	< 390 U	< 390 U	< 400 U	< 390 U	< 400 U	**250 J**	< 390 U	< 380 U
Anthracene	31000000	< 390 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 390 U	< 380 U
Benzo(a)anthracene	3900	< 390 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 390 U	< 380 U
Benzo(b)fluoranthene	3900	< 390 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 390 U	< 380 U
Chrysene	390000	< 390 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 390 U	< 380 U
Diethyl phthalate	82000000	< 390 U	< 390 U	< 400 U	**160 J**	< 400 U	< 390 U	< 390 U	< 380 U
Fluoranthene	4100000	< 390 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 390 U	< 380 U
Fluorene	4100000	< 390 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 390 U	< 380 U
Phenanthrene	31000000	< 390 U	< 390 U	< 400 U	< 390 U	< 400 U	**40 J**	< 390 U	< 380 U
Pyrene	3100000	< 390 U	< 390 U	< 400 U	< 390 U	< 400 U	**42 J**	< 390 U	< 380 U
TPH (mg/kg)									
Diesel C10-C28	620	< 4.0 U	**3.0 J**	**50**	< 3.9 U	< 4.0 U	**400**	< 4.0 U	< 3.8 U
Gasoline C6-C10	620	< 0.22 U	**0.055 JB**	< 0.25 U	**240 B**	**0.14 JB**	**1.4 B**	**1.3 B**	**0.23 J**

Notes:
U - Compound not detected above specified limit.
J - Estimated value above method detection limit but below reporting limit.
B - Compund was detected in the blank and sample
Bold indicates the compound was detected
Indicates the detected compound exceeded the MDE non-residential soil cleanup standard
NE - MDE has not established a Non-residential Cleanup Standard for compound.
mg/kg - milligram per kilogram
ug/kg - microgram per kilogram

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Table 3
PDI Soil Sample Analytical Detects Summary
CSXT Brunswick Yard
Brunswick, Maryland

field_sdg sys_loc_code sys_sample_code sample_date	MDE Non-Res Soil Cleanup Standards	6801074531 GP-84 GP-84(14-15)(111814) 11/18/2014	6801074531 GP-84 GP-84(15.5-16.5)(111814) 11/18/2014	6801074531 GP-85 GP-85(15.5-16.5)(111814) 11/18/2014	6801074531 GP-85 GP-85(6-7)(111814) 11/18/2014	6801074531 GP-86 GP-86(14-15)(111814) 11/18/2014	6801074531 GP-86 GP-86(16-17)(111814) 11/18/2014	6801074531 GP-87 GP-87(14-15)(111914) 11/19/2014	6801074531 GP-87 GP-87(16-17)(111914) 11/19/2014
VOCs (ug/kg)									
2-Butanone	61000000	< 23 U	< 21 U	< 26 U	< 22 U	< 22 U	< 24 U	< 28 U	< 54 U
Acetone	92000000	**7.7 J**	**15 J**	**30**	**37**	**16 J**	**19 J**	**43**	**30 J**
Cyclohexane	NE	< 4.6 U	< 4.3 U	< 5.2 U	< 4.5 U	< 4.5 U	< 4.7 U	< 5.7 U	< 11 U
Isopropylbenzene	10000000	< 4.6 U	< 4.3 U	< 5.2 U	< 4.5 U	< 4.5 U	< 4.7 U	< 5.7 U	< 11 U
Methylcyclohexane	NE	< 4.6 U	< 4.3 U	< 5.2 U	< 4.5 U	< 4.5 U	< 4.7 U	< 5.7 U	< 11 U
tert-Butyl alcohol	NE	< 9.1 U	< 8.5 U	**11**	< 9.0 U	< 8.9 U	< 9.5 U	< 11 U	< 21 U
SVOCs (ug/kg)									
Acenaphthene	6100000	< 380 U	< 390 U	< 390 U	< 390 U	< 370 U	< 390 U	< 400 U	< 390 U
Acetophenone	NE	< 380 U	< 390 U	< 390 U	< 390 U	< 370 U	< 390 U	< 400 U	< 390 U
Anthracene	31000000	< 380 U	< 390 U	< 390 U	< 390 U	< 370 U	< 390 U	< 400 U	< 390 U
Benzo(a)anthracene	3900	< 380 U	< 390 U	< 390 U	< 390 U	< 370 U	< 390 U	< 400 U	< 390 U
Benzo(b)fluoranthene	3900	< 380 U	< 390 U	< 390 U	< 390 U	< 370 U	< 390 U	< 400 U	< 390 U
Chrysene	390000	< 380 U	**26 J**	< 390 U	< 390 U	< 370 U	< 390 U	< 400 U	< 390 U
Diethyl phthalate	82000000	< 380 U	< 390 U	< 390 U	< 390 U	< 370 U	< 390 U	< 400 U	< 390 U
Fluoranthene	4100000	< 380 U	< 390 U	< 390 U	< 390 U	< 370 U	< 390 U	< 400 U	< 390 U
Fluorene	4100000	< 380 U	< 390 U	< 390 U	< 390 U	< 370 U	< 390 U	< 400 U	< 390 U
Phenanthrene	31000000	< 380 U	**39 J**	< 390 U	< 390 U	< 370 U	< 390 U	< 400 U	**33 J**
Pyrene	3100000	**41 J**	**32 J**	< 390 U	< 390 U	< 370 U	< 390 U	< 400 U	< 390 U
TPH (mg/kg)									
Diesel C10-C28	620	**25**	**18**	**4.1**	< 3.9 U	< 3.7 U	< 3.9 U	**77**	**29**
Gasoline C6-C10	620	**0.10 J**	**0.38 J**	**0.091 J**	**0.22 J**	**0.15 J**	**0.096 J**	< 0.31 U	**51 B**

Notes:
U - Compound not detected above specified limit.
J - Estimated value above method detection limit but below reporting limit.
B - Compund was detected in the blank and sample
Bold indicates the compound was detected
Indicates the detected compound exceeded the MDE non-residential soil cleanup standard
NE - MDE has not established a Non-residential Cleanup Standard for compound.
mg/kg - milligram per kilogram
ug/kg - microgram per kilogram

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Table 3
PDI Soil Sample Analytical Detects Summary
CSXT Brunswick Yard
Brunswick, Maryland

field_sdg sys_loc_code sys_sample_code sample_date	MDE Non-Res Soil Cleanup Standards	6801074531 GP-88 GP-88(12-13)(111914) 11/19/2014	6801074531 GP-88 GP-88(15-16)(111914) 11/19/2014	6801074531 GP-89 GP-89(12-13)(111914) 11/19/2014	6801074531 GP-89 GP-89(15.5-16.5)(111914) 11/19/2014	6801074531 GP-90 GP-90(12.5-13.5)(111914) 11/19/2014	6801074531 GP-90 GP-90(9-10)(111914) 11/19/2014	6801074531 GP-91 GP-91(11-12)(111914) 11/19/2014
VOCs (ug/kg)								
2-Butanone	61000000	< 26 U	< 25 U	< 25 U	< 23 U	< 21 U	< 26 U	< 1100 U
Acetone	92000000	< 26 U	< 25 U	< 25 U	**12 J**	< 21 U	< 26 U	< 1100 U
Cyclohexane	NE	< 5.2 U	< 4.9 U	< 5.1 U	< 4.6 U	< 4.2 U	< 5.2 U	< 220 U
Isopropylbenzene	10000000	< 5.2 U	< 4.9 U	< 5.1 U	< 4.6 U	< 4.2 U	< 5.2 U	< 220 U
Methylcyclohexane	NE	< 5.2 U	< 4.9 U	< 5.1 U	< 4.6 U	< 4.2 U	< 5.2 U	< 220 U
tert-Butyl alcohol	NE	**32**	< 9.8 U	< 10 U	**9.8**	< 8.5 U	< 10 U	< 450 U
SVOCs (ug/kg)								
Acenaphthene	6100000	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U
Acetophenone	NE	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U
Anthracene	31000000	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U
Benzo(a)anthracene	3900	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U
Benzo(b)fluoranthene	3900	< 400 U	**75 J**	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U
Chrysene	390000	< 400 U	**63 J**	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U
Diethyl phthalate	82000000	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U
Fluoranthene	4100000	< 400 U	**220 J**	< 400 U	< 390 U	< 400 U	< 390 U	**57 J**
Fluorene	4100000	< 400 U	< 390 U	< 400 U	< 390 U	< 400 U	< 390 U	**350 J**
Phenanthrene	31000000	< 400 U	**48 J**	< 400 U	< 390 U	< 400 U	< 390 U	**1000**
Pyrene	3100000	< 400 U	**180 J**	< 400 U	< 390 U	< 400 U	< 390 U	**130 J**
TPH (mg/kg)								
Diesel C10-C28	620	< 4.0 U	**160**	< 4.0 U	**3.1 J**	< 4.0 U	< 3.9 U	**130**
Gasoline C6-C10	620	**0.068 JB**	< 0.26 U	< 0.27 U	**0.080 J**	**0.11 J**	**0.46**	**300 B**

Notes:
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Bold indicates the compound was detected
Indicates the detected compound exceeded the MDE non-residential soil cleanup standard
NE - MDE has not established a Non-residential Cleanup Standard for compound.
mg/kg - milligram per kilogram
ug/kg - microgram per kilogram

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Table 3
PDI Soil Sample Analytical Detects Summary
CSXT Brunswick Yard
Brunswick, Maryland

field_sdg sys_loc_code sys_sample_code sample_date	MDE Non-Res Soil Cleanup Standards	6801074531 GP-91 GP-91(15-16)(111914) 11/19/2014	6801074531 GP-92 GP-92(14-15)(111914) 11/19/2014	6801074531 GP-92 GP-92(15.5-16.5)(111914) 11/19/2014	6801074531 GP-93 GP-93(14-15)(111914) 11/19/2014	6801074531 GP-93 GP-93(15.5-16.5)(111914) 11/19/2014	6801074531 GP-94 GP-94(13-14)(111914) 11/19/2014	6801074531 GP-94 GP-94(14-15)(111914) 11/19/2014
VOCs (ug/kg)								
2-Butanone	61000000	< 1100 U	< 1300 U	< 1200 U	< 1200 U	< 1200 U	< 22 U	< 23 U
Acetone	92000000	< 1100 U	< 1300 U	< 1200 U	< 1200 U	< 1200 U	**17 J**	**26**
Cyclohexane	NE	**130 J**	< 260 U	**58 J**	< 240 U	< 240 U	< 4.5 U	< 4.5 U
Isopropylbenzene	10000000	**1600**	**53 J**	**240 J**	**960**	**190 J**	< 4.5 U	< 4.5 U
Methylcyclohexane	NE	**1300**	**450**	**650**	**440**	< 240 U	< 4.5 U	**5.9**
tert-Butyl alcohol	NE	< 440 U	< 520 U	< 490 U	< 490 U	< 490 U	< 9.0 U	< 9.1 U
SVOCs (ug/kg)								
Acenaphthene	6100000	**1200**	**270 J**	**440**	**1900 J**	< 390 U	< 390 U	< 400 U
Acetophenone	NE	< 400 U	< 400 U	< 400 U	< 4000 U	< 390 U	< 390 U	< 400 U
Anthracene	31000000	**850**	< 400 U	< 400 U	< 4000 U	**270 J**	**170 J**	**220 J**
Benzo(a)anthracene	3900	< 400 U	< 400 U	< 400 U	< 4000 U	< 390 U	**57 J**	**74 J**
Benzo(b)fluoranthene	3900	< 400 U	< 400 U	< 400 U	< 4000 U	< 390 U	**46 J**	**64 J**
Chrysene	390000	**69 J**	**31 J**	< 400 U	< 4000 U	**26 J**	**64 J**	**89 J**
Diethyl phthalate	82000000	< 400 U	< 400 U	< 400 U	< 4000 U	< 390 U	< 390 U	< 400 U
Fluoranthene	4100000	**180 J**	**70 J**	**72 J**	< 4000 U	**71 J**	**230 J**	**340 J**
Fluorene	4100000	**2000**	< 400 U	< 400 U	**3100 J**	< 390 U	< 390 U	< 400 U
Phenanthrene	31000000	**5900**	**1600**	**2100**	**8300**	**1600**	**170 J**	**320 J**
Pyrene	3100000	**460**	**120 J**	**160 J**	**630 J**	**150 J**	**260 J**	**350 J**
TPH (mg/kg)								
Diesel C10-C28	620	**1300**	**670**	**640**	**3000**	**1300**	**210**	**1400**
Gasoline C6-C10	620	**860 B**	**76 B**	**60 B**	**440 B**	**72 B**	**63 B**	**230 B**

Notes:
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B - Compund was detected in the blank and sample
Bold indicates the compound was detected
Indicates the detected compound exceeded the MDE non-residential soil cleanup standard
NE - MDE has not established a Non-residential Cleanup Standard for compound.
mg/kg - milligram per kilogram
ug/kg - microgram per kilogram

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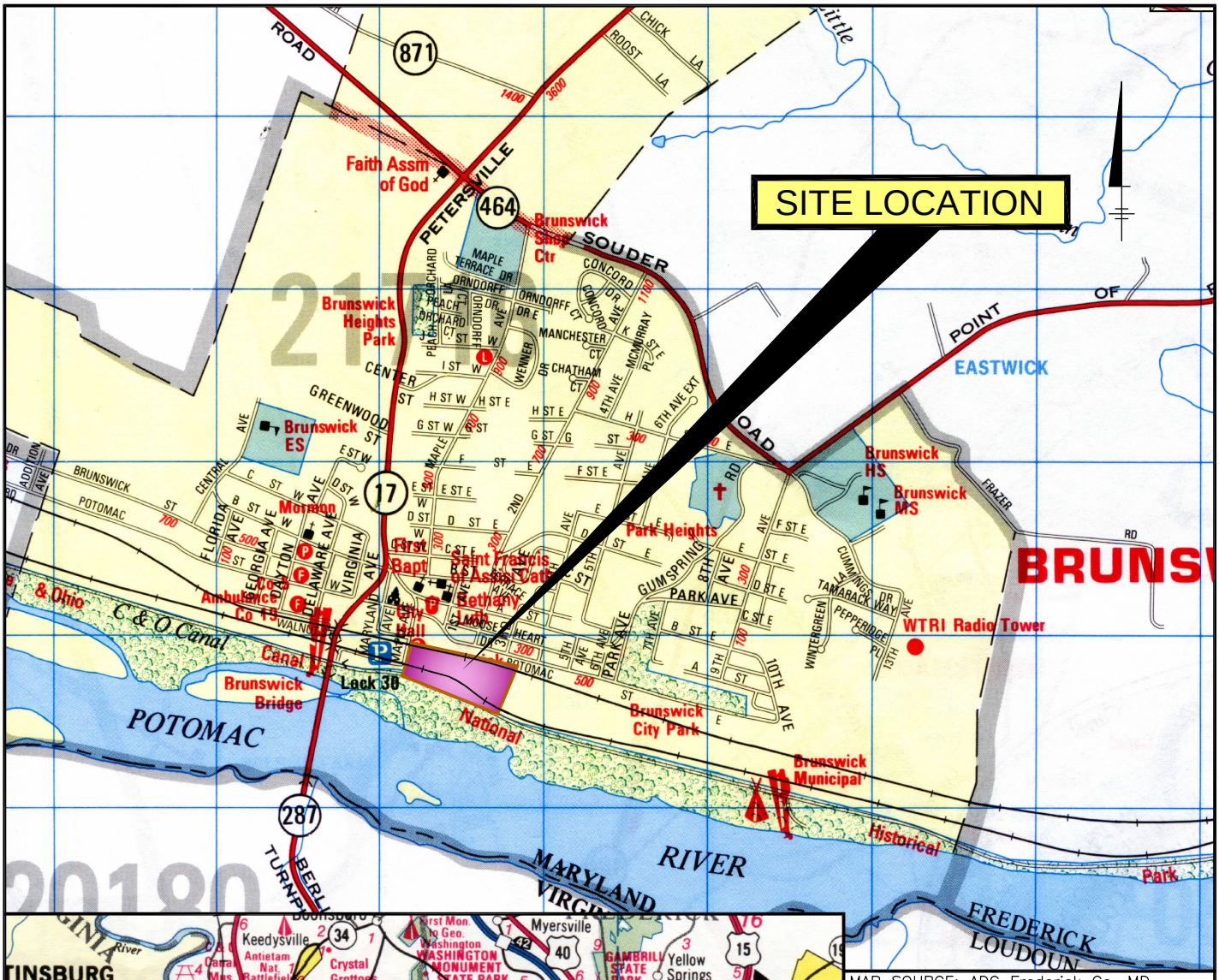
Table 3
PDI Soil Sample Analytical Detects Summary
CSXT Brunswick Yard
Brunswick, Maryland

field_sdg sys_loc_code sys_sample_code sample_date	MDE Non-Res Soil Cleanup Standards	6801074531 GP-95 GP-95(12-13)(111914) 11/19/2014	6801074531 GP-95 GP-95(15-16)(111914) 11/19/2014	6801074531 GP-96 GP-96(15-16)(111914) 11/19/2014	6801074531 GP-96 GP-96(7-8)(111914) 11/19/2014	6801074991 CSXT MW-71 MW-71(15-16)(112014) 11/20/2014
VOCs (ug/kg)						
2-Butanone	61000000	< 22 U	< 21 U	**10 J**	< 23 U	< 48 U
Acetone	92000000	**31**	**22**	**45**	**31**	**30 J**
Cyclohexane	NE	**11**	**13**	**1.5 J**	< 4.6 U	< 9.6 U
Isopropylbenzene	10000000	**3.5 J**	**29**	< 7.0 U	< 4.6 U	< 9.6 U
Methylcyclohexane	NE	**110**	**120**	**8.1**	< 4.6 U	< 9.6 U
tert-Butyl alcohol	NE	< 8.7 U	< 8.6 U	< 14 U	< 9.1 U	< 19 U
SVOCs (ug/kg)						
Acenaphthene	6100000	< 390 U	< 390 U	< 400 U	< 400 U	< 400 U
Acetophenone	NE	< 390 U	< 390 U	< 400 U	< 400 U	< 400 U
Anthracene	31000000	**110 J**	< 390 U	< 400 U	**40 J**	< 400 U
Benzo(a)anthracene	3900	< 390 U	< 390 U	< 400 U	< 400 U	< 400 U
Benzo(b)fluoranthene	3900	< 390 U	< 390 U	< 400 U	< 400 U	< 400 U
Chrysene	390000	< 390 U	< 390 U	**28 J**	< 400 U	< 400 U
Diethyl phthalate	82000000	< 390 U	< 390 U	< 400 U	< 400 U	< 400 U
Fluoranthene	4100000	< 390 U	**79 J**	**40 J**	< 400 U	< 400 U
Fluorene	4100000	< 390 U	< 390 U	< 400 U	< 400 U	< 400 U
Phenanthrene	31000000	**560**	**1900**	**53 J**	< 400 U	**38 J**
Pyrene	3100000	**66 J**	**190 J**	**33 J**	**41 J**	< 400 U
TPH (mg/kg)						
Diesel C10-C28	620	**2500**	**530**	**28**	**37**	**3.2 J**
Gasoline C6-C10	620	**30 B**	**88 B**	**11 B**	**1.3 B**	**0.68 JB**

Notes:
U - Compound not detected above specified limit.
J - Estimated value above method detection limit but below reporting limit.
B - Compund was detected in the blank and sample
Bold indicates the compound was detected
Indicates the detected compound exceeded the MDE non-residential soil cleanup standard
NE - MDE has not established a Non-residential Cleanup Standard for compound.
mg/kg - milligram per kilogram
ug/kg - microgram per kilogram

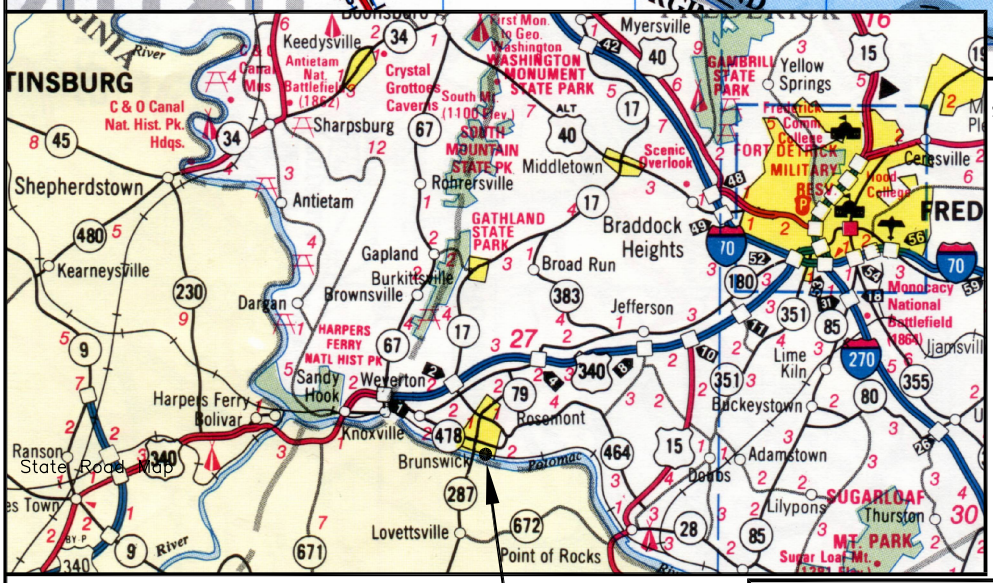
ARCADIS

Figures



MAP SOURCE: ADC Frederick Co. MD. Street Map Book

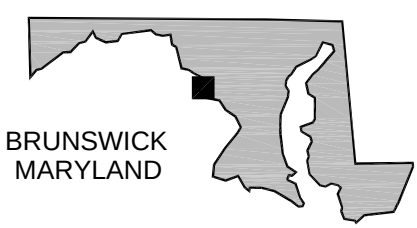
0 2000
SCALE IN FEET



MAP SOURCE: American Map Corp. Maryland Deleware Street Map

SITE

0 6
SCALE IN MILES



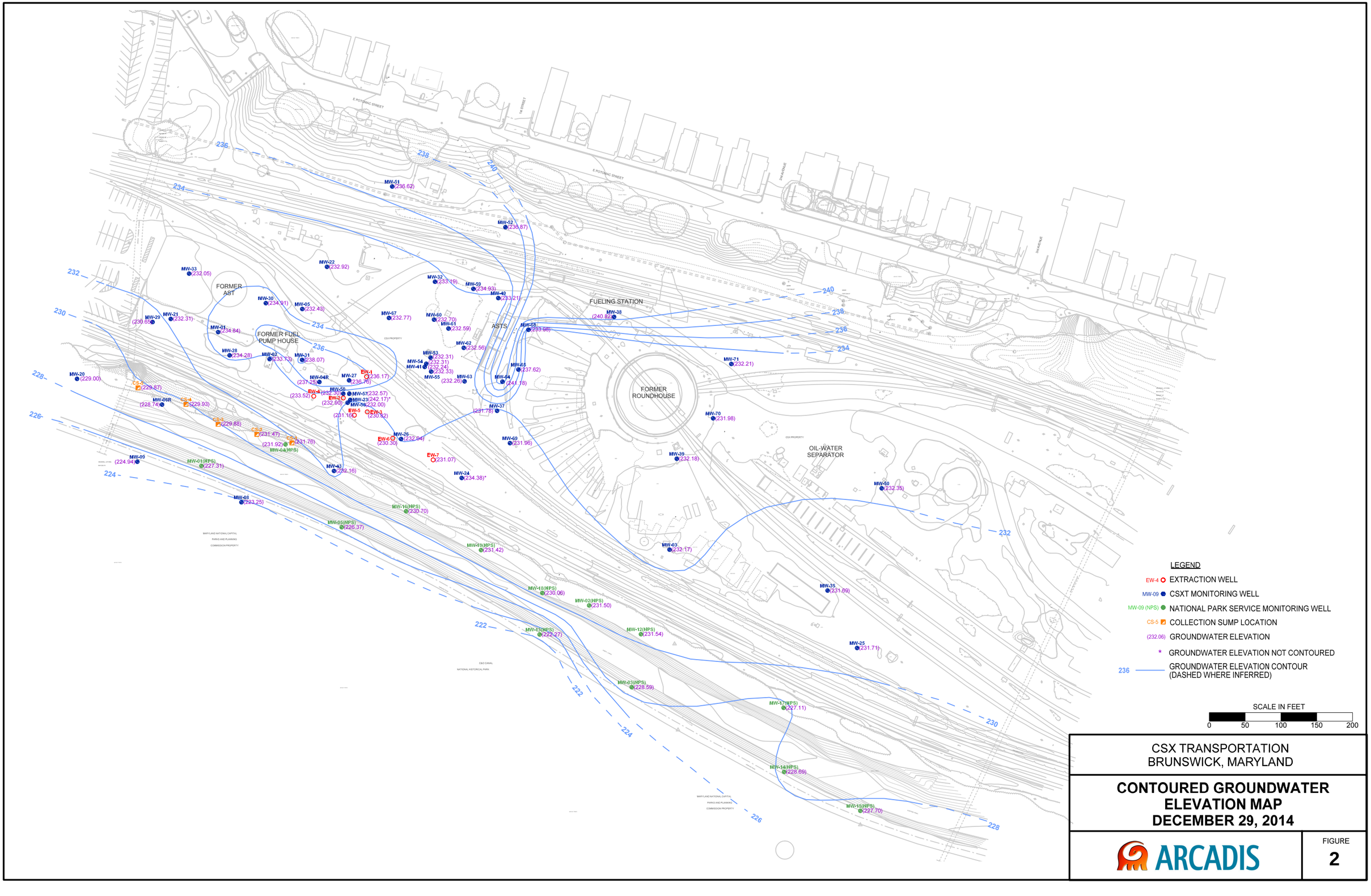
CSX TRANSPORTATION, INC.
SOUTH MAPLE AVENUE
BRUNSWICK, MARYLAND

BRUNSWICK RAIL YARD
SITE LOCATION MAP

ARCADIS

FIGURE
1

CITY:(Reqd) DIV/GROUP:(Reqd) DB:(Reqd) LD:(Opt) PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\BALTIMORE\ACT\MD000843\0010\00005\SiteLoc-Brunswick-RailYard.dwg LAYOUT: 1 SAVED: 9/27/2011 3:43 PM ACADVER: 18.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ACAD.CTB PLOTTED: 9/27/2011 3:48 PM BY: GOFORTH, JOHN



LEGEND

- EW-4 EXTRACTION WELL
- MW-09 CSXT MONITORING WELL
- MW-09 (NPS) NATIONAL PARK SERVICE MONITORING WELL
- CS-5 COLLECTION SUMP LOCATION
- (232.06) GROUNDWATER ELEVATION
- * GROUNDWATER ELEVATION NOT CONTOURED
- 236 GROUNDWATER ELEVATION CONTOUR (DASHED WHERE INFERRED)

SCALE IN FEET

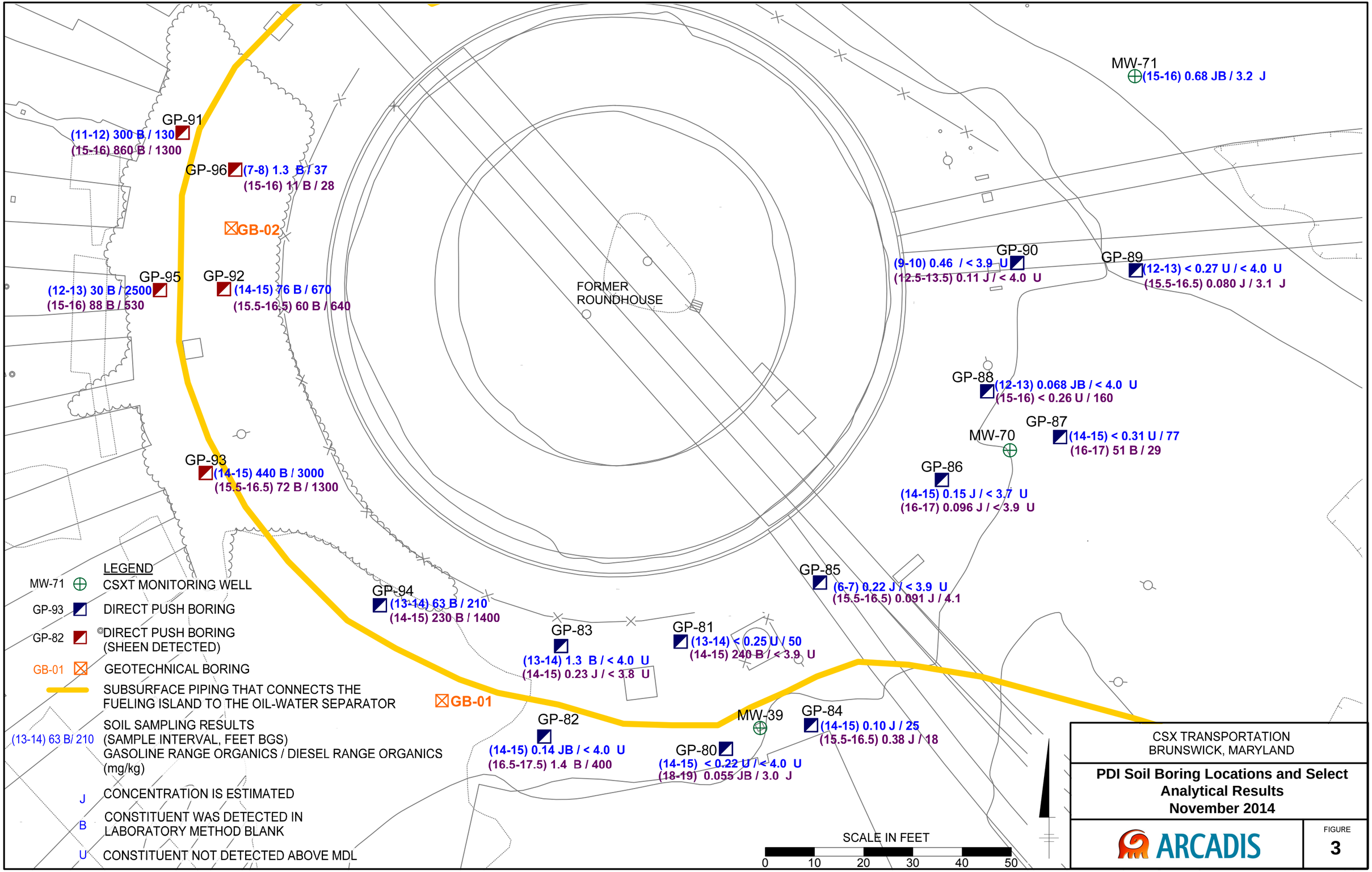
0 50 100 150 200

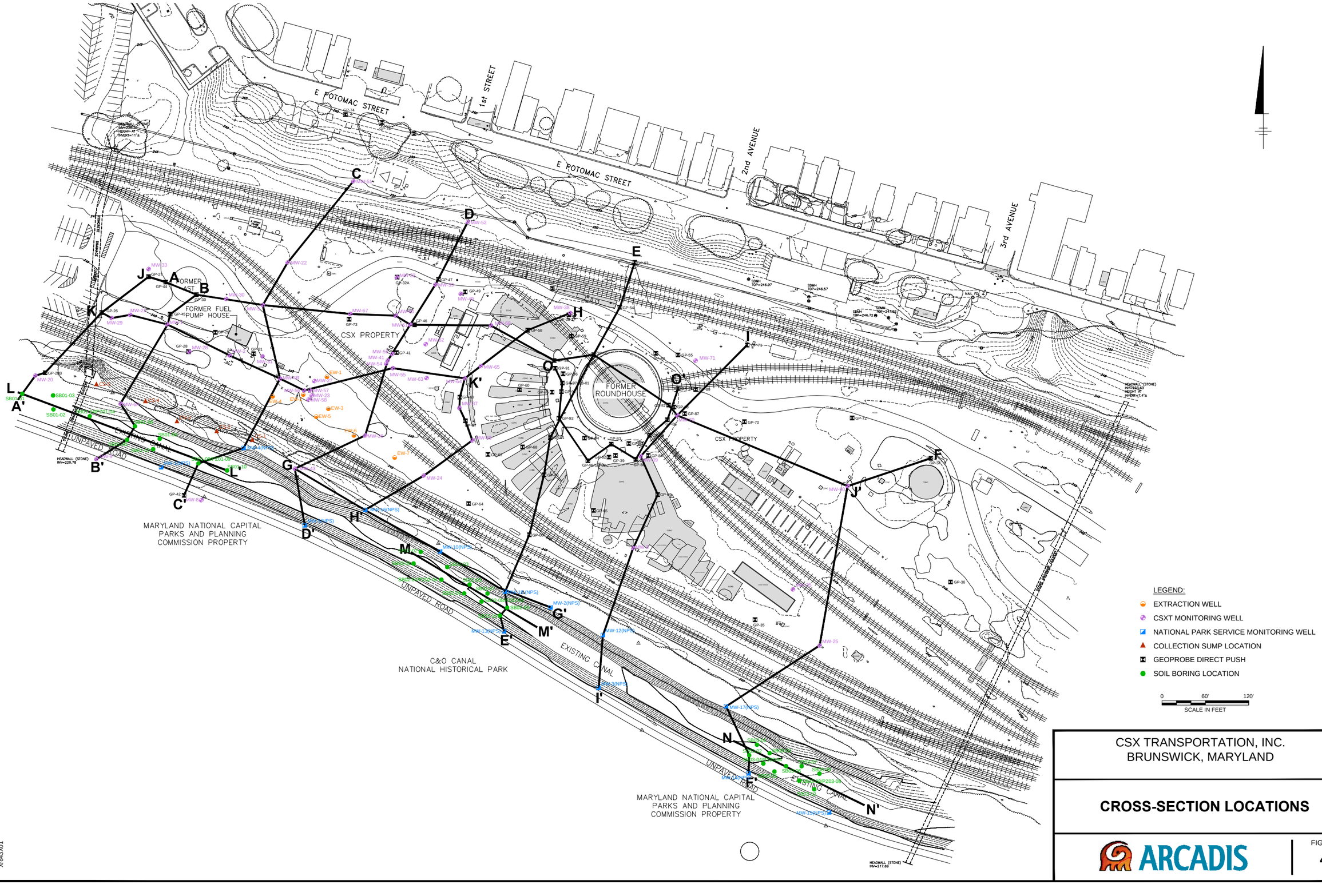
CSX TRANSPORTATION
BRUNSWICK, MARYLAND

CONTOURED GROUNDWATER ELEVATION MAP DECEMBER 29, 2014

ARCADIS

FIGURE 2


MW-71
(15-16) 0.68 JB / 3.2 J
GP-91
(11-12) 300 B / 130
(15-16) 860 B / 1300
GP-96
(7-8) 1.3 B / 37
(15-16) 11 B / 28
GB-02
GP-95
(12-13) 30 B / 2500
(15-16) 88 B / 530
GP-92
(14-15) 76 B / 670
(15.5-16.5) 60 B / 640
FORMER
ROUNDHOUSE
GP-90
(9-10) 0.46 / < 3.9 U
(12.5-13.5) 0.11 J / < 4.0 U
GP-89
(12-13) < 0.27 U / < 4.0 U
(15.5-16.5) 0.080 J / 3.1 J
GP-88
(12-13) 0.068 JB / < 4.0 U
(15-16) < 0.26 U / 160
GP-87
MW-70
(14-15) < 0.31 U / 77
(16-17) 51 B / 29
GP-86
(14-15) 0.15 J / < 3.7 U
(16-17) 0.096 J / < 3.9 U
GP-93
(14-15) 440 B / 3000
(15.5-16.5) 72 B / 1300
GP-94
(13-14) 63 B / 210
(14-15) 230 B / 1400
GP-85
(6-7) 0.22 J / < 3.9 U
(15.5-16.5) 0.091 J / 4.1
GP-83
(13-14) 1.3 B / < 4.0 U
(14-15) 0.23 J / < 3.8 U
GP-81
(13-14) < 0.25 U / 50
(14-15) 240 B / < 3.9 U
GB-01
GP-82
(14-15) 0.14 JB / < 4.0 U
(16.5-17.5) 1.4 B / 400
MW-39
GP-84
(14-15) 0.10 J / 25
(15.5-16.5) 0.38 J / 18
GP-80
(14-15) < 0.22 U / < 4.0 U
(18-19) 0.055 JB / 3.0 J
LEGEND
MW-71 CSXT MONITORING WELL
GP-93 DIRECT PUSH BORING
GP-82 DIRECT PUSH BORING (SHEEN DETECTED)
GB-01 GEOTECHNICAL BORING
SUBSURFACE PIPING THAT CONNECTS THE FUELING ISLAND TO THE OIL-WATER SEPARATOR
(13-14) 63 B/ 210 SOIL SAMPLING RESULTS (SAMPLE INTERVAL, FEET BGS) GASOLINE RANGE ORGANICS / DIESEL RANGE ORGANICS (mg/kg)
J CONCENTRATION IS ESTIMATED
B CONSTITUENT WAS DETECTED IN LABORATORY METHOD BLANK
U CONSTITUENT NOT DETECTED ABOVE MDL
SCALE IN FEET
0 10 20 30 40 50
CSX TRANSPORTATION
BRUNSWICK, MARYLAND
PDI Soil Boring Locations and Select Analytical Results
November 2014
ARCADIS
FIGURE
3



CSX TRANSPORTATION, INC.
BRUNSWICK, MARYLAND

CROSS-SECTION LOCATIONS

ARCADIS

FIGURE
4

CITY:SYRACUSE-NY DV/GROUP:ENV DB:A.SANCHEZ LD:AS PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
G:\ENV\CAD\SYRACUSE\ACTIVE\MD000843\SCM\MD843B01.dwg LAYOUT: D-1 SAVED: 1/22/2015 9:48 AM ACADVER: 18.1S (LMS TECH) PAGESETUP: ----
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Xr843X01

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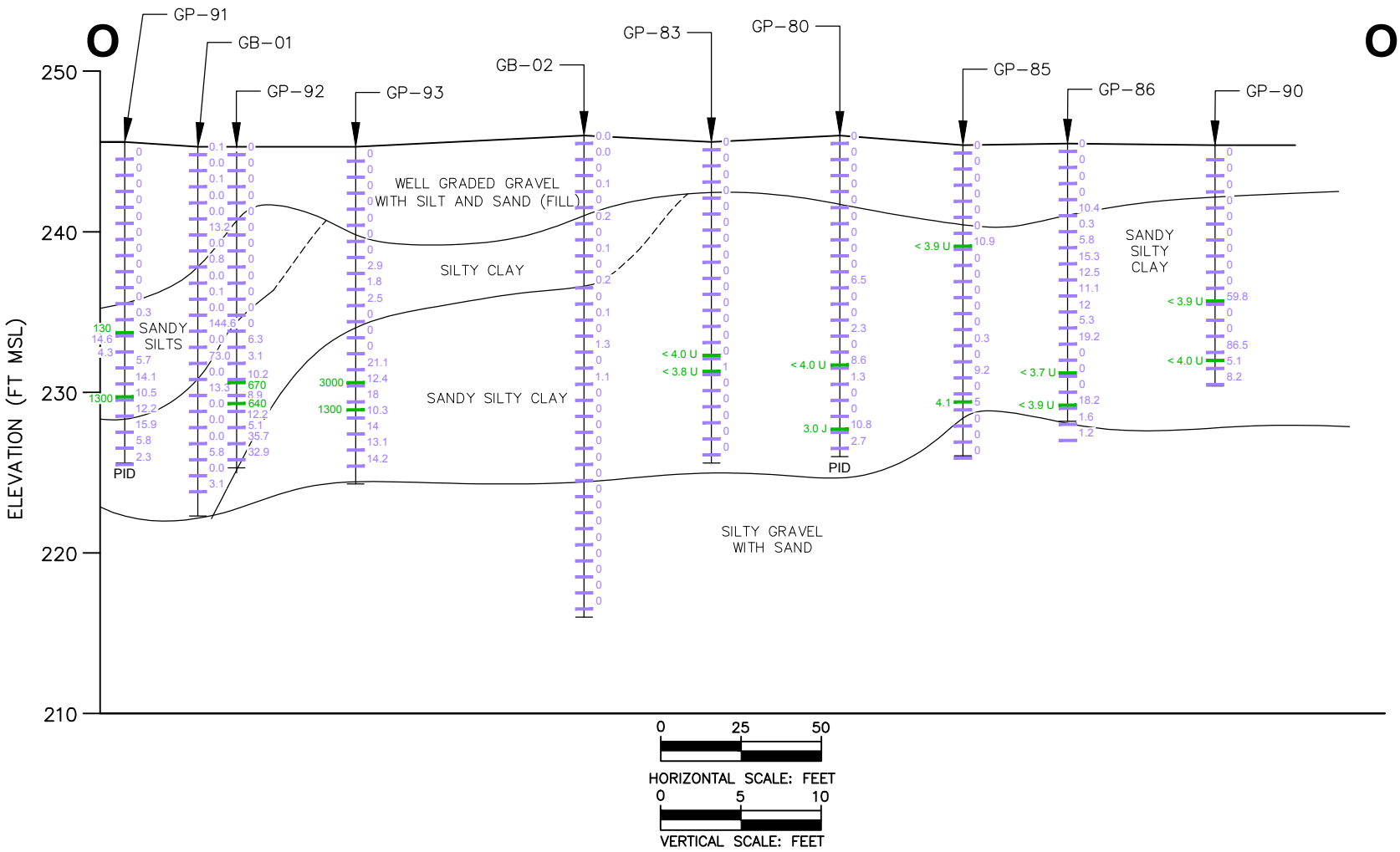


LEGEND:

- SOIL SCREENING CONCENTRATION, PPM
- 00 TOTAL PETROLEUM HYDROCARBON DIESEL RANGE ORGANICS (TPH-DRO) CONCENTRATION IN SOIL (MG/KG)

NOTES:

1. PPM = PARTS PER MILLION
2. DIRECT PUSH SOIL BORING (GP-91) INSTALLED NOVEMBER 2014
3. HOLLOW STEM GEOTECHNICAL BORING (GB-01) INSTALLED DECEMBER 9, 2014.
4. FT AMSL = FEET ABOVE MEAN SEA LEVEL
5. MG/KG = MILLIGRAMS PER KILOGRAM

CSX TRANSPORTATION, INC.
BRUNSWICK, MARYLAND

CROSS SECTION O-O'

ARCADIS

FIGURE
5

Appendix A

Field Forms

Location BRUNSWICK, MD Date 11.17.14

Project / Client CSXT / PDI ROUND HOUSE

ARCADIS - LAUREN LAMP

UNDERGROUND SERVICES -

OBJECTIVE: SURVEY UTILITY MARKOUTS / LOCATIONS
COMPLETE UTILITY CHECKLIST

WEATHER: 38-45 F. RAINING ALL DAY

0742 - ARCADIS ON SITE.
CHECK IN W/YARD MASTER

0806 - LL SIGN HASP AND CONDUCT H&S TAILGATE

0812 - LL SCOUT OUT ROUND HOUSE / MW-39 / MW-70 AND ALL UTILITY MARKINGS
*CALLED TRISH SIMMES (TS), SHE WILL UPLOAD HER NOTES FROM LAST WK

UTILITIES MARKED OUT
BLUE →
PINK →
GREEN →

2 AIR KNIFE POINTS LOCATED. COULD NOT ID / FIND BORING LOCATIONS (PAINT WASHING AWAY). CALL TS

0855 - PHONE CALL W/TS TO DISCUSS AIR KNIFE LOCATIONS. 5 AK BORINGS EAST OF ROUNDHOUSE

Location BRUNSWICK, MD Date 11.17.14

Project / Client CSXT / PDI ROUND HOUSE

GREEN + ONE. SIDE BORING BIL THINK WHERE LIFT IS

AND HIT REFUSAL AT ONE LOCATION.
TWO BORINGS MARKED W/ TAPE. 9 A.K. BORINGS DONE TOTAL. "FINGER" UTILITY LOCATION WENT THROUGH A UTILITY. → CAN'T DRILL HERE ANYWAY
LOCATIONS NOT ALL MARKED.

0906 - JOSH WILSON CALLED US NOT ON SITE YET
PAT HALLS (UNDERGROUND SERVICES)
REGIONAL COORDINATOR.
PHONE #// 484.880.1536

0917 - LL WALK ROUNDHOUSE AGAIN
ID 5 LOCATIONS E. OF ROUNDHOUSE AND 2 S. OF ROUNDHOUSE

0925 - LL CALL PAT HALL (SOFT DIG UNDER GROUND SERVICES)
DUE TO RAIN HAVE TO RESCHEDULE
TIM HOFFER → 717.572.3809
FOR WEDNESDAY 11/19

0934 - CALL JOSH WILSON. UPDATE HIM.
CHECK OUT W/YARDMASTER

0945 - LL OFFSITE

(ONE LOCATION BTWN MORTAR AND ~~BRICK~~ RH CONCRETE TO CONFIRM NO UTILITY)

Location BRUNSWICK, MD Date 11.18.14

Project / Client CSXT / PDI

ARCADIS: LAUREN LAMP, JOSH WILSON

GROUND ZERO:

OBJECTIVE: START PDWIP / DPT INVESTIGATION

9-15 DPT SOIL BORINGS → 20' bgs OR H_2O

SCREEN W/PID + LOG CORES

COLLECT 2 SAMPLES PER BORING @ HIGHEST PID + WHERE HIT H_2O

SHIP SAMPLES TODAY

VOCs → PENSACOLA

ALL OTHERS → SAVANNAH

WEATHER: 22 - 32°F. WINDY

0630 - L. LAMP ONSITE. CHECK IN W/ YARD MASTER. COMPLETE UTILITY CHECKLIST. START PREPPING COOLERS / WORK AREA.

0700 - JOSH WILSON (AMS) ONSITE

0714 - CALL BERT BUELL TO GO OVER UTILITY CHECKLIST. GO OVER ALL LINES OF EVIDENCE AND VERIFY WE HAVE AT LEAST 3 VIABLE LINES OF EVIDENCE. HAVE DRILLER COMPLETE VISUAL SITE INSPECTION PRIOR TO STARTING.

Location BRUNSWICK, MD Date 11.18.14

Project / Client PDI / CSXT

- WATERLINE ON E. SIDE OF ROUNDHOUSE → ID'D ~~out~~ FROM VALVES ON N. SIDE OF ACCESS ROAD, CONFIRMED W/ EM & GPR. MARKED ON SIGHT.
- UPGRADIENT WELL LOCATION NO MORE OVERHEAD UTILITIES PRESENT. CLEARED W/ EM, GPR & VISUAL SITE INSPECTION (TO 10 FT)
- SOFT DIG / AIR KNIFE MAINLY USED TO LOCATE INVERT, PIPE AND ROUNDHOUSE STRUCTURE.
- JW CALLED CRAIG ADAMS (CSX) AND NOTIFIED HIM WE'RE STARTING TO DRILL. HE IS AWARE OF OUR SCHEDULE. IF WE ENCOUNTER ANYTHING, WILL NOTIFY HIM + HE'LL SEND PEOPLE OUT TO CONFIRM / VERIFY ANYTHING
- WILL DO INTRUSIVE WORK AT LEAST 30 INCHES OFF ANY MARKED UTILITIES
- NOTE: THERE IS A POSSIBILITY FOR ~~THAT~~ ?? UTILITIES THAT WERE NOT / CAN NOT DETECT W/ OUR LINES OF INVESTIGATION. THIS IS IN HASP AND

PJK (CSX) MADE AWARE OF THIS.
- BORINGS, START CLOSEST TO WHERE FOUND LPH (E. SIDE OF ROUNDHOUSE) PERFORM 9 INITIAL BORINGS, NOTE WHERE HAVE EVIDENCE OF LPH, COMMUNICATE W/ RAMZI.
- ALL UTILITIES W/IN PLANNED EXCAVATION IDENTIFIED/CLEARED

0731 - BB (AWS) SIGN OFF ON UTILITY CHECKLIST AND GIVE GO AHEAD.

0735 - SITE WALK/INSPECTION W/ JOSH WILSEN AND LAUREN LAMP

GREEN = OWS PIPE
PINK = ANAMOLY MUST BE AT LEAST 30 IN. FROM ANY MARKED UTILITY.

NOTE EVIDENCE OF OLD TURNTABLE BAY STRUCTURES AND PIPES OF THE ROUNDHOUSE

PINK MARKOUT ON E.

OF ROUNDHOUSE =
WATER LINE
BLUE LINE = WATER LINE MARKED BY CSX

MW LOCATION → NEED 10' CLEARANCE FROM OVERHEAD UTILITIES

BY MW-39 → HAVE LIFT STATION, ELECTRIC, OWS PIPE, WATER LINE. WHERE OWS PIPE COMES OUT FROM ROUNDHOUSE + HEADS EAST, LIKELY WHERE PIPE MATERIAL CHANGES. DO 2 BORINGS IN THIS VICINITY TO CAPTURE Δ/FIND LPH.

0806 - CALIBRATE PID
SN// 104815
MINIRAE 2000
ISOBUTYLENE 100 PPM
LOT # 02 06 FJ14
EXP 2/06/2018

Location BRUNSWICK, MD Date 11.18.14

Project / Client CSXT PDI

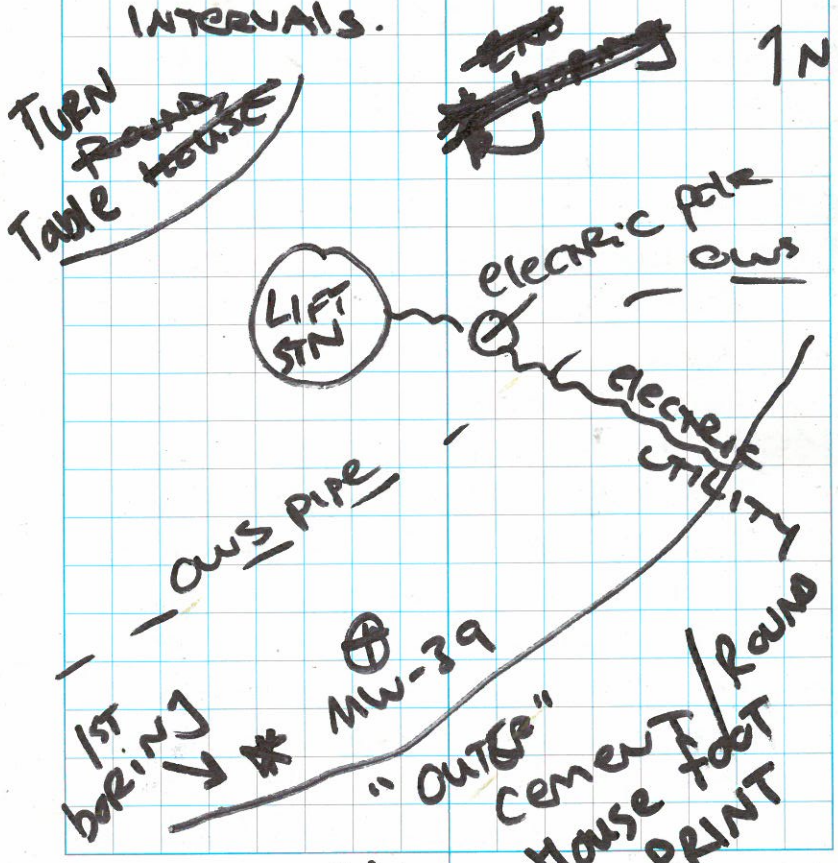
ZERO cal successful (0.0ppm)
SPAN CAL TO 100.0 ppm
0810 - GROUND ZERO ON SITE.
JW GOES TO MEET them.
0815 - GROUNDZERO ONSITE (X2)
H+S TAILGATE. REVIEW HASP.
0830 - SITE WALK. GO OVER SCOPE OF WORK (9-15 borings). DRIVER FOR INVESTIGATION WAS DISC. OF LPH IN MW-70 AND MW-39. DPT BORINGS will be evenly spaced AROUND E, S, W OF ROUNDHOUSE. GO OVER UTILITIES AND MINIMUM CLEARANCES.
2 HSA GeoTech. BORINGS AND 1 MW INSTALLED @ END OF WEEK.
0848 - PHONE CHL w/ BB & RAMEI (AM) WANT TO START BORINGS CLOSEST TO MW-39. START SW of MW-39 CLOSEST TO CEMENT

PG 5/16

Location BRUNSWICK, MD Date 11.18.14

Project / Client CSXT PDI

PAD (the "outer" circle). Then Do 2ND BORING ON OTHER SIDE OF MW-39 CLOSER TO "INNER" CIRCLE. THEN MAKE UPGRADIENT of MW-39 IN 40-foot INTERVALS.



PG 6/16

Location BRUNSWICK, MD Date 11.18.14

Project / Client CSXT PDI

0920 - START GP-80 (111814)
SAMPLE IDs will be yy
~~yy GP-80 - PID (Highest PID)~~
~~yy GP-80 - W (WATER TABLE)~~
GP-80 (DEPTH) (111814)
HIT SAT ZONE @ 19' bgs,
SO SAMPLE 18-19'
0940 - GP-80 (18-19) (111814)
Highest PID @ 14-15' w/
8.6 ppm
0945 - GP-80 (14-15) (111814)
1015 - COMPLETED PROCESSING
GP-80 (111814). THE FIRST
BORING ALONG TRANSECT 4
(SEE RAMSI'S EMAIL)
1043 - START DRILLING
GP-81 (111814). SECOND
CORE ON TRANSECT 4
DRILL DOWN TO 15' bgs.
ENCOUNTER SATURATED ZONE
AT 14' bgs. 0.0 PID
READINGS THROUGH OUT
CORE EXCEPT
13-14 PID @ 0.8 ppm

pg 7/16

Location BRUNSWICK, MD Date 11.18.14

Project / Client CSXT PDI

14-15 PID @ 2.0 ppm
1052 - JW AND LL CALL RAMSI
GIVE HIM UPDATE ON
TRANSECT 4. NOT SEEING
STRONG EVIDENCE OF
DIESEL IMPACTED SOIL.
GET CONFIRMATION FROM
RAMSI ~~THAT~~ TO
PROCEED TO TRANSECT
5. NO NEED TO GO
DEEPER THAN 15' (HIT
WATER TABLE).
PIPE DEPTH ~ 5.5ft TO
TOP of PIPE
SAMPLES COLLECTED AT
13-14' AND 14-15'
1105 - collect GP-81 (13-14)
(111814)
1110 - collect GP-81 (14-15) (111814)

1128 - START GP-82
ON TRANSECT 5
HIT SAT ZONE @ 17.5'.
HIGHEST PID READING

pg 8/16

Location BRUNSWICK, MD Date 11.18.14

Project / Client CSXT PDI

13.0ppm JUST ABOVE SAT ZONE. COLLECT SAMPLES

1150 - GP-82 (14-15) (111814)

1155 - GP-82 (16.5-17.5 (111814)

1205 - DONE W/ GP-82

1210 - LUNCH BREAK

1240 - BACK ON SITE

1248 - START GP-83

NO ODOR. HIGHEST (AND ONLY PID READING) @ 13-14' W/1.0ppm. TOOK HEADSPACE READING FROM 13-14' AND GOT 1.2 ppm.

SAT. RATED ZONE ENCOUNTERED AT 15' BGS.

COLLECT SAMPLES

1310 - GP-83 (13-14) (111814)

1315 - GP-83 (14-15) (111814)

1322 - DONE W/ GP-83

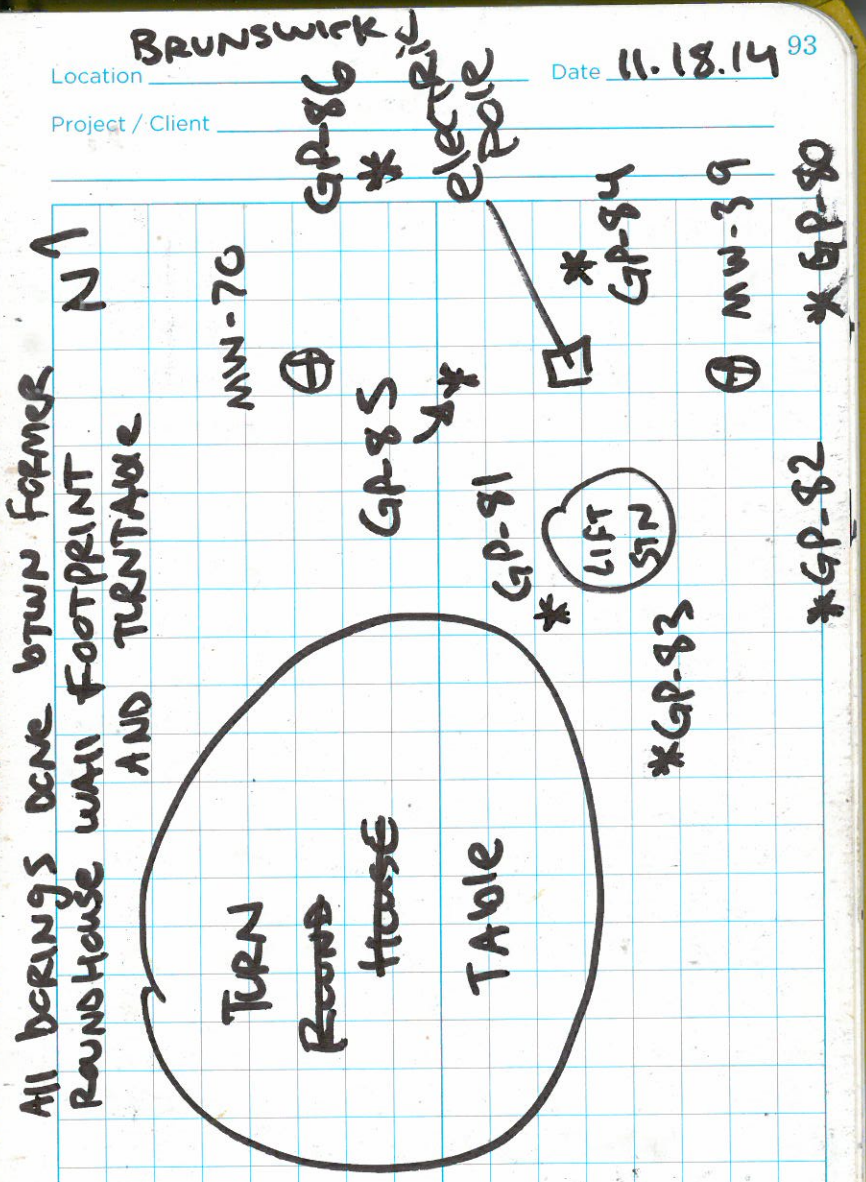
1325 - CALL RAMZI TO DISCUSS TRANSECT 5. & LEFT A MESSAGE.

1330 - START GP-84

Pg 9/16

Location BRUNSWICK JUNCTION Date 11.18.14

Project / Client



TRANSECT 3 = GP-84

TRANSECT 4 = GP-80 AND GP-81

TRANSECT 5 = GP-82 AND GP-83

Pg 10/16

Location BRUNSWICK, MD Date 11.18.14

Project / Client CSXT PDI

GP-84 WENT TO 20' bgs. SATURATED ZONE ENCOUNTERED AT 16.5' bgs. TOOK PORTION OF CORE FROM SATURATED ZONE AND DID 3 TESTS

→ PID = 5.1

→ headspace (SAMPLE IN ZIPLOCK) = 9.7

→ PUT SAMPLE IN JAR, ADD H_2O, LET SIT

= slight film AND SOME IRRIDESCENCE VISIBLE ON TOP OF H_2O

Highest PID value collected from 14.5' w/ PID = 7.3. PUT IN ziplock & collect headspace READING of 54.1 ppm

GP-84 SAMPLES COLLECTED

1400 - GP-84 (14-15) (111814)

1405 - GP-84 (15.5-16.5) (111814)

1415 - START boring @ GP-85

ENCOUNTERED SATURATED ZONE AT 16.5' bgs.

NO PID READINGS IN SAT ZONE. Highest PID READING 6-7' bgs @ 10.9 ppm. COLLECT SAMPLES

1450 - GP-85 (6-7) (111814)

1500 - GP-85 (15.5-16.5) (111814)

1503 - START GP-86

1507 - DRILLERS HIT CONCRETE. DECIDE NOT TO PROCEED AT THIS LOCATION b/c IN BTWN lots of UTILITY LINES AND OVERHEAD LINES. SELECT NEW LOCATION FOR GP-86

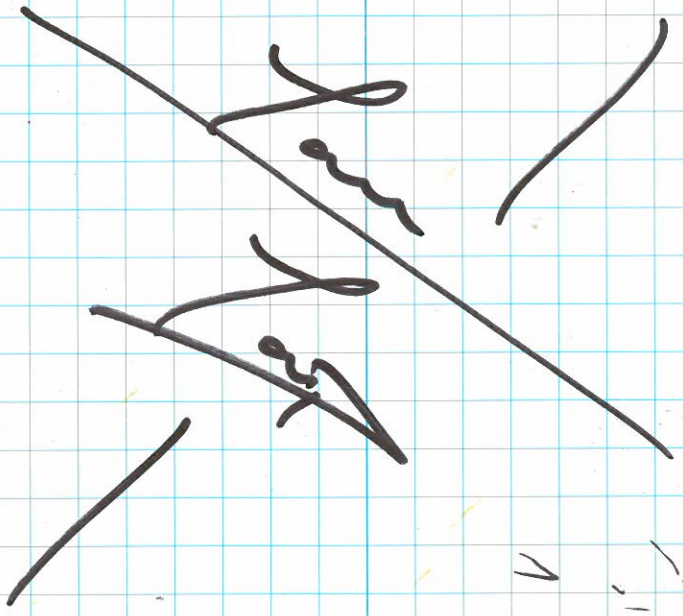
1314 - START GP-86

1318 - HIT CONCRETE AT 5.5' bgs. ABANDON LOCATION. MOVE NORTH & SET NEW SPOT for GP-86

1329 - START GP-86. START getting HIGHEST PID READINGS OF THE DAY @

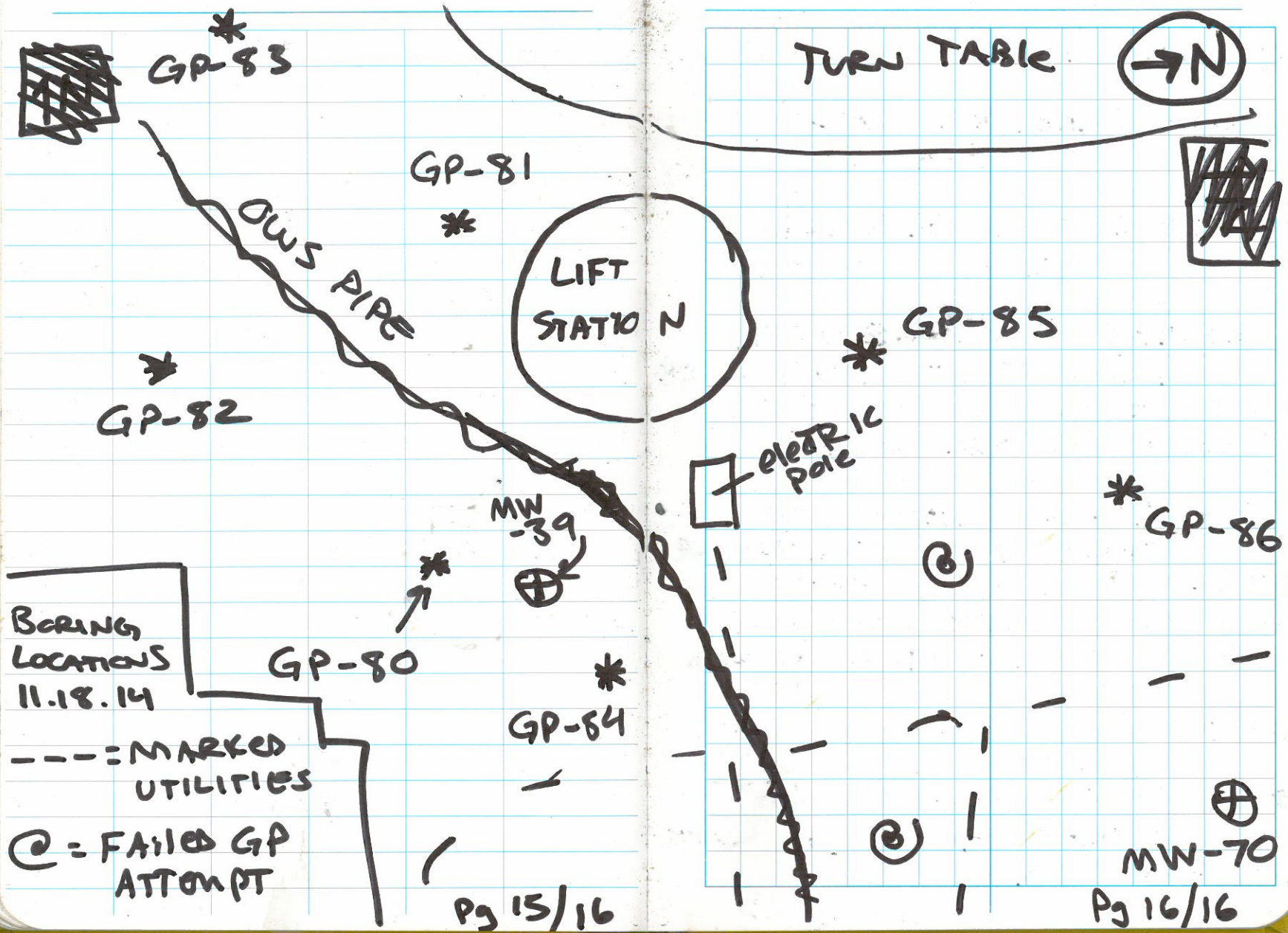
4' bgs. Highest PID reading 14-15' bgs @ 19.2 ppm.
Hit Saturated zone ~17' bgs.
Odor all along core.
Collect samples
1555 - GP-86 (14-15) (111814)
1600 - GP-86 (16-17) (111814)
1607 - Done w/ GP-86
Start clean up.
Drillers backfill all borings w/ bentonite and stick yellow pin flag in each GP.
1621 - Photograph boring locations.
Discuss borings to complete 11.19.14
→ 1 more E. of GP-86 and GP-85 (East of water line and N. of OWS pipe)
→ 2 just North of MW-70
→ Depending on what

seen, may complete 2 additional borings N of MW-70 (upgradient) closer to access road
→ continue w/ borings around S & W of turn table
1651 - LL check out w/ Yard Master
1700 - LL offsite



Location BRUNSWICK, MD Date 11.18.14

Project / Client CSXT PDI



Location BRUNSWICK, MD Date 11.18.14

Project / Client CSXT PDI

Location BRUNSWICK, MD Date 11.19.14

Project / Client CSXT PDI

ARCADIS: LAUREN LAMP

GROUND ZERO: X2 COREY AND KEITH

WEATHER: 19-37°F. SUNNY. WINDY

OBJECTIVE: CONTINUE W/ DPT DRILLING AROUND THE FORMER ROUNDHOUSE. COLLECT 2 SAMPLES PER CORE

0700 - L. LAMP ONSITE. CHECK IN W/ YARD MASTER

0711 - SET UP CORE PROCESSING TABLE. MARK OUT NEXT 3 LOCATIONS FOR GROUND ZERO

0730 - GROUND ZERO ON SITE - GEAR UP

0735 - H&S TAILGATE AND DISCUSS SCOPE OF WORK FOR TODAY.

Location BRUNSWICK, MD Date 11.19.14

Project / Client CSXT PDI

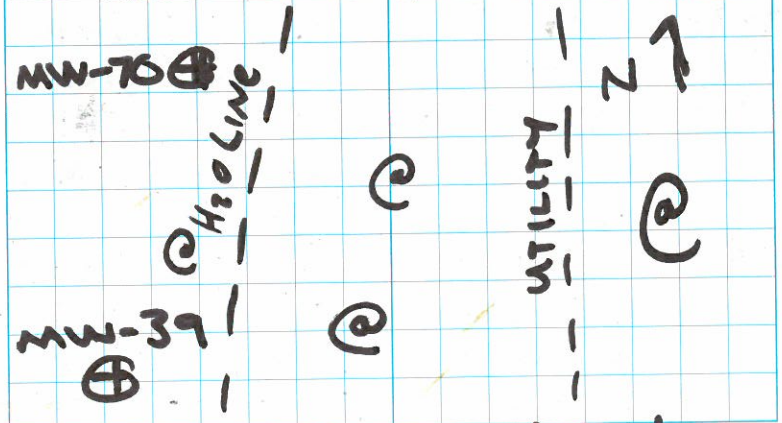
~~# START GP-87 (111914)~~

0735 - CALIBRATE PID MINIRAE 2000 FRESH AIR CAL TO 0.0 SPAN CAL W/ 100PPM ISOBUTYLENE LOT # 0206FJ14. EXP 2/6/2018

0740 - SHAW DRILLERS 1ST 3 LOCATIONS.

0757 - START GP-87 (111914)

0759 - HIT WOOD OVER CONCRETE AT ~2.5' bgs. ABANDON LOCATION. THIRD BORING IN THIS VICINITY THAT WENT TO ~~FAILURE~~ CEMENT



CHOOSE TO MOVE TO LOCS JUST UPGRADIENT OF MW-70

0802 - START GP-87.

0808 - UNDERGROUND SERVICES ON SIGHT (TM) TO COMPLETE UTILITY SURVEY.

0820 - GP-87 TAKEN TO 20'. SAT. ZONE ENCOUNTERED @ 17' bgs. NO ODOR ON CORE. NO SHEEN. Highest PID from 14-15' bgs @ 8.1 ppm. PUT IN ZipLock, SAMPLE CORE got 8.2 ppm.

0825 - GP-87 (14-15) (111914)

0830 - GP-87 (16-17) (111914)
↳ fill MATERIAL

0840 - DONE w/ GP-87
LOCATED UPGRADIENT / NE OF MW-70

0846 - START GP-88 LOCATED JUST NW OF MW-70
CORE A MUCH SANDIER CLAY. HIT SAT ZONE ~

16' bgs. High PID READINGS:

4-5' bgs	@	11.2 ppm
7-8' bgs	@	12.9 ppm
12-13	@	42.7
13-14	@	20.8
16-17	@	10.1 (SAT)

BUT NO ODOR ON CORE. NO SHEEN. NO STAINING. All PID READINGS/ZONES W/High PID HITS PUT IN ZipLOCK bag & HEADSPACE READINGS TAKEN. SAME PID RESULTS.

COLLECT SAMPLES

0910 - GP-88 (12-13) (111914)

0915 - GP-88 (15-16) (111914)

0920 - DONE w/ GP-88

0925 - SELECT LOCATION FOR GP-89 E OF MW-39 + MW-70. E OF POINTS ALREADY TRIED

Location BRUNSWICK, MD Date 11.19.14

Project / Client CSXT PDI

0929 - START GP-89
0932 - HIT CEMENT @ 2.5' bgs AT bCRING ATTEMPT @ GP-89
0939 - MOE JIM RICHMOND ON-SITE
0941 - START GP-89 N OF MW-70. CLOSER TO ACCESS ROAD.
0945 - UNDERGROUND SERVICES OFF SITE
1010 - GP-89. MOSTLY SANDY CLAY THROUGHOUT. HIGH PID HITS (headspace READINGS 11.7-19.7 + 17.2-222 IN SAT ZONE/RIGHT AT TRANSITION TO H_2O) SATURATED ZONE AT 16.5' bgs.
COLLECT SAMPLES
1010 - GP-89 (12-13) (111914)
1015 - GP-89 (15.5-16.5 (111914)
1020 - DONE w/ GP-89

Pg 5/15

Location BRUNSWICK, MD Date 11.19.14

Project / Client CSXT PDI

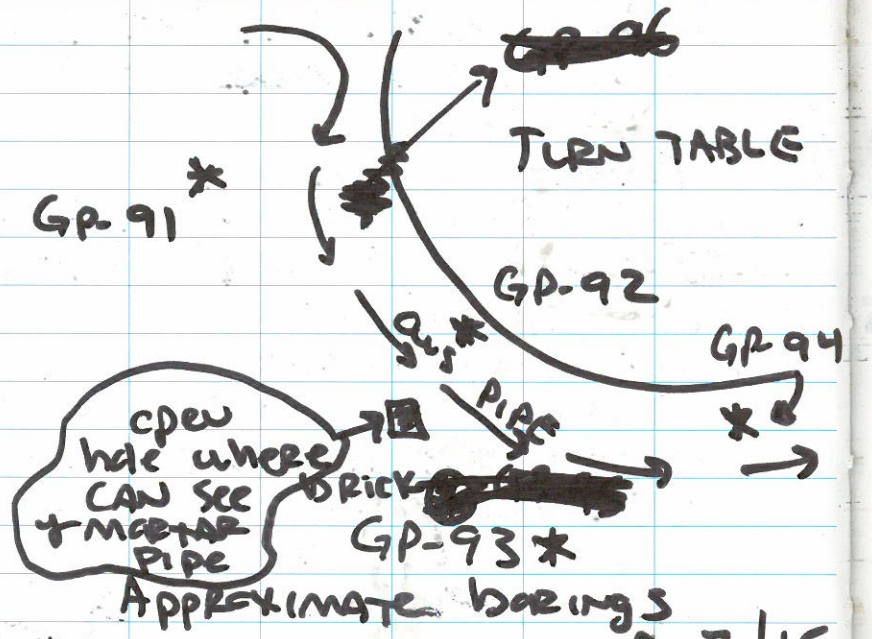
1024 - START GP-90
TERMINATE CORE @ 15' b/c HIT SAT ZONE @ 13.5' bgs
NO ODOR. NO STAINING. MOST OF CORE 0.0 ppm
2 LOCS ABOVE SAT ZONE (9-10 @ 59.8 ppm headspace) AND (12-13 @ 86.5 ppm headspace) HAD HIGH PID HITS. SATURATED ZONE PID READINGS 5.1-8.2
COLLECT SAMPLES
1045 - GP-90 (9-10) (111914)
1050 - GP-90 (12.5-13.5) (111914)
1100 - DONE w/ GP-90.
CALL JOSH WILSON TO DISCUS AREA WHERE KEEP HITTING CONCRETE STRUCTURE.
CALL w/ JOSH - CHOOSE TO MOVE ON FROM AREA

Pg 6/15

Location BRUNSWICK, MD Date 11.19.14

Project / Client CSXT PDI

EAST OF MW-39 AND MW-70
- HAVE COMPLETED 11 BORINGS (TRANSECTS 1 THROUGH 5)
- DO LAST 4 BORINGS EVENLY SPACED AROUND ROUNDHOUSE START @ W END ON "OUTSIDE" OF CWS PIPE. ALTERNATE BORINGS ALONG INSIDE / OUTSIDE PIPE



Location BRUNSWICK, MD Date 11.19.14

Project / Client CSXT PDI

1124 - START GP-91
CORE TERMINATED @ 20' bgs. SATURATED ZONE ENCOUNTERED @ 16' bgs. STRONG ODOR FROM 10-20' bgs. SHEEN PRESENT FROM 16-20' bgs (IN SATURATED ZONE). NO FREE PRODUCT. STRONG ODOR. PID READINGS START @ 10' bgs. RANGE FROM 0.3 TO 15.9 ppm.
Top 10 feet All Fill MAT.
Collect SAMPLES
1150 - GP-91 (11-12) (111914)
1155 - GP-91 (15-16) (111914)
1205 - DONE W/ GP-91
1211 - BREAK FOR LUNCH AND JIM RICHMOND (MDE) OFF SITE
1304 - BACK ON SITE.
Bump Test PID. To 99.7 ppm

Location BRUNSWICK, MD Date 11.19.14

Project / Client CSXT / PDI

1316 - START GP-92
BORING MOSTLY CLAY. FILL MATERIAL INTERBEDDED THROUGHOUT. TOP 10', NO PID READINGS. PID HITS START >10' bgs. ENCOUNTER SAT ZONE / H_2O TABLE @ 16.5'. ENTIRE SAT ZONE OF CORE HAS A SHEEN. NO FREE PRODUCT. STRONG ODOR IN LAST 10' OF CORE.
COLLECT SAMPLES
1335 - GP-92 (14-15) (111914)
1340 - GP-92 (15.5-16.5) (111914)
1350 - DONE W/ GP-92.
CALL JOSH WILSON & SEE IF WANT TO ADD BORINGS AND DISCUSS GP-91 AND GP-92
1400 - START GP-93
1403 - HIT CONCRETE STRUCTURE AT 2' bgs. MOVE BORING LOCATION SLIGHTLY W.

Pg 9/15

Location BRUNSWICK, MD Date 11.19.14

Project / Client CSXT PDI

1406 - START GP-93
PID HITS START @ 8' bgs
SAT. ZONE @ 16.5' bgs
NO SHEEN. NO STAINING
STRONG ODOR.
COLLECT SAMPLES.
1425 - GP-93 (14-15) (111914)
1430 - GP-93 (15.5-16.5) (111914)
1438 - JW (AWS) CALL.
WANT TO DO 2 ADDITIONAL BORINGS
- ONE ON TRANSECT 9 (SAME PATH AS GP-91)
- ONE ON T8 (SAME PATH AS GP-92)
IN ORDER TO CAPTURE WHAT OCCURING ON BOTH SIDES OF OWS PIPE.
1442 - START GP-94
INSIDE PIPE ALONG T6
SAT ZONE ENCOUNTERED @ 15' bgs. SLIGHT

Pg 10/15

Location BRUNSWICK, MD Date 11.19.14

Project / Client CSXT PDI

ODOR. SOME (2) LOW PID HITS. COLLECT SAMPLES.

1505 - GP-94 (14-15) (111914)

1510 - GP-94 (13-14) (111914)

1517 - DONE W/ GP-94

1527 - START GP-95 ON TRANSECT 3 (IN LINE W/ GP-92)

1532 - HIT REFUSAL @ 4' bgs SELECT NEW LOCATION

1536 - START GP-95

SLIGHT ODOR + LOW PID HITS START @ 8' bgs. HIGHEST PID READING BTWN 12-13' bgs @ 28.4 ppm. SAT. ZONE BEGINS @ 16' bgs. STRONG ODOR IN LAST 10' OF THE CORE. SATURATED ZONE HAS SHEEN.

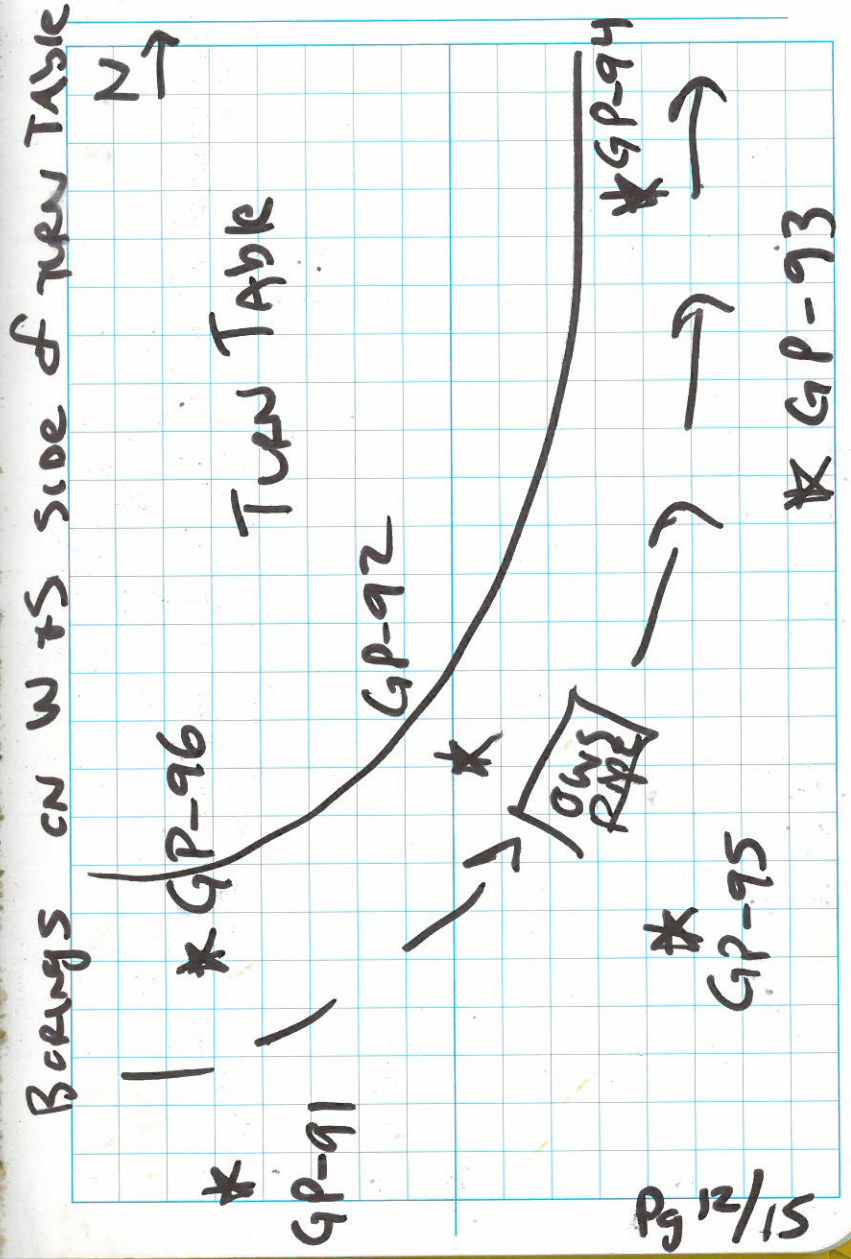
COLLECT SAMPLES:

1555 - GP-95 (12-13) (111914)

Pg 11/15

Location BRUNSWICK, MD Date 11.19.14

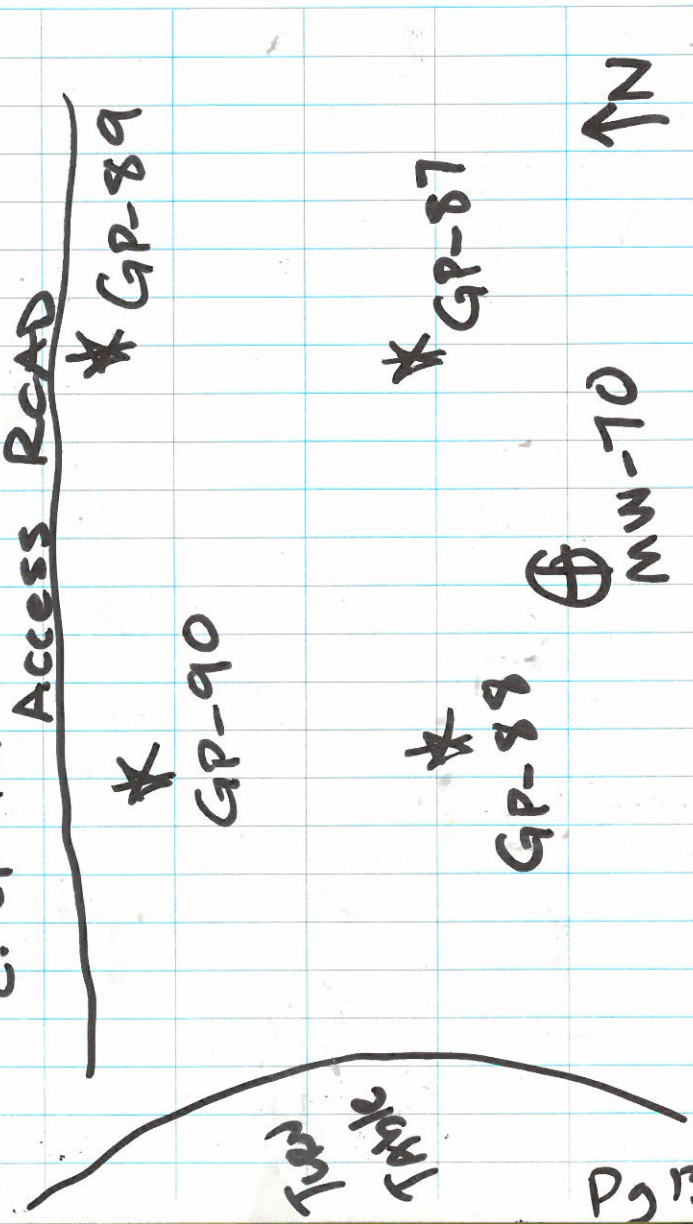
Project / Client CSXT PDI



Pg 12/15

Location BRUNSWICK, MD Date 11.19.14

Project / Client CSXT PDI



Pg 13 / 15

Location BRUNSWICK, MD Date 11.19.14

Project / Client CSXT PDI

1600 - GP-95 (15-16) (111914)
1602 - DONE W/ GP-95
1604 - START GP-96
ENCOUNTER SAT ZONE AT 16' bgs. HIGHEST PID HIT JUST ABOVE SAT ZONE (46.8 ppm @ 15-16' bgs). SECOND HIGHEST PID HIT FROM 7-8' bgs @ 3.7 ppm. STRONG ODOR FROM BOTTOM 5' OF CORE. SHEEN (15-19') PRESENT FROM ~16.5 -17.5' bgs. BOTTOM 1' OF CORE A DRY SAND. NO PID HITS, NO ODOR.
COLLECT SAMPLES.
1620 - GP-96 (7-8) (111914)
1625 - GP-96 (15-16) (111914)
1632 - DONE WITH GP-96
START SITE CLEANUP
2 DRUMS FOR WASTE
- "EAST" BORINGS IN ONE DRUM (GP-80

Pg 14/15

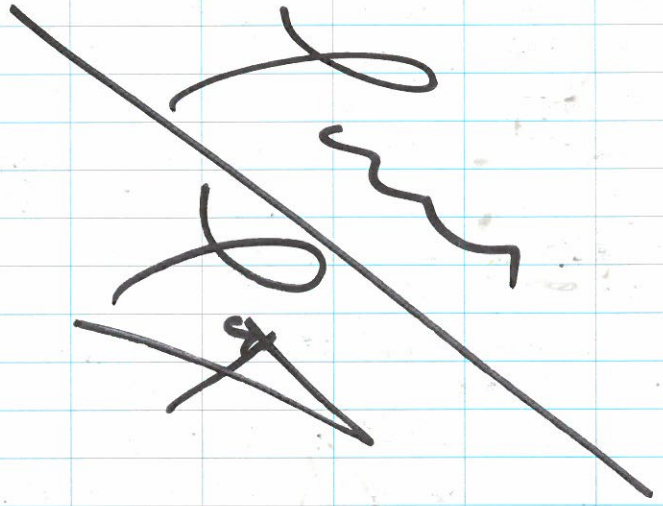
Location BRUNSWICK, MD Date 11.19.14

Project / Client CSXT PDI

through GP-90)
- "WEST + SOUTH" BORINGS IN 2ND DRUM (GP-91 through GP-96)

1650 - LL check out w/ YARD MASTER. Call J.W. PRIOR TO LEAVING sight TO GIVE UPDATE

1700 - LL OFFSITE TO SHIP SAMPLES



Location BRUNSWICK, MD Date 11.20.14

Project / Client CSXT PDI

ARCADIS: L. LAMP

GROUNDZERO: x2 CREW AND KIETH

WEATHER: 25-43°F. SUNNY

OBJECTIVE: INSTALL MW UPGRADIENT OF MW-70 + MW-39 (JUST N OF ACCESS ROAD)

0700 - L. LAMP ONSITE. CHECK IN W/ YARDMASTER

0712 - CALIBRATE PID AND SET UP TO LOG MW SOIL CUTTINGS
PID = MINIRAE 2000
FRESH AIR CAL → 0.0
SPAN CAL → 101 ppm (ISOBUTYLENE 100ppm)

0718 - GROUND ZERO ON

Location BRUNSWICK, MD Date 11.20.14

Project / Client CSXT PDI

SITE H&S TAILGATE

0814 - GZ get TRAILER AND STAGE AT LOCATION FOR MW-71

0824 - JIM RICHMOND (MDE) ON-SITE

0831 - START MW-71

0851 - COMPLETE DPT / SPLIT SPOON CORING OF MW-71 DRILLERS SET up HSA. MW-71 SAT ZONE ENCOUNTERED @ 16.1' bgs. No ODOR, No SHEEN, No PID HITS ALONG CORE.

0900 - GROUND ZERO STARTS HSA / ADVANCING 4" CORE

0911 - JIM RICHMOND OFF SITE

0915 - COLLECT SAMPLE FROM MW-71 WHERE GOT 0.1 ppm PID HIT JUST ABOVE SAT ZONE @ 15-16' bgs MW-71 (15-16) (112014)

0951 - CALL w/ JOSH WILSON TO DISCUSS PROGRESS.

Pg 2/4

Location BRUNSWICK, MD Date 11.20.14

Project / Client CSXT PDI

NOT DOING GEOTECHNICAL BORINGS 11.21.14. HOLD OFF ON COLLECTING WASTE CHAR. SAMPLES TOO.

0955 - COREY → LL. HITING ROCK & BOUNCING OFF @ 20' BGS. MAKE SEVERAL ATTEMPTS AND HIT AUGER REFUSAL. DECIDE TO COMPLETE WELL AT 20' BGS. INSTALL 15-FEET OF SCH-40 PVC SLOT-10 SCREEN. COMPLETE W/ RISER UP TO GS.

1119 - WELL MW-70 INSTALLED. BACKFILL w/ SAND PACK TO 3' BGS. LET WELL STAND TO SEE IF SAND PACK WILL SETTLE

1120 - LUNCH

1220 - BACK ON SITE. CHECK SAND PACK IN MW-71.

Pg 3/4

Location BRUNSWICK, MD Date 11.20.14

Project / Client CSXT PDI

BACKFILL W/ BENTONITE 2 FEET.
START CONSTRUCTING WELL PAD
1240 - KEN YOUNG (CSX) ON SITE. STOPPED BY QUICKLY
1248 - KEN YOUNG OFF-SITE
1347 - MW-71 WELL PAD COMPLETE
NOTE: NEEDS LOCK AND CSXT TAG
LL TO INSTAL WHEN ONSITE 11.25.14
1350 DRILLERS CLEAN UP, STAGE DRUMS, DECON AUGERS.
1402 - DONE. LL TO CHECK OUT W/ YARDMASTER
1415 - LL OFFSITE
1324 - LL DROP COOLER W/ SAMPLE FROM MW-71 @ TEST AMERICA
CAR OD: TRIP = 400.6
OD = 424811 mi

Pg 4/4

Location Date

Project / Client

ARCADIS

Sample/Core Log

Boring/Well GP-80 Project/No. MD000843.0011 Page 1 of 1

Site Location: Brunswick Rail Yard, Brunswick, MD

Drilling Started: 0940 Drilling Completed: 0955

Total Depth Drilled: 20 Feet Hole Diameter: 2 inches Type of Sample/Coring Device: Split spoon

Length and Diameter of Coring Device: 5-foot length; 2-inch diameter Sampling Interval: 5 feet

Drilling Fluid Used: None Drilling Method: DPT

Drilling Contractor: Ground Zero Driller: Corey Helper: Keith

Prepared By: Lauren Lamp

Sample/Core Depth (feet below land surface) From	To	Core Recovery ~~(inches)~~ (feet)	PID Reading (ppm)	PID Reading Interval	Core Description
0	5	2.5	0.0	0-1	0→1.5 = FILL/GRAVEL. GREY & BLACK CINDERS
				1-2	1.5-2.0 = SAA w/SOME HARD BROWN
				2-3	(4/2 ON 10YR) CLAY
				3-4	2.0-2.5 = FILL
				4-5	
5	10	2.8		5-6	2.5-3.5 = SAA
				6-7	3.5-4.5 = SOFT CLAY. 4/2 ON 10YR.
				7-8	PLASTIC, SOME SILT.
			0.0	8-9	4.5-5.3 = STIFF HARD CLAY. STRONG BROWN
			6.5	9-10	(4/6 ON 7.5YR). NOT PLASTIC
			0.0	10-11	
10	15	5	0.0	11-12	5.3-10.3 = SAA
			2.3	12-13	THIN GRAVEL ZONE (0.2 FT 10.1-10.3)
			0.0	13-14	WITH SOME WELL-ROUNDED FINE SAND
			8.6	14-15	AND SILT
			1.3	15-16	
15	20	5	0.0	16-17	10.3-15.3 = SA CLAY ABOVE EXCEPT
			0.0	17-18	SOFT CLAY. NO ODOR.
			10.8	18-19	* SATURATED @ 19' bgs *
			2.7	19,20	
					SAMPLES
					0940 @ 14-15' (HIGHEST PID)
					0945 @ 18-19' (ABOVE SAT)

ARCADIS

Sample/Core Log

Boring/Well GP-81 Project/No. MD000843.0011 Page 1 of 1

Site Location: Brunswick Rail Yard, Brunswick, MD

Drilling Started: 1043 Drilling Completed: 1057

Total Depth Drilled: 15 Feet Hole Diameter: 2 inches Type of Sample/ Coring Device: Split spoon

Length and Diameter of Coring Device: 5-foot length; 2-inch diameter Sampling Interval: 5 feet

Drilling Fluid Used: None Drilling Method: DPT

Drilling Contractor: Ground Zero Driller: Corey Helper: Keith

Prepared By: Lauren Lamp

Sample/Core Depth (feet below land surface) From	To	Core Recovery (inches)	PID Reading (ppm)	PID Reading Interval	Core Description
0	5	3.4	0.0	0-1	0 → 1.6 = GRAY & BLACK CINDERS, SAND,
				1-2	GRAVEL = FILL
				2-3	1.6 → 3.1 = STIFF, STRONG BROWN (4/6 ON
				3-4	7.5YR) CLAY. NOT PLASTIC.
				4-5	3.1 → 3.4 = STIFF GRAY CLAY (4/2 ON 10YR)
				5-6	SOME SILT ~~AND~~ & GRAVEL. THIN
				6-7	GRAVEL ZONE @ 3.1'
				7-8	
5	10	3.5		8-9	3.4 → 5.5 = SAA
				9-10	5.5 → 5.6 = SUB-ANGULAR PEBBLES AND
				10-11	GRAVEL
				11-12	5.6 → 6.9 = STIFF STRONG BROWN (4/6 ON
			0.0	12-13	7.5YR) CLAY.
			0.8	13-14	
10	15	4.7	2.0	14-15	6.9 → 10.0 = SAA
				15-16	10.0' = THIN GRAVEL ZONE
				16-17	10.2 → 11.6 = SILTY CLAY. NOT V.
				17-18	PLASTIC. STRONG BROWN (4/6 ON
				18-19	7.5YR). SLIGHT ODOR
				19-20	SATURATED ZONE / H_2O TABLE @ 14.2'
					SAMPLES
					1105 (13-14) PID
					1110 (14-15) ABOVE SAT ZONE

ARCADIS

Sample/Core Log

Boring/Well GP-82 Project/No. MD000843.0011 Page 1 of 1

Site Location: Brunswick Rail Yard, Brunswick, MD

Drilling Started: 1128 Drilling Completed: 1140

Total Depth Drilled: 20 Feet Hole Diameter: 2 inches Type of Sample/Coring Device: Split spoon

Length and Diameter of Coring Device: 5-foot length; 2-inch diameter Sampling Interval: 5 feet

Drilling Fluid Used: None Drilling Method: DPT

Drilling Contractor: Ground Zero Driller: Corey Helper: Keith

Prepared By: Lauren Lamp

Sample/Core Depth (feet below land surface) From	To	Core Recovery (inches)	PID Reading (ppm)	PID Reading Interval	Core Description
0	5	2.9	0.0	0-1	0-1.05 = BALLAST/GRAVEL
				1-2	1.05 → 1.6 = FILL
				2-3	1.6 → 2.9 = STIFF STRONG BROWN CLAY
				3-4	(4/6 ON 7.5YR)
				4-5	
5	10	3.55		5-6	2.9 → 4.8 = SAA
				6-7	4.8 → 6.45 = SOFT SILTY CLAY. VERY
				7-8	PLASTIC. BROWN (4/3 ON 10YR)
				8-9	NO ODOR
				9-10	
10	15	1.64		10-11	6.45 → 8.07 = SAA
				11-12	AT 7.45' AND 7.95' THIN GRAVEL ZONE
				12-13	
15	20	4.8		13-14	8.07 → 10.67 = SAA
			0.0	14-15	* WATER TABLE @ 10.67 (17.67' bgs)
			1.7	15-16	10.67 → 10.8 = THIN LAYER OF CRUSHED
			0.0	16-17	GRAVEL
			13.0	17-18	10.8 → 11.5 = CLAY SAA
			3.9	18-19	11.5 → 12.87 = COARSE GRAINED, WELL-
			0.0	19-20	ROUNDED SAND.
					* WATER TABLE @ 17.6' bgs *
					SAMPLES
					GP-82 (14-15) @ ~~1310~~ 1150
					GP-82 (16.5-17.5) @ ~~1315~~ 1155

ARCADIS

Sample/Core Log

Boring/Well GP-83 Project/No. MD000843.0011 Page 1 of 1

Site Location Brunswick Rail Yard, Brunswick, MD Drilling Started 1248 Drilling Completed 1300

Total Depth Drilled 20 Feet Hole Diameter 2 inches Type of Sample/ Coring Device Split spoon

Length and Diameter of Coring Device 5-foot length; 2-inch diameter Sampling Interval 5 feet

Drilling Fluid Used None Drilling Method DPT

Drilling Contractor Ground Zero Driller Corey Helper Keith

Prepared By Lauren Lamp

Sample/Core Depth (feet below land surface) From	To	Core Recovery (inches)	PID Reading (ppm)	PID Reading Interval	Core Description
0	5	4.05	0.0	0-1	0→1.4 = FILL
				1-2	1.4→4.05 = STIFF CLAY. NOT PLASTIC.
				2-3	STRONG BROWN (4/6 on 7.5YR)
				3-4	THIN GRAVEL @ 1.47 FT
				4-5	
5	10	2.9		5-6	4.05→6.95 = SAA
				6-7	
10	15	4.75		7-8	6.95-7.95 = SAA
				8-9	7.95-11.70 = SOFT SILTY CLAY.
				9-10	DARK GRAY 6/2 on 10YR
				10-11	
15	20	4.8		11-12	11.70-16.50 = SAA
			↓	12-13	* WATER TABLE @ 15' bgs *
			0.0	13-14	
			1.0	14-15	
			0.0	15-16	SAMPLES
				16-17	GP-83 (13-14) @ 1310 (↑ PID)
				17-18	GP-83 (14-15) @ 1315 (↑ SAT ZONE)
			↓	18-19	
			0.0	19-20	

ARCADIS

Sample/Core Log

Boring/Well GP-84 Project/No. MD000843.0011 Page 1 of 1

Site Location: Brunswick Rail Yard, Brunswick, MD

Drilling Started: 1330 Drilling Completed: 1342

Total Depth Drilled: 20 Feet Hole Diameter: 2 inches Type of Sample/ Coring Device: Split spoon

Length and Diameter of Coring Device: 5-foot length; 2-inch diameter Sampling Interval: 5 feet

Drilling Fluid Used: None Drilling Method: DPT

Drilling Contractor: Ground Zero Driller: Corey Helper: Keith

Prepared By: Lauren Lamp

Sample/Core Depth (feet below land surface) From	To	Core Recovery (inches)	PID Reading (ppm)	PID Reading Interval	Core Description
0	5	3.36	0.0	0-1	0.0 → 0.9 ~~ft~~ = GRAVEL
				1-2	0.9 → ~~1.12~~ = FILL
				2-3	2.38
				3-4	2.38 → 2.9 = SILTY CLAY. STIFF. STRONG
				4-5	BROWN (4/6 on 7.5YR)
				5-6	THIN layer of gravel @ 2.9' bgs
				6-7	2.9 - 3.~~36~~ = FILL
				7-8	
5	10	2.33		8-9	3.~~36~~ → 4.36 = SAA
				9-10	4.36 → 5.69 = STIFF CLAY. NOT
				10-11	PLASTIC. TRACE SAND & GRAVEL
			0.0	11-12	
10	15	4.22	0.8	12-13	5.69 → 9.91 = SOFT SILTY CLAY.
			2.9	13-14	BROWN (4/6 on 10YR). SLIGHT
PID headspace reading = 51.7			7.3	14-15	ODOR. DAMP/MOIST @ BOTTOM
			7.0	15-16	
15	20	4.53	5.1	16-17	9.91 → 14.44 = SAA
PID headspace reading @ 9.1ppm			3.5	17-18	* WATER TABLE @ 16.5' bgs *
			0.2	18-19	STRONG ODOR
			0.0	19-20	
					SAMPLE
					GP-84 (14-15) @ 1400
					GP-84 (15.5-16.5) @ ~~1410~~ 1405

ARCADIS

Sample/Core Log

Boring/Well: GP-85 | Project/No.: MD000843.0011 | Page 1 of 1

Site Location: Brunswick Rail Yard, Brunswick, MD | Drilling Started: 1450 ~~1445~~ JJ | Drilling Completed: 1500

Total Depth Drilled: 20 Feet | Hole Diameter: 2 inches | Type of Sample/Coring Device: Split spoon

Length and Diameter of Coring Device: 5-foot length; 2-inch diameter | Sampling Interval: 5 feet

Drilling Fluid Used: None | Drilling Method: DPT

Drilling Contractor: Ground Zero | Driller: Corey | Helper: Keith

Prepared By: Lauren Lamp

Sample/Core Depth (feet below land surface) From	To	Core Recovery (inches)	PID Reading (ppm)	PID Reading Interval	Core Description
0	5	1.8	0.0	0-1	0 → 1.8 = FILL
				1-2	
5	10	4.88		2-3	1.8 → 2.2 = SAA
				3-4	2.2 → 5.65 = STIFF DARK GRAY (5/2 ON 10YR)
				4-5	NOT PLASTIC, TRACE SAND & GRAVEL
			0.0	5-6	5.65 → 6.05 = WHITE CRUSHED STONE/
			10.9	6-7	CEMENT
			0.0	7-8	6.05 → 6.68 = STIFF CLAY W/ THIN
				8-9	INTERBEDDED SEAMS OF CRUSHED
				9-10	WHITE ROCK/CEMENT
				10-11	
10	15	4.92	0.0	11-12	6.68 → 11.60 = STIFF CLAY. STRONG
			0.3	12-13	BROWN (4/6 ON 7.5YR)
			0.0	13-14	
15	20	4.42	9.2	14-15	11.60 → 14.02 = SAA
			0.0	15-16	14.02 → 15.02 = COARSE SUB-ROUNDED
			5.0	16-17	SAND AND SMALL PEBBLES.
			0.0	17-18	* WATER TABLE @ 16.5' bgs *
			0.0	18-19	
			0.0	19-20	
					SAMPLES
					GP-85 (6-7) @ 1450
					GP-85 (15.5-16.5) @ 1506

ARCADIS

Sample/Core Log

Boring/Well GP-86 Project/No. **MD000843.0011** Page 1 of 1

Site Location **Brunswick Rail Yard, Brunswick, MD** Drilling Started 1529 Drilling Completed 1541

Total Depth Drilled 20 Feet Hole Diameter **2** inches Type of Sample/ Coring Device **Split spoon**

Length and Diameter of Coring Device **5-foot length; 2-inch diameter** Sampling Interval **5** feet

Drilling Fluid Used **None** Drilling Method **DPT**

Drilling Contractor **Ground Zero** Driller **Corey** Helper **Keith**

Prepared By **Lauren Lamp**

Sample/Core Depth (feet below land surface) From	To	Core Recovery (inches)	PID Reading (ppm)	PID Reading Interval	Core Description
0	5	3.51	0.0	0-1	0→1.4 = FILL
			↓	1-2	1.4→1.7 = FINE GRAINED, WELL-ROUNDED
			↓	2-3	SAND. SILTY
			0.0	3-4	1.7→3.51 = SOFT CLAY. BROWN (4/2 ON
			10.4	4-5	10YR). MILD PLASTICITY.
			0.3	5-6	
5	10	4.09	5.8	6-7	3.51→3.81 = SAA
			15.3	7-8	3.81→4.49 = WHITE FINE SAND. WET.
			12.5	8-9	4.49→7.50 = STIFF CLAY. SLIGHT
			11.1	9-10	BROWN (4/6 ON 7.5YR)
			12.0	10-11	7.50→7.60 = WHITE CRUSHED ROCK/
			5.3	11-12	CEMENT
			19.2	12-13	
10	15	2.88	0.0	13-14	7.60→7.80 = SAA
			0.0	14-15	7.80→8.20 = BLACK FINE SAND.
			0.0	15-16	8.20→10.48 = SOFT SILTY CLAY.
			18.2	16-17	
15	20	2.80	1.6	17-18	10.48→13.28 = SAA
			1.2	18-19	* WATER TABLE @ 17' bgs *
			0.8	19-20	
					SAMPLE
					GP-86 (14-15) @ 1555
					GP-86 (16-17) @ 1600

ARCADIS

Sample/Core Log

Boring/Well GP-87 Project/No. MD000843.0011 Page 1 of 1

Site Location: Brunswick Rail Yard, Brunswick, MD

Drilling Started: 0902 Drilling Completed: 0820

Total Depth Drilled: 20 Feet Hole Diameter: 2 inches Type of Sample/ Coring Device: Split spoon

Length and Diameter of Coring Device: 5-foot length; 2-inch diameter Sampling Interval: 5 feet

Drilling Fluid Used: None Drilling Method: DPT

Drilling Contractor: Ground Zero Driller: Corey Helper: Keith

Prepared By: Lauren Lamp

Sample/Core Depth (feet below land surface) From	To	Core Recovery (inches)	PID Reading (ppm)	PID Reading Interval	Core Description
0	5	2.58	0.0	0-1	0-1.15 = GRAVEL
				1-2	1.15 → 2.58 = GRAY & BLACK CINDERS, SAND,
				2-3	GRAVEL → FILL
				3-4	
5	10	4.96		4-5	2.58 → 2.80 = SAA
				5-6	2.80 → 7.44 = STIFF CLAY, STRONG
				6-7	BROWN (4/6 ON 7.5YR)
				7-8	8.64
10	15	2.48		8-9	~~7.44~~ → ~~8.64~~ 8.0 = GRAVEL + CRUSHED WHITE ROCK/
				9-10	CEMENT
				10-11	~~8.64~~ → ~~4.2~~ 9.04 = STIFF STRONG BROWN CLAY
				11-12	~~4.2~~ 9.04 → ~~9.54~~ = FILL
				12-13	~~4.7~~ 9.54 → 9.92 = SOFT SILTY CLAY,
			0.0	13-14	BROWN (6/6 ON 7.5YR)
			8.2	14-15	
15	20	2.64	5.1	15-16	9.92 → 12.56 = SAA
			4.5	16-17	NO ODOR, WET.
			6.1	17-18	* WATER TABLE @ 17' bgs *
			5.2	18-19	
			6.7	19-20	
					SAMPLE
					GP-87 (14-15) @ 0825
					GP-87 (16-17) @ 0830

ARCADIS

Sample/Core Log

Boring/Well GP-88 Project/No. MD000843.0011 Page 1 of 1

Site Location: Brunswick Rail Yard, Brunswick, MD

Drilling Started: 0846 Drilling Completed: 0858

Total Depth Drilled: 20 Feet Hole Diameter: 2 inches Type of Sample/ Coring Device: Split spoon

Length and Diameter of Coring Device: 5-foot length; 2-inch diameter Sampling Interval: 5 feet

Drilling Fluid Used: None Drilling Method: DPT

Drilling Contractor: Ground Zero Driller: Corey Helper: Keith

Prepared By: Lauren Lamp

Sample/Core Depth (feet below land surface) From	To	Core Recovery (inches)	PID Reading (ppm)	PID Reading Interval	Core Description
0	5	1.64	0.0	0-1	0 → 1.64 = GRAVEL AND FILL
			↓	1-2	
5	10	4.11	↓	2-3	1.64 → 2.04 = SAA
			0.0	3-4	2.04 → 2.62 = SILTY CLAY. GRAY (5/2 ON
			11.2	4-5	10YR). SOFT. NOT PLASTIC
			0.0	5-6	2.62 → 4.39 = STIFF CLAY. STRONG BROWN
			5.2	6-7	(4/6 ON ~~10~~ 7.5 YR)
			12.9	7-8	4.39 → 5.44 = SANDY CLAY
			3.1	8-9	5.44 → 5.75 = GRAVEL
			5.1	9-10	
10	15	3.68	0.0	10-11	5.75 → 7 = SAA
			0.0	11-12	7.00 → 7.71 = SANDY CLAY. YELLOW BROWN
			42.7	12-13	(4/5 ON 10 YR)
			20.8	13-14	
15	20	3.25	5.4	14-15	7.71 → 8.55 = SAA
			10.1	15-16	8.55 → 11.04 = SAND. YELLOW. COARSE,
			7.9	16-17	SUB-ROUNDED. WET/SAT
			8.7	17-18	
			5.4	18-19	*WATER TABLE @ 16' bgs*
			0.2	19-20	
					SAMPLE
					GP-88(12-13) @ 0910
					GP-88(15-16) @ 0915

ARCADIS

Sample/Core Log

Boring/Well: GP-89 | Project/No.: MD000843.0011 | Page 1 of 1

Site Location: Brunswick Rail Yard, Brunswick, MD | Drilling Started: 0941 | Drilling Completed: 0956

Total Depth Drilled: 20 Feet | Hole Diameter: 2 inches | Type of Sample/Coring Device: Split spoon

Length and Diameter of Coring Device: 5-foot length; 2-inch diameter | Sampling Interval: 5 feet

Drilling Fluid Used: None | Drilling Method: DPT

Drilling Contractor: Ground Zero | Driller: Corey | Helper: Keith

Prepared By: Lauren Lamp

Sample/Core Depth (feet below land surface) From	To	Core Recovery (inches)	PID Reading (ppm)	PID Reading Interval	Core Description
0	5	3.4		0-1	0 → 0.95 = GRAVEL
				1-2	0.95 → 1.95 = FILL
				2-3	1.95 → 2.18 = STIFF STRONG BROWN (4/6 ON 7.5YR) CLAY
				3-4	
PID head space =		16.0 →	5.7	4-5	2.18 → 3.4 = STIFF GRAY (5/2 ON 10YR) CLAY
			0.0	5-6	
PID HEAD SPACE = 0.7 →			3.9	6-7	3.4 → 5 = SAA
5	10	3.37	0.3	7-8	5 → 6.8 = SUB-ANGULAR PEBBLES, SAND,
PID head space = 11.7ppm →			3.2	8-9	SILT AND CLAY
			0.0	9-10	~~6.8 → 6.9~~
10	15	4.85	0.1	10-11	6.8 → 11.65 = SANDY SOFT CLAY, STRONG
			0.3	11-12	BROWN (4/6 ON 7.5YR)
PID Head Space = 19.7ppm →			6.7	12-13	
15	20	4.19	0.1	13-14	11.65 → 15.85 = SAA
			0.0	14-15	
			17.2	15-16	* WATER TABLE @ 16.5' bgs
			22.9	16-17	
			41.4	17-18	
			0.6	18-19	
			0.0	19-20	
					SAMPLES
					GP-89 (12-13) @1010
					GP-89 (15.5-16.5) @1015

ARCADIS

Sample/Core Log

Boring/Well GP-90 Project/No. MD000843.0011 Page 1 of 1

Site Location: Brunswick Rail Yard, Brunswick, MD

Drilling Started: 1024 Drilling Completed: 1032

Total Depth Drilled: 15 Feet Hole Diameter: 2 inches Type of Sample/Coring Device: Split spoon

Length and Diameter of Coring Device: 5-foot length; 2-inch diameter Sampling Interval: 5 feet

Drilling Fluid Used: None Drilling Method: DPT

Drilling Contractor: Ground Zero Driller: Corey Helper: Keith

Prepared By: Lauren Lamp

Sample/Core Depth (feet below land surface) From	To	Core Recovery (inches)	PID Reading (ppm)	PID Reading Interval	Core Description
0	5	2.6	0.0	0-1	0→0.7 = GRAVEL
				1-2	0.7→1.8 = FILL
				2-3	1.8→2.6 = SANDY CLAY. STRONG BROWN
				3-4	(4/7 ON 7.5YR)
				4-5	
5	10	4.81		5-6	2.6→7.41 = SAA
				6-7	THIN GRAVEL LAYERS @ 2.7' bgs, 4.5' bgs
			▼	7-8	
10	15	4.83	0.0	8-9	7.41→12.24 = SAA
			59.8	9-10	
			0.0	10-11	* WATER TABLE @ 13.5' bgs *
			0.0	11-12	
			86.5	12-13	
			5.1	13-14	
			8.2	14-15	
					SAMPLES
					GP-90 (9-10) @ 1045
					GP-90 (12.5-13.5) @ 1050

ARCADIS

Sample/Core Log

Boring/Well GP-91 Project/No. MD000843.0011 Page 1 of 1

Site Location: Brunswick Rail Yard, Brunswick, MD

Drilling Started: 1124 Drilling Completed: 1142

Total Depth Drilled: 20 Feet Hole Diameter: 2 inches Type of Sample/ Coring Device: Split spoon

Length and Diameter of Coring Device: 5-foot length; 2-inch diameter Sampling Interval: 5 feet

Drilling Fluid Used: None Drilling Method: DPT

Drilling Contractor: Ground Zero Driller: Corey Helper: Keith

Prepared By: Lauren Lamp

Sample/Core Depth (feet below land surface) From	To	Core Recovery (inches)	PID Reading (ppm)	PID Reading Interval	Core Description
0	5	2.41	0.0	0-1	0 → 1.47 = FILL
				1-2	1.47 → 1.8 = WHITE (5/4 ON 10YR) well-ROUNDED
				2-3	MEDIUM SAND.
				3-4	1.8 → 2.1 = CRUSHED BRICK
				4-5	2.1 → 2.3 = STIFF CLAY, STRONG BROWN
				5-6	(4/6 ON 10 YR)
				6-7	2.3 → 2.41 = WHITE MEDIUM SAND
				7-8	
5	10	0.72	▼	8-9	2.41 → 3.13 = POORLY SORTED CLAY, SAND, SILT
			0.0	9-10	AND SUB-ROUNDED PEBBLES
			0.3	10-11	
10	15	4.1	14.6	11-12	3.13 → 7.23 = SANDY CLAY, DARK
			4.3	12-13	YELLOWISH BROWN (4/4 ON 10 YR)
			5.7	13-14	SOFT. MEDIUM PLASTICITY.
			14.1	14-15	STRONG ODOR
			10.5	15-16	
15	20	3.1	12.2	16-17	7.23 → 10.03 = SAA
			15.9	17-18	SHEEN PRESENT THROUGH LAST 2.1'
			5.8	18-19	* WATER TABLE @ 16' bgs *
			2.3	19-20	
					10.03 → 10.34 = YELLOW SAND, COARSE,
					SUB-ROUNDED
					SAMPLE
					GP-91 (11-12) @ 1150
					GP-91 (15-16) @ 1155

ARCADIS

Sample/Core Log

Boring/Well GP-92 Project/No. MD000843.0011 Page 1 of 1

Site Location: Brunswick Rail Yard, Brunswick, MD

Drilling Started: 1316 Drilling Completed: 1326

Total Depth Drilled: 20 Feet Hole Diameter: 2 inches Type of Sample/Coring Device: Split spoon

Length and Diameter of Coring Device: 5-foot length; 2-inch diameter Sampling Interval: 5 feet

Drilling Fluid Used: None Drilling Method: DPT

Drilling Contractor: Ground Zero Driller: Corey Helper: Keith

Prepared By: Lauren Lamp

Sample/Core Depth (feet below land surface) From	To	Core Recovery (inches)	PID Reading (ppm)	PID Reading Interval	Core Description
0	5	3.16	0.0	0-1	0→1.08 = FILL
				1-2	1.08→1.18 = WHITE (5/4 ON 10YR) WELL-RND,
				2-3	MEDIUM SAND.
				3-4	1.18→2.42 = ~~STIFF~~ SOFT SILTY V. DARK
				4-5	(3/2 ON 10 YR). NOT PLASTIC
				5-6	2.42→3.16 = STIFF STRONG BROWN (4/6 ON 7.5YR) CLAY
5	10	4.0		6-7	3.16→3.36 = ~~SAA~~ SOFT SILTY V. DARK GRAY CLAY
				7-8	3.36→3.58 = STIFF CLAY
				8-9	3.58→3.76 = SOFT V. DARK GRAYISH BROWN CLAY
				9-10	~~4.48→~~ 3.76→4.21 = FILL AND WHITE (5/4
			↓	10-11	ON 10YR) SAND.
			0.0	11-12	4.21→7.16 = SILTY CLAY. V. DARK GRAYISH
			6.3	12-13	BROWN (3/2 ON 10YR). SUB-ANGULAR
			3.1	13-14	PEBBLES @ VERY BOTTOM
			10.2	14-15	
10	15	1.5	8.9	15-16	7.16→7.38 = SUB-ANGULAR PEBBLES, SAND,
			12.2	16-17	SILT AND CLAY.
			5.1	17-18	7.38→8.16 = SILTY CLAY.
			35.7	18-19	8.16→8.56 = POORLY SORTED SAND, SILT
			32.9	19-20	AND CLAY. ODOR
15	20	3.1			8.56→10.06 = SAA. SHEEN.
					10.06→11.16 = GRAYISH-WHITE COARSE SAND
					STRONG ODOR. SHEEN.
					* WATER TABLE @ 16.5' bgs *

SAMPLE
GP-92 (14-15) @1335
GP-92 (15.5-16.5) @1340

ARCADIS

Sample/Core Log

Boring/Well: GP-93 | Project/No.: MD000843.0011 | Page 1 of 1

Site Location: Brunswick Rail Yard, Brunswick, MD | Drilling Started: 1406 | Drilling Completed: 1420

Total Depth Drilled: 20 Feet | Hole Diameter: 2 inches | Type of Sample/Coring Device: Split spoon

Length and Diameter of Coring Device: 5-foot length; 2-inch diameter | Sampling Interval: 5 feet

Drilling Fluid Used: None | Drilling Method: DPT

Drilling Contractor: Ground Zero | Driller: Corey | Helper: Keith

Prepared By: Lauren Lamp

Sample/Core Depth (feet below land surface) From	To	Core Recovery (~~inches~~) FT	PID Reading (ppm)	PID Reading Interval	Core Description
0	5	1.9	0.0	0-1	0 → 0.4 = FILL
			0.0	1-2	0.4 → 1.65 = CRUSHED RED CINDERS/BRICK
			–	2-3	1.65-1.9 = CEMENT
			–	3-4	
5	10	3.8	–	4-5	1.9 → 2.0 = SAA
			0.0	5-6	2.0 → 3.15 = STIFF CLAY. STRONG BROWN (4/6 on 7.5YR)
			–	6-7	3.15 → 5.7 = SILTY CLAY. YELLOW BROWN
			2.9	7-8	SLIGHT ODOR. THIN LENSES of SILT (BLACK)
			1.8	8-9	AND WHITE SAND/CEMENT.
			2.5	9-10	
10	15	3.88	0.0	10-11	5.7 → 9.58 = ~~SAA~~ V. DARK GRAYISH ~~CLAY~~ SANDY
			0.0	11-12	CLAY. STRONG ODOR. NO SHEEN
			0.0	12-13	BUT IRIDESCENCE/FILM ON CORE.
			21.1	13-14	
15	20	4.2	12.4	14-15	9.58 → 13.78 = SAA, NO SHEEN. STRONG
			18	15-16	ODOR.
			10.3	16-17	* WATER TABLE @ 16.5' bgs *
			14	17-18	
			13.1	18-19	
			14.2	19-20	
					SAMPLES
					GP-93 (14-15) @ 1425
					GP-93 (15.5-16.5) @ 1430

ARCADIS

Sample/Core Log

Boring/Well GP-94 Project/No. MD000843.0011 Page 1 of 1

Site Location: Brunswick Rail Yard, Brunswick, MD

Drilling Started: 1442 Drilling Completed: 1456

Total Depth Drilled: 20 Feet Hole Diameter: 2 inches Type of Sample/ Coring Device: Split spoon

Length and Diameter of Coring Device: 5-foot length; 2-inch diameter Sampling Interval: 5 feet

Drilling Fluid Used: None Drilling Method: DPT

Drilling Contractor: Ground Zero Driller: Corey Helper: Keith

Prepared By: Lauren Lamp

Sample/Core Depth (feet below land surface) From	To	Core Recovery (inches) ~~Ft~~	PID Reading (ppm)	PID Reading Interval	Core Description
0	5	2.6	0.0	0-1	0 → 1.3 = FILL
				1-2	1.3 → 1.55 = ~~Yellow~~ SAND (7/6 ON 10YR) + FILL
				2-3	1.55 → 1.97 = CRUSHED RED CINDERS / BRICK
				3-4	1.97 → 2.60 = VERY PALE BROWN (8/2 ON 10YR)
				4-5	ROCK / CEMENT. ANGULAR / BROKEN SLABS
5	10	3.25		5-6	2.6 → 3.75 = SAA
				6-7	3.75 → 4.0 = CRUSHED RED CINDERS / BRICK
				7-8	4.0 → 5.85 = STIFF BROWN (4/4 ON 7.5YR)
				8-9	CLAY. NOT PLASTIC
				9-10	
10	15	4.2		10-11	5.85 → 6.15 = ~~SAA + S~~ STIFF, SANDY CLAY
			↓	11-12	6.15 → 6.45 = WHITE CINDERS / CEMENT
			0.0	12-13	6.45 → 8.22 = STIFF BROWN (4/4 ON 7.5YR)
			0.5	13-14	CLAY. NO PLASTIC. SLIGHT ODOR
			4.2	14-15	8.22 → 10.02 = VERY DARK BROWN (2/2 ON 10YR)
			0.0	15-16	SOFT, SILTY CLAY. SLIGHT ODOR, SOME
				16-17	METALLIC / ~~DARK~~ SAND LENSES
				17-18	
15	20	2.5	↓	18-19	10.02 → 10.92 = SLOUGH / SANDY CLAY MIX
			0.0	19-20	10.92 → 12.02 = SATURATED SANDY CLAY
					NO ODOR
					12.02 → 12.52 = SAND. WELL-ROUNDED, COARSE
					GRAINED. YELLOW (7/6 ON 10YR)
					WATER TABLE @ 15' bgs
					SAMPLE

1505 (14-15)

1510 (13-14)

ARCADIS

Sample/Core Log

Boring/Well GP-95 Project/No. MD000843.0011 Page 1 of 1

Site Location Brunswick Rail Yard, Brunswick, MD Drilling Started 1536 Drilling Completed 1550

Total Depth Drilled 20 Feet Hole Diameter 2 inches Type of Sample/ Coring Device Split spoon

Length and Diameter of Coring Device 5-foot length; 2-inch diameter Sampling Interval 5 feet

Drilling Fluid Used None Drilling Method DPT

Drilling Contractor Ground Zero Driller Corey Helper Keith

Prepared By Lauren Lamp

Sample/Core Depth (feet below land surface) From	To	Core Recovery (inches) ~~FT~~	PID Reading (ppm)	PID Reading Interval	Core Description
0	5	4	0.0	0-1	0 → 1.6 = FILL
				1-2	1.6 → 4.0 = STIFF, STRONG BROWN (4/6 ON 7.5YR)
				2-3	CLAY, NOT PLASTIC
				3-4	
5	10	3.6		4-5	4.0 → 7.6 = SAA
				5-6	0.2' OF SUB-ROUNDED SAND AND pebbles
				6-7	AT 6.5' bgs IN CORE
			0.0	7-8	
10	15	5.0	1.0	8-9	7.6 → 12.6 = SAA
			0.0	9-10	
15	20	3.0	4.8	10-11	12.6 → 15.1 = SANDY CLAY, SOFT, WET. SHEEN
			13.3	11-12	15.1 → 15.6 = YELLOW (7/6 ON 10YR) + ODOR
			28.4	12-13	COARSE SAND AND GRAVEL
			8.7	13-14	
			6.0	14-15	SATURATED/WATER TABLE @ 16' bgs
			2.5	15-16	SAMPLES
			6.7	16-17	GP-95 (12-13) @ 1555
			6.7	17-18	GP-95 (15-16) @ 1600
			6.2	18-19	
			6.0	19-20	

ARCADIS

Sample/Core Log

Boring/Well GP-96 Project/No. MD000843.0011 Page 1 of 1

Site Location: Brunswick Rail Yard, Brunswick, MD

Drilling Started: 1604 Drilling Completed: 1620

Total Depth Drilled: 20 Feet Hole Diameter: 2 inches Type of Sample/ Coring Device: Split spoon

Length and Diameter of Coring Device: 5-foot length; 2-inch diameter Sampling Interval: 5 feet

Drilling Fluid Used: None Drilling Method: DPT

Drilling Contractor: Ground Zero Driller: Corey Helper: Keith

Prepared By: Lauren Lamp

Sample/Core Depth (feet below land surface) From	To	Core Recovery ~~(inches)~~ Ft	PID Reading (ppm)	PID Reading Interval	Core Description
0	5	3.1	0.0	0-1	0→1.6 = FILL
				1-2	1.6→1.8 = STIFF STRONG BROWN (5/6 ON 7.5YR)
				2-3	1.8→3.1 = BROWN (4/4 ON 7.5YR) ~~CLAY~~ SANDY
				3-4	CLAY. SOFT. NOT PLASTIC. SLIGHT ODOR.
				4-5	
5	10	3.7		5-6	3.1→6.5 = STIFF CLAY. COLOR = SAA. NOT PLASTIC
			0.0	6-7	SLIGHT ODOR.
			3.7	7-8	ANGULAR COBBLES/STONE @ 4.8' bgs
			0.0	8-9	SAND (COARSE) @ 5.6' bgs
			0.1	9-10	6.5→6.8 = SOFT SILTY BROWN (3/2 ON 10YR)
			—	10-11	CLAY
			—	11-12	
10	15	1.5	—	12-13	6.8→8.3 = SAA
			0.5	13-14	
15	20	4.6	0.6	14-15	8.3→11.7 = SAA. SHEEN IN SAT. ZONE. WATER TABLE @ 16' bgs
			46.8	15-16	11.7→12.9 = COARSE SAND ~~AND~~ AND LARGE
			25.2	16-17	BROKEN COBBLES. SOME CEMENT AND
			11.7	17-18	CINDERS. DRY
			30.9	18-19	
			0.0	19-20	WATER TABLE @ 16' bgs
					SAMPLES
					GP-96 (7-8) @ 1620
					GP-96 (15-16) @ 1625

ARCADIS

Sample/Core Log

Boring/Well MW-71 Project/No. MD000843.0011 Page 1 of 2

Site Location: BRUNSWICK RAIL YARD

Drilling Started: 0831 Drilling Completed: 0851

Total Depth Drilled: 25 Feet Hole Diameter: 2 inches Type of Sample/Coring Device: SPLIT SPOON

Length and Diameter of Coring Device: 2" OD; 5-FOOT LENGTH Sampling Interval: 5 feet

Land-Surface Elev. ____ feet ☐ Surveyed ☐ Estimated Datum ____

Drilling Fluid Used: NONE Drilling Method: DPT / HSA

Drilling Contractor: GROUND ZERO Driller: CREW Helper: KEITH

Prepared By: LAUREN LAMP Hammer Weight: — Hammer Drop: — ins.

PID DEPTH INTERVAL

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	~~Time/Hydraulic Pressure or Blows per 6 Inches~~	Sample/Core Description
0	5	2.72	0.0	0-1	0 → 0.88 = GRAVEL / BALLAST
			0.0	1-2	0.88 → 5 = FILL
			0.0	2-3	
			0.0	3-4	
			—	4-5	
5	10	1.64	0.0	5-6	0 → 0.47 = FILL → STRONG BROWN
				6-7	0.47 → 0.95 = CLAY. HARD. NOT PLASTIC
				7-8	0.95 - 1.2 = SOFT CLAY. SATURATED (POSS. PERCHED ZONE) DARK BROWN (3/1 ON 10YR)
				8-9	
			↓	9-10	1.2 → 1.4 = SAND / CRUSHED ROCK MIX
			0.0	10-11	~~STRONG~~ BROWN CLAY (4/4 ON 7.5YR)
				11-12	1.4 → END = CLAY. BROWN 4/4 ON 7.5YR
10	15	4.82		12-13	0 → 3.18 = SAA
			↓	13-14	3.18 → END = SANDY CLAY (4/4 ON 7.5YR BROWN)
			0.0	14-15	
			0.0	15-16	
			0.1	16-17	
15	20	4.41	0.1	17-18	* SATURATION STARTS @ 16.1' bgs
			0.1	18-19	0 → 2.1 = SAA
			0.0	19-20	2.1 → 2.25 = BLACK CRUSHED GRAVEL / FILL

ARCADIS

Sample/Core Log

Boring/Well MW-71 Project No. _____ Page 2 of 2

Site Location _____ Drilling Started _____ Drilling Completed _____

Total Depth Drilled _____ Feet Hole Diameter _____ inches Type of Sample/ Coring Device _____

Length and Diameter of Coring Device SEE PAGE A Sampling Interval _____ feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used _____ Drilling Method _____

Drilling Contractor _____ Driller _____ Helper _____

Prepared By _____ Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Time/Hydraulic Pressure or Blows per 6 Inches	Sample/Core Description
20	25	3.5	0.0	20-21	2.25 → 3.42 - CLAY SAA. SANDY CLAY. STRONG BROWN 4/6 ON 7.5YR
			0.1	21-22	3.42 → END = TRANSITION TO SILTY SAND
			0.1	22-23	AND COBBLES/PEBBLES THAT ARE ANGULAR
			0.2	23-24	LAST 0.2 FT (19.8 - 20') = CEMENT/BROKEN SLAB
			0.0	24-25	
					0 → 2.6 = SAA
					2.6 → END. SAND AND SUB-ANGULAR
					GRAVEL. DRY. STRONG BROWN 4/6 ON 7.5YR

ARCADIS

Sample/Core Log

Boring/Well GB-01 Project/No MD000843.0011.00010 Page 1 of 1

Site Location Brunswick Rail Yard, Brunswick, MD

Drilling Started 12-9-14 Drilling Completed 12-9-14

Total Depth Drilled 23 Feet Hole Diameter 6" OD inches Type of Sample/ Coring Device Split Spoon

Length and Diameter of Coring Device 24" x 2" Sampling Interval 2 feet

Drilling Fluid Used — Drilling Method HSA

Drilling Contractor Earth Matters Driller ____ Helper ____

Prepared By R. Buckmaster Hammer Weight 140 Hammer Drop 30 ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading per 6 in (ppm)	Time/Hydraulic Pressure or Blows per 6 Inches	Sample/Core Description
0	2	1.0	0.1	5/5/4/8	black gravel - asphalt fill dry
2	4	0.5	0.1	8/15/20/9	black - gray gravel fill balast dry
1330 * 4	6	1.8	0.0	10/20/17/18	black to red gravel & brick fill w/silt moist
6	8	0.9	13.2	22/16/6/5	same - wet
8	10	1.5	0.8	9/5/5/6	same trans. to gray clay 90 w/ gravel 10 wet
1405 * 10	12	1.0	0.1	4/4/10/10	gray clay - silty 20 clay 60 w/ gravel 20 wet
* 12	14	1.5	144.6	3/4/5/6	& same - odor wet
14	16	1.1	73.0	35/3/5/8	same - odor, sheen wet
16	18	0.1	13.3	4/5/5/14	same - odor, sheen, wet
18	20	0.0	~~0~~	50x1	slough
1530 20	22	0.8	5.8	50x5	gray silty 20 clay 60 w/ gravel 20 - sapprolite
* 22	23	1.0	3.1	25/4/4/5/50	red-yellow sapprolite - gravel
~~24~~	~~26~~				auger - refusal @ 23 ft bgs
~~26~~	~~28~~				
~~28~~	~~30~~				

ARCADIS

ARCADIS

Sample/Core Log

Boring/Well GB-02 Project/No MD000843.0011.00010 Page 1 of 1

Site Location Brunswick Rail Yard, Brunswick, MD

Drilling Started 12/9/14 Drilling Completed 12-9-14

Total Depth Drilled 30 Feet Hole Diameter 6" OD inches Type of Sample/ Coring Device Split Spoon

Length and Diameter of Coring Device 24" x 2" Sampling Interval 2 feet

Drilling Fluid Used — Drilling Method HSA

Drilling Contractor Earth Matters Driller ____ Helper ____

Prepared By R. Buckmaster Hammer Weight 140 Hammer Drop 30 ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading per 6 in (ppm)	Time/Hydraulic Pressure or Blows per 6 Inches	Sample/Core Description
0	2.0	1.2	0.0	4/4/6/12	Black gravel - fill moist
2.0	4.0	0.8	0.2	4/2/3/3	red brown clay w/ brick fill moist
4.0	6.0	0.4	0.0	2/2/3/3	" " moist
6	8	0.9	0.0	2/3/5/6	" " moist
8	10	0.9	0.0	4/4/4/5	light brown clay - silty(15) clay(80) w/gravel(5) moist
10	12	0.8	0.0	3/3/6/10	same, slight damp
12	14	1.8	0.0	4/5/8/10	light brown clayey(35) silt(60) w/ gravel(5) moist
14	16	1.7	0.0	3/3/6/9	red-brown-light brown clayey(20) silt(70) w/ sand(5)-gravel(5)
16	18	0.8	1.3	4/5/7/6	same
18	20	0.8	0.1	2/3/6/8	same - wet, saturated
20	22	1.5	0.2	10/15/9/18	same - wet saturated, gravel bed @ 21-22'
22	24	1.1	0.1	17/17/17/35	red-brown gravelly(30)-sand(50) w/ silt(20) wet
24	26	1.5	0.2	21/25/35/50	red-brown - yellow sandy(20)-gravel(70) w/silt(10) saprolite moist
26	28	0.7	0.1	40/50x2	same - wet
28	30	0.0	0.0	50x2	rock in shoe

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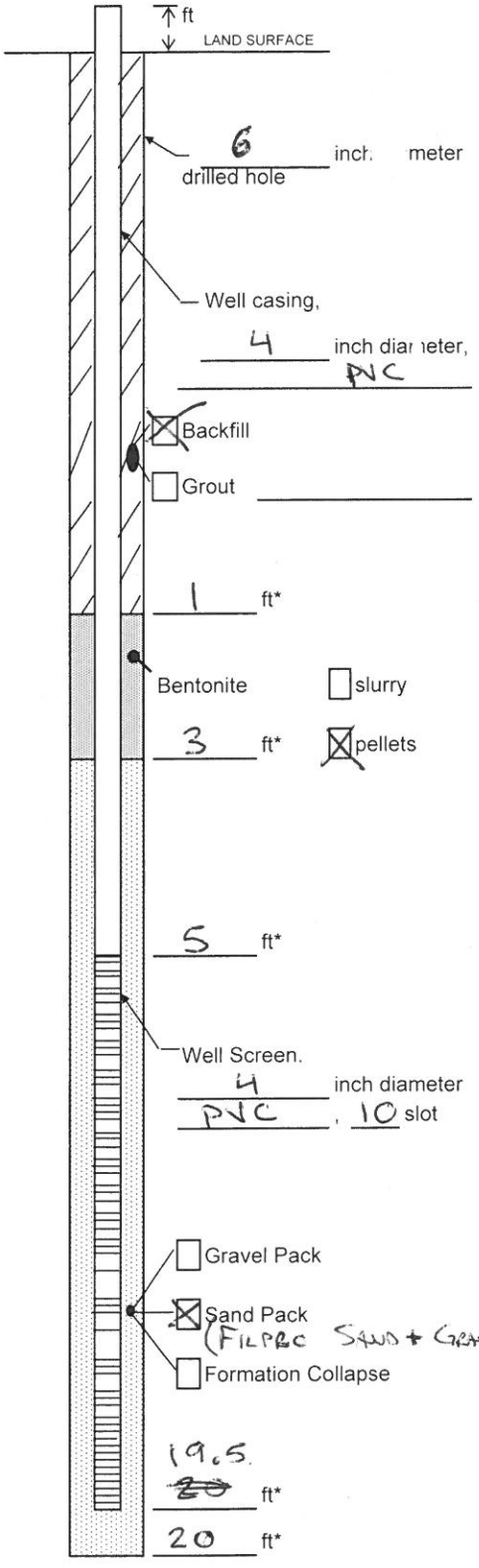
Well Construction Log

(Unconsolidated)



Measuring Point is
Top of Well Casing
Unless Otherwise Noted.

* Depth Below Land Surface

Project BRUNSWICK PDI Well MW-71

Town/City BRUNSWICK, MD

County FREDERICK State MD

Permit No.

Land-Surface Elevation and Datum:

feet ☐ Surveyed ☐ Estimated

Installation Date(s) NOVEMBER 20, 2014

Drilling Method HOLLOW STEM AUGER (HSA)

Drilling Contractor GROUND ZERO

Drilling Fluid NONE

Development Technique(s) and Date(s)

WATERRA + WHALE PUMPS; PURGE & SURGE PUMPS; PURGE ~ 12 VOLUMES 11/25/2014 → DEVELOPMENT COMPLETE

Fluid Loss During Drilling N/A gallons

Water Removed During Development ~35 gallons

Static Depth to Water 15.17 feet below M.P. ON 11.20.2014

Pumping Depth to Water 19.00 feet below M.P.

Pumping Duration 2 hours

Yield — gpm Date 11.25.2014 STATIC WL @ 15.23

Specific Capacity — gpm/ft

Well Purpose MONITORING WELL; TO CONFIRM NO SECONDARY SOURCE OF LPM UPGRADIENT OF MW-70 & MW-39

Remarks HSA HIT REFUSAL AT 20' BGS

Prepared by LAUREN LUMP

ARCADIS

Monitoring Well Development Log

Project/No. MD000843, 0011, 0010 Well MW-71 Date 11.25.14

Total Depth 19.50 Casing Diameter (inches) 4 Purge Method: Centrifugal ___

Water Level 15.23 Well Volume (gal) 2.77 Submersible X WHALE PUMP

Water Column 4.26 Total Volume Purged ~35 gal (12-13 vol) Other X WATTERRA

Pump On 0945 Pump Off 1251 Developed By LAUREN LAMP

Well Casing Volumes

gallon/foot			
1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

Time	Minutes Elapsed	Rate (gpm) (mL/min)	DTW (ft)	Gallons Purged	pH	Specific Conductance (mS/cm)	Temp. (C) (F)	Turbidity (NTU)	REMARKS (PID readings, color, odor, etc.)	Volumes purged
0947	2		16.89	~3	6.22	0.321	15.13	710000	BROWN,	1V
0949	4		17.63	~4	6.14	0.347	15.61	978	muddy	
0950	5		18.78	~5	5.97	0.352	15.72	384	pale orange	
0952	7		19.21	~6	6.00	0.392	15.89	121	pale yellow	~2V
0953	8	WELL WENT DRY. WAIT FOR IT TO RECHARGE								
1006	RESTART PUMP		DTW=	15.97				592	orange	
1010	12		18.21	~10	6.02	0.477	15.77	181	pale orange	~3.5V
1012	14		19.14	~12	5.85	0.500	16.82	97	MILKY	~4V
1013	15	WELL WENT DRY								
1030			16.01	RESTART PUMP			15.78	322	ORANGE	
1032	17			~14	5.85	0.489	15.99	221	pale yellow	
1034	19			~16	5.78	0.567	16.16	187	pale yellow	
1036	21			~18	5.81	0.549	16.42	150	MILKY	~6V
1038	23			~20	5.77	0.558	16.63	99	MILKY	
1039	WELL WENT DRY.									
1052	PUMP RESTART		16.30	~20	5.71	0.555	15.69	298	PALE GRAY	~7V
1057	28		16.12		5.74	0.557	16.15	205	PALE GRAY	
1102	33		15.97	~21	5.73	0.560	16.62	55.4	CLEAR	
1108	39		16.13	~22	5.74	0.568	17.90	236	PALE YELLOW	
1112	43		16.88	~23	5.75	0.564	17.87	148	MILKY	
1117	48		17.50	~24	5.77	0.570	17.92	56.0	CLEAR	~8V
1122	53		17.97	~25	5.76	0.575	17.71	38	CLEAR	

NATTERRA MID H2O (@17' bgs)

NATTERRA → 2 BOTTOM

SURGE PUMP BTWN 17-19' bgs

NATTERRA

WHALE PUMP. SURGE PUMP

ARCADIS

Monitoring Well Development Log

Project/No. MD000643.0011 Well MW-71 Date 11.25.14

Total Depth 19.5 Casing Diameter (inches) 4 Purge Method: Centrifugal ___

Water Level 15.23 Well Volume (gal) 2.77 Submersible X

Water Column 4.26 Total Volume Purged ~35 GAL Other X

Pump On 0945 Pump Off 1251 Developed By LL

Well Casing Volumes

gallon/foot			
1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

Time	Minutes Elapsed	Rate (gpm) (mL/min)	DTW (ft)	Gallons Purged	pH	Specific Conductance (mS/cm)	Temp. (C) (F)	Turbidity (NTU)	REMARKS (PID readings, color, odor, etc.)	Volumes purged
1123	WELL	WENT	DRY							
1140	RESTART PUMP		16.13	~28	5.80	0.580	17.52	285	V. PAR ORANGE	~9V
1145	58		16.22		5.83	0.583	17.63	86.9	MILKY	
1150	63		16.38	~29	5.79	0.580	17.71	33.8	CLEAR	
1200	68		16.36		5.78	0.581	17.79	29.1	CLEAR	
1205	73		16.30	~30	5.77	0.583	17.80	30.2	CLEAR	~10V
1210	78		16.72		5.77	0.592	18.11	97.4	MILKY	
1212	80		17.17	~31	5.75	0.578	18.03	40.8	CLEAR	
1215	85		17.26		5.78	0.581	17.89	32.0	CLEAR	
1220	90		18.13	~32	5.81	0.579	18.00	64.0	CLEAR	
1225	95		17.79		5.77	0.580	17.92	33.7	CLEAR	
1230	100		17.83	~33	5.77	0.581	17.85	30.2	CLEAR	~11
1235	105		17.91		5.78	0.581	17.89	31.4	CLEAR	
1240	110		18.00	~34	5.78	0.581	17.80	29.6	CLEAR	~12
1245	115		17.99		5.78	0.581	17.81	31.2	CLEAR	
1250	120		18.82	~35	5.77	0.581	17.89	29.9	CLEAR	~13
1251	PUMP OFF									

Surge pump → 1210

Surge pump → 1220

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Appendix B

Analytical Laboratory Reports

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Tel: (912)354-7858

TestAmerica Job ID: 680-107499-1
Client Project/Site: CSX C&O Canal Brunswick, MD

For:
ARCADIS U.S., Inc.
1114 Benfield Blvd.
Suite A
Millersville, Maryland 21108

Attn: Ms. Megan Kellner

Authorized for release by:
12/5/2014 3:27:24 PM

Lisa Harvey, Project Manager II
(912)354-7858 e.3221
lisa.harvey@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Job ID: 680-107499-1

Laboratory: TestAmerica Savannah

Narrative

CASE NARRATIVE
Client: ARCADIS U.S., Inc.
Project: CSX C&O Canal Brunswick, MD
Report Number: 680-107499-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In the event of interference or analytes present at high concentrations, samples may be diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

RECEIPT

The samples were received on 11/21/2014; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 2.5 C.

VOLATILE ORGANIC COMPOUNDS (GC-MS)

Sample MW-71(15-16)(112014) (680-107499-1) was analyzed for Volatile Organic Compounds (GC-MS) in accordance with EPA SW-846 Method 8260B. The samples were prepared and analyzed on 11/24/2014.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

SEMIVOLATILE ORGANIC COMPOUNDS (SOLID)

Sample MW-71(15-16)(112014) (680-107499-1) was analyzed for Semivolatile Organic Compounds (Solid) in accordance with EPA SW-846 Method 8270D. The samples were prepared on 11/22/2014 and analyzed on 11/26/2014.

Method(s) 8270D: The following analyte(s) recovered outside control limits for the LCS associated with batch 360040: benzaldehyde. This is not indicative of a systematic control problem because these were random marginal exceedances. Qualified results have been reported.

Method(s) 8270D: The continuing calibration verification (CCV) analyzed in batch 360635 was outside the method criteria for the following analyte(s): 2,4-dinitrophenol. A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte(s) is considered estimated.

2,4-Dinitrophenol has recovery outside criteria low for the MS of sample MW-71(15-16)(112014) (680-107499-1) in batch 680-360635.

2,4-Dinitrophenol, 3-Nitroaniline and 4-Chloroaniline have recovery outside criteria low for the MSD of sample MW-71(15-16)(112014) (680-107499-1) in batch 680-360635.

Refer to the QC report for details.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO)

Sample MW-71(15-16)(112014) (680-107499-1) was analyzed for gasoline range organics (GRO) in accordance with EPA SW-846 Method 8015B. The samples were prepared on 11/21/2014 and analyzed on 12/04/2014.

Method(s) 5035, 8015C: The following sample was received in pre-weighed containers with a label that was added in the field, which would cause a slight low bias in the final results: -1 GRO vials; see batch 680-360001.

Method(s) 8015C: The method blank for batch 361675 contained C6-C10 above the method detection limit (MDL). This target analyte concentration was less than the project-specific action limit; therefore, re-extraction and/or re-analysis of samples was not performed.

Job ID: 680-107499-1 (Continued)

Laboratory: TestAmerica Savannah (Continued)

Method(s) 8015C: Due to sample matrix effect on the internal standard (ISTD), a dilution was required for the following sample: MW-71(15-16)(112014) (680-107499-1).

Method(s) 8015C: Surrogate recovery for the following sample was outside control limits: MW-71(15-16)(112014) (680-107499-1). Re-analysis was performed with concurring results. The original analysis has been reported.

Method(s) 8015C: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with batch 361675.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DIESEL RANGE ORGANICS (DRO)

Sample MW-71(15-16)(112014) (680-107499-1) was analyzed for Diesel Range Organics (DRO) in accordance with EPA SW-846 Method 8015C. The samples were prepared on 11/22/2014 and analyzed on 11/24/2014.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS/MOISTURE

Sample MW-71(15-16)(112014) (680-107499-1) was analyzed for Percent Solids/Moisture in accordance with TestAmerica SOP. The samples were analyzed on 11/21/2014.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: CSX C&O Canal Brunswick, MD

TestAmerica Job ID: 680-107499-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-107499-1	MW-71(15-16)(112014)	Solid	11/20/14 09:15	11/21/14 10:00

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: CSX C&O Canal Brunswick, MD

TestAmerica Job ID: 680-107499-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL PEN
8270D	Semivolatile Organic Compounds (GC/MS)	SW846	TAL SAV
8015C	Nonhalogenated Organics using GC/FID -Modified (Gasoline Range Organics)	SW846	TAL SAV
8015C	Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics)	SW846	TAL SAV
Moisture	Percent Moisture	EPA	TAL SAV

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC/MS Semi VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
*	LCS or LCSD exceeds the control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
F1	MS and/or MSD Recovery exceeds the control limits

GC VOA

Qualifier	Qualifier Description
X	Surrogate is outside control limits
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client: ARCADIS U.S., Inc.
Project/Site: CSX C&O Canal Brunswick, MD

TestAmerica Job ID: 680-107499-1

Client Sample ID: MW-71(15-16)(112014)
Date Collected: 11/20/14 09:15
Date Received: 11/21/14 10:00

Lab Sample ID: 680-107499-1
Matrix: Solid
Percent Solids: 80.9

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	30	J	48	14	ug/Kg	☼	11/24/14 10:25	11/24/14 19:06	1
Benzene	9.6	U	9.6	2.1	ug/Kg	☼	11/24/14 10:25	11/24/14 19:06	1
Bromodichloromethane	9.6	U	9.6	4.8	ug/Kg	☼	11/24/14 10:25	11/24/14 19:06	1
Bromoform	9.6	U	9.6	4.8	ug/Kg	☼	11/24/14 10:25	11/24/14 19:06	1
Bromomethane	9.6	U	9.6	4.8	ug/Kg	☼	11/24/14 10:25	11/24/14 19:06	1
Carbon disulfide	9.6	U	9.6	4.8	ug/Kg	☼	11/24/14 10:25	11/24/14 19:06	1
Carbon tetrachloride	9.6	U	9.6	3.3	ug/Kg	☼	11/24/14 10:25	11/24/14 19:06	1
Chlorobenzene	9.6	U	9.6	1.0	ug/Kg	☼	11/24/14 10:25	11/24/14 19:06	1
Chloroethane	9.6	U	9.6	4.8	ug/Kg	☼	11/24/14 10:25	11/24/14 19:06	1
Chloroform	9.6	U	9.6	4.8	ug/Kg	☼	11/24/14 10:25	11/24/14 19:06	1
Chloromethane	9.6	U	9.6	1.9	ug/Kg	☼	11/24/14 10:25	11/24/14 19:06	1
cis-1,2-Dichloroethene	9.6	U	9.6	1.5	ug/Kg	☼	11/24/14 10:25	11/24/14 19:06	1
cis-1,3-Dichloropropene	9.6	U	9.6	2.3	ug/Kg	☼	11/24/14 10:25	11/24/14 19:06	1
Cyclohexane	9.6	U	9.6	1.8	ug/Kg	☼	11/24/14 10:25	11/24/14 19:06	1
Dibromochloromethane	9.6	U	9.6	4.8	ug/Kg	☼	11/24/14 10:25	11/24/14 19:06	1
1,2-Dibromo-3-Chloropropane	9.6	U	9.6	6.4	ug/Kg	☼	11/24/14 10:25	11/24/14 19:06	1
1,2-Dichlorobenzene	9.6	U	9.6	1.4	ug/Kg	☼	11/24/14 10:25	11/24/14 19:06	1
1,3-Dichlorobenzene	9.6	U	9.6	1.8	ug/Kg	☼	11/24/14 10:25	11/24/14 19:06	1
1,4-Dichlorobenzene	9.6	U	9.6	4.8	ug/Kg	☼	11/24/14 10:25	11/24/14 19:06	1
Dichlorodifluoromethane	9.6	U	9.6	2.5	ug/Kg	☼	11/24/14 10:25	11/24/14 19:06	1
1,1-Dichloroethane	9.6	U	9.6	1.6	ug/Kg	☼	11/24/14 10:25	11/24/14 19:06	1
1,2-Dichloroethane	9.6	U	9.6	1.6	ug/Kg	☼	11/24/14 10:25	11/24/14 19:06	1
1,1-Dichloroethene	9.6	U	9.6	4.8	ug/Kg	☼	11/24/14 10:25	11/24/14 19:06	1
1,2-Dichloropropane	9.6	U	9.6	4.8	ug/Kg	☼	11/24/14 10:25	11/24/14 19:06	1
Diisopropyl ether	9.6	U	9.6	1.1	ug/Kg	☼	11/24/14 10:25	11/24/14 19:06	1
Ethylbenzene	9.6	U	9.6	1.2	ug/Kg	☼	11/24/14 10:25	11/24/14 19:06	1
Ethylene Dibromide	9.6	U	9.6	1.9	ug/Kg	☼	11/24/14 10:25	11/24/14 19:06	1
Ethyl tert-butyl ether	9.6	U	9.6	4.8	ug/Kg	☼	11/24/14 10:25	11/24/14 19:06	1
2-Hexanone	48	U	48	9.6	ug/Kg	☼	11/24/14 10:25	11/24/14 19:06	1
Isopropylbenzene	9.6	U	9.6	1.3	ug/Kg	☼	11/24/14 10:25	11/24/14 19:06	1
Methyl acetate	9.6	U	9.6	8.9	ug/Kg	☼	11/24/14 10:25	11/24/14 19:06	1
Methylcyclohexane	9.6	U	9.6	2.9	ug/Kg	☼	11/24/14 10:25	11/24/14 19:06	1
Methylene Chloride	29	U	29	19	ug/Kg	☼	11/24/14 10:25	11/24/14 19:06	1
Methyl Ethyl Ketone	48	U	48	12	ug/Kg	☼	11/24/14 10:25	11/24/14 19:06	1
methyl isobutyl ketone	48	U	48	9.6	ug/Kg	☼	11/24/14 10:25	11/24/14 19:06	1
Methyl tert-butyl ether	9.6	U	9.6	1.9	ug/Kg	☼	11/24/14 10:25	11/24/14 19:06	1
Naphthalene	9.6	U	9.6	3.8	ug/Kg	☼	11/24/14 10:25	11/24/14 19:06	1
Styrene	9.6	U	9.6	1.9	ug/Kg	☼	11/24/14 10:25	11/24/14 19:06	1
Tert-amyl methyl ether	9.6	U	9.6	1.9	ug/Kg	☼	11/24/14 10:25	11/24/14 19:06	1
tert-Butyl alcohol	19	U	19	15	ug/Kg	☼	11/24/14 10:25	11/24/14 19:06	1
1,1,2,2-Tetrachloroethane	9.6	U	9.6	4.8	ug/Kg	☼	11/24/14 10:25	11/24/14 19:06	1
Tetrachloroethene	9.6	U	9.6	4.8	ug/Kg	☼	11/24/14 10:25	11/24/14 19:06	1
Toluene	9.6	U	9.6	1.9	ug/Kg	☼	11/24/14 10:25	11/24/14 19:06	1
trans-1,2-Dichloroethene	9.6	U	9.6	4.8	ug/Kg	☼	11/24/14 10:25	11/24/14 19:06	1
trans-1,3-Dichloropropene	9.6	U	9.6	4.8	ug/Kg	☼	11/24/14 10:25	11/24/14 19:06	1
1,2,4-Trichlorobenzene	9.6	U	9.6	3.8	ug/Kg	☼	11/24/14 10:25	11/24/14 19:06	1
1,1,1-Trichloroethane	9.6	U	9.6	2.1	ug/Kg	☼	11/24/14 10:25	11/24/14 19:06	1
1,1,2-Trichloroethane	9.6	U	9.6	4.8	ug/Kg	☼	11/24/14 10:25	11/24/14 19:06	1
Trichloroethene	9.6	U	9.6	1.9	ug/Kg	☼	11/24/14 10:25	11/24/14 19:06	1

Client Sample ID: MW-71(15-16)(112014)
Date Collected: 11/20/14 09:15
Date Received: 11/21/14 10:00

Lab Sample ID: 680-107499-1
Matrix: Solid
Percent Solids: 80.9

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichlorofluoromethane	9.6	U	9.6	4.8	ug/Kg	☼	11/24/14 10:25	11/24/14 19:06	1
1,1,2-Trichloro-1,2,2-trifluoroethane	9.6	U	9.6	3.8	ug/Kg	☼	11/24/14 10:25	11/24/14 19:06	1
Vinyl chloride	9.6	U	9.6	4.8	ug/Kg	☼	11/24/14 10:25	11/24/14 19:06	1
Xylenes, Total	9.6	U	9.6	1.9	ug/Kg	☼	11/24/14 10:25	11/24/14 19:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*97*		*72 - 122*	*11/24/14 10:25*	*11/24/14 19:06*	*1*
Dibromofluoromethane	*104*		*79 - 123*	*11/24/14 10:25*	*11/24/14 19:06*	*1*
Toluene-d8 (Surr)	*93*		*80 - 120*	*11/24/14 10:25*	*11/24/14 19:06*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzaldehyde	400	U *	400	71	ug/Kg	☼	11/22/14 11:35	11/26/14 15:35	1
Phenol	400	U	400	41	ug/Kg	☼	11/22/14 11:35	11/26/14 15:35	1
Bis(2-chloroethyl)ether	400	U	400	55	ug/Kg	☼	11/22/14 11:35	11/26/14 15:35	1
2-Chlorophenol	400	U	400	49	ug/Kg	☼	11/22/14 11:35	11/26/14 15:35	1
2-Methylphenol	400	U	400	33	ug/Kg	☼	11/22/14 11:35	11/26/14 15:35	1
bis (2-chloroisopropyl) ether	400	U	400	37	ug/Kg	☼	11/22/14 11:35	11/26/14 15:35	1
Acetophenone	400	U	400	34	ug/Kg	☼	11/22/14 11:35	11/26/14 15:35	1
3 & 4 Methylphenol	400	U	400	52	ug/Kg	☼	11/22/14 11:35	11/26/14 15:35	1
N-Nitrosodi-n-propylamine	400	U	400	39	ug/Kg	☼	11/22/14 11:35	11/26/14 15:35	1
Hexachloroethane	400	U	400	34	ug/Kg	☼	11/22/14 11:35	11/26/14 15:35	1
Nitrobenzene	400	U	400	32	ug/Kg	☼	11/22/14 11:35	11/26/14 15:35	1
Isophorone	400	U	400	40	ug/Kg	☼	11/22/14 11:35	11/26/14 15:35	1
2-Nitrophenol	400	U	400	50	ug/Kg	☼	11/22/14 11:35	11/26/14 15:35	1
2,4-Dimethylphenol	400	U	400	54	ug/Kg	☼	11/22/14 11:35	11/26/14 15:35	1
Bis(2-chloroethoxy)methane	400	U	400	48	ug/Kg	☼	11/22/14 11:35	11/26/14 15:35	1
2,4-Dichlorophenol	400	U	400	43	ug/Kg	☼	11/22/14 11:35	11/26/14 15:35	1
Naphthalene	400	U	400	37	ug/Kg	☼	11/22/14 11:35	11/26/14 15:35	1
4-Chloroaniline	810	U	810	63	ug/Kg	☼	11/22/14 11:35	11/26/14 15:35	1
Hexachlorobutadiene	400	U	400	44	ug/Kg	☼	11/22/14 11:35	11/26/14 15:35	1
Caprolactam	400	U	400	81	ug/Kg	☼	11/22/14 11:35	11/26/14 15:35	1
4-Chloro-3-methylphenol	400	U	400	43	ug/Kg	☼	11/22/14 11:35	11/26/14 15:35	1
2-Methylnaphthalene	400	U	400	46	ug/Kg	☼	11/22/14 11:35	11/26/14 15:35	1
Hexachlorocyclopentadiene	400	U	400	50	ug/Kg	☼	11/22/14 11:35	11/26/14 15:35	1
2,4,6-Trichlorophenol	400	U	400	35	ug/Kg	☼	11/22/14 11:35	11/26/14 15:35	1
2,4,5-Trichlorophenol	400	U	400	43	ug/Kg	☼	11/22/14 11:35	11/26/14 15:35	1
1,1'-Biphenyl	2100	U	2100	2100	ug/Kg	☼	11/22/14 11:35	11/26/14 15:35	1
2-Chloronaphthalene	400	U	400	43	ug/Kg	☼	11/22/14 11:35	11/26/14 15:35	1
2-Nitroaniline	2100	U	2100	55	ug/Kg	☼	11/22/14 11:35	11/26/14 15:35	1
Dimethyl phthalate	400	U	400	41	ug/Kg	☼	11/22/14 11:35	11/26/14 15:35	1
2,6-Dinitrotoluene	400	U	400	51	ug/Kg	☼	11/22/14 11:35	11/26/14 15:35	1
Acenaphthylene	400	U	400	44	ug/Kg	☼	11/22/14 11:35	11/26/14 15:35	1
3-Nitroaniline	2100	U	2100	56	ug/Kg	☼	11/22/14 11:35	11/26/14 15:35	1
Acenaphthene	400	U	400	50	ug/Kg	☼	11/22/14 11:35	11/26/14 15:35	1
2,4-Dinitrophenol	2100	U	2100	1000	ug/Kg	☼	11/22/14 11:35	11/26/14 15:35	1
4-Nitrophenol	2100	U	2100	400	ug/Kg	☼	11/22/14 11:35	11/26/14 15:35	1
Dibenzofuran	400	U	400	40	ug/Kg	☼	11/22/14 11:35	11/26/14 15:35	1
2,4-Dinitrotoluene	400	U	400	60	ug/Kg	☼	11/22/14 11:35	11/26/14 15:35	1
Diethyl phthalate	400	U	400	45	ug/Kg	☼	11/22/14 11:35	11/26/14 15:35	1

Client Sample ID: MW-71(15-16)(112014)
Date Collected: 11/20/14 09:15
Date Received: 11/21/14 10:00

Lab Sample ID: 680-107499-1
Matrix: Solid
Percent Solids: 80.9

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluorene	400	U	400	44	ug/Kg	☼	11/22/14 11:35	11/26/14 15:35	1
4-Chlorophenyl phenyl ether	400	U	400	54	ug/Kg	☼	11/22/14 11:35	11/26/14 15:35	1
4-Nitroaniline	2100	U	2100	60	ug/Kg	☼	11/22/14 11:35	11/26/14 15:35	1
4,6-Dinitro-2-methylphenol	2100	U	2100	210	ug/Kg	☼	11/22/14 11:35	11/26/14 15:35	1
N-Nitrosodiphenylamine	400	U	400	40	ug/Kg	☼	11/22/14 11:35	11/26/14 15:35	1
4-Bromophenyl phenyl ether	400	U	400	44	ug/Kg	☼	11/22/14 11:35	11/26/14 15:35	1
Hexachlorobenzene	400	U	400	48	ug/Kg	☼	11/22/14 11:35	11/26/14 15:35	1
Atrazine	400	U	400	28	ug/Kg	☼	11/22/14 11:35	11/26/14 15:35	1
Pentachlorophenol	2100	U	2100	400	ug/Kg	☼	11/22/14 11:35	11/26/14 15:35	1
Phenanthrene	**38**	**J**	400	33	ug/Kg	☼	11/22/14 11:35	11/26/14 15:35	1
Anthracene	400	U	400	31	ug/Kg	☼	11/22/14 11:35	11/26/14 15:35	1
Carbazole	400	U	400	37	ug/Kg	☼	11/22/14 11:35	11/26/14 15:35	1
Di-n-butyl phthalate	400	U	400	37	ug/Kg	☼	11/22/14 11:35	11/26/14 15:35	1
Fluoranthene	400	U	400	39	ug/Kg	☼	11/22/14 11:35	11/26/14 15:35	1
Pyrene	400	U	400	33	ug/Kg	☼	11/22/14 11:35	11/26/14 15:35	1
Butyl benzyl phthalate	400	U	400	32	ug/Kg	☼	11/22/14 11:35	11/26/14 15:35	1
3,3'-Dichlorobenzidine	810	U	810	34	ug/Kg	☼	11/22/14 11:35	11/26/14 15:35	1
Benzo[a]anthracene	400	U	400	33	ug/Kg	☼	11/22/14 11:35	11/26/14 15:35	1
Chrysene	400	U	400	26	ug/Kg	☼	11/22/14 11:35	11/26/14 15:35	1
Bis(2-ethylhexyl) phthalate	400	U	400	35	ug/Kg	☼	11/22/14 11:35	11/26/14 15:35	1
Di-n-octyl phthalate	400	U	400	35	ug/Kg	☼	11/22/14 11:35	11/26/14 15:35	1
Benzo[b]fluoranthene	400	U	400	46	ug/Kg	☼	11/22/14 11:35	11/26/14 15:35	1
Benzo[k]fluoranthene	400	U	400	79	ug/Kg	☼	11/22/14 11:35	11/26/14 15:35	1
Benzo[a]pyrene	400	U	400	63	ug/Kg	☼	11/22/14 11:35	11/26/14 15:35	1
Indeno[1,2,3-cd]pyrene	400	U	400	34	ug/Kg	☼	11/22/14 11:35	11/26/14 15:35	1
Dibenz(a,h)anthracene	400	U	400	48	ug/Kg	☼	11/22/14 11:35	11/26/14 15:35	1
Benzo[g,h,i]perylene	400	U	400	27	ug/Kg	☼	11/22/14 11:35	11/26/14 15:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*69*		*37 - 115*	*11/22/14 11:35*	*11/26/14 15:35*	*1*
2-Fluorobiphenyl	*83*		*41 - 116*	*11/22/14 11:35*	*11/26/14 15:35*	*1*
Terphenyl-d14 (Surr)	*90*		*46 - 126*	*11/22/14 11:35*	*11/26/14 15:35*	*1*
Phenol-d5 (Surr)	*77*		*38 - 122*	*11/22/14 11:35*	*11/26/14 15:35*	*1*
2-Fluorophenol (Surr)	*78*		*39 - 114*	*11/22/14 11:35*	*11/26/14 15:35*	*1*
2,4,6-Tribromophenol (Surr)	*98*		*45 - 129*	*11/22/14 11:35*	*11/26/14 15:35*	*1*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Gasoline Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**0.68**	**J B**	3.3	0.25	mg/Kg	☼	11/21/14 15:58	12/04/14 17:46	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*39*	*X*	*70 - 131*	*11/21/14 15:58*	*12/04/14 17:46*	*20*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**3.2**	**J**	4.0	2.6	mg/Kg	☼	11/22/14 11:35	11/24/14 19:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*79*		*45 - 130*	*11/22/14 11:35*	*11/24/14 19:11*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: CSX C&O Canal Brunswick, MD

TestAmerica Job ID: 680-107499-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 400-237765/1-A
Matrix: Solid
Analysis Batch: 237751

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 237765

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	25	U	25	7.3	ug/Kg		11/24/14 10:25	11/24/14 11:31	1
Benzene	5.0	U	5.0	1.1	ug/Kg		11/24/14 10:25	11/24/14 11:31	1
Bromodichloromethane	5.0	U	5.0	2.5	ug/Kg		11/24/14 10:25	11/24/14 11:31	1
Bromoform	5.0	U	5.0	2.5	ug/Kg		11/24/14 10:25	11/24/14 11:31	1
Bromomethane	5.0	U	5.0	2.5	ug/Kg		11/24/14 10:25	11/24/14 11:31	1
Carbon disulfide	5.0	U	5.0	2.5	ug/Kg		11/24/14 10:25	11/24/14 11:31	1
Carbon tetrachloride	5.0	U	5.0	1.7	ug/Kg		11/24/14 10:25	11/24/14 11:31	1
Chlorobenzene	5.0	U	5.0	0.52	ug/Kg		11/24/14 10:25	11/24/14 11:31	1
Chloroethane	5.0	U	5.0	2.5	ug/Kg		11/24/14 10:25	11/24/14 11:31	1
Chloroform	5.0	U	5.0	2.5	ug/Kg		11/24/14 10:25	11/24/14 11:31	1
Chloromethane	5.0	U	5.0	1.0	ug/Kg		11/24/14 10:25	11/24/14 11:31	1
cis-1,2-Dichloroethene	5.0	U	5.0	0.76	ug/Kg		11/24/14 10:25	11/24/14 11:31	1
cis-1,3-Dichloropropene	5.0	U	5.0	1.2	ug/Kg		11/24/14 10:25	11/24/14 11:31	1
Cyclohexane	5.0	U	5.0	0.94	ug/Kg		11/24/14 10:25	11/24/14 11:31	1
Dibromochloromethane	5.0	U	5.0	2.5	ug/Kg		11/24/14 10:25	11/24/14 11:31	1
1,2-Dibromo-3-Chloropropane	5.0	U	5.0	3.3	ug/Kg		11/24/14 10:25	11/24/14 11:31	1
1,2-Dichlorobenzene	5.0	U	5.0	0.71	ug/Kg		11/24/14 10:25	11/24/14 11:31	1
1,3-Dichlorobenzene	5.0	U	5.0	0.95	ug/Kg		11/24/14 10:25	11/24/14 11:31	1
1,4-Dichlorobenzene	5.0	U	5.0	2.5	ug/Kg		11/24/14 10:25	11/24/14 11:31	1
Dichlorodifluoromethane	5.0	U	5.0	1.3	ug/Kg		11/24/14 10:25	11/24/14 11:31	1
1,1-Dichloroethane	5.0	U	5.0	0.83	ug/Kg		11/24/14 10:25	11/24/14 11:31	1
1,2-Dichloroethane	5.0	U	5.0	0.82	ug/Kg		11/24/14 10:25	11/24/14 11:31	1
1,1-Dichloroethene	5.0	U	5.0	2.5	ug/Kg		11/24/14 10:25	11/24/14 11:31	1
1,2-Dichloropropane	5.0	U	5.0	2.5	ug/Kg		11/24/14 10:25	11/24/14 11:31	1
Diisopropyl ether	5.0	U	5.0	0.55	ug/Kg		11/24/14 10:25	11/24/14 11:31	1
Ethylbenzene	5.0	U	5.0	0.61	ug/Kg		11/24/14 10:25	11/24/14 11:31	1
Ethylene Dibromide	5.0	U	5.0	1.0	ug/Kg		11/24/14 10:25	11/24/14 11:31	1
Ethyl tert-butyl ether	5.0	U	5.0	2.5	ug/Kg		11/24/14 10:25	11/24/14 11:31	1
2-Hexanone	25	U	25	5.0	ug/Kg		11/24/14 10:25	11/24/14 11:31	1
Isopropylbenzene	5.0	U	5.0	0.68	ug/Kg		11/24/14 10:25	11/24/14 11:31	1
Methyl acetate	5.0	U	5.0	4.6	ug/Kg		11/24/14 10:25	11/24/14 11:31	1
Methylcyclohexane	5.0	U	5.0	1.5	ug/Kg		11/24/14 10:25	11/24/14 11:31	1
Methylene Chloride	15	U	15	10	ug/Kg		11/24/14 10:25	11/24/14 11:31	1
Methyl Ethyl Ketone	25	U	25	6.0	ug/Kg		11/24/14 10:25	11/24/14 11:31	1
methyl isobutyl ketone	25	U	25	5.0	ug/Kg		11/24/14 10:25	11/24/14 11:31	1
Methyl tert-butyl ether	5.0	U	5.0	1.0	ug/Kg		11/24/14 10:25	11/24/14 11:31	1
Naphthalene	5.0	U	5.0	2.0	ug/Kg		11/24/14 10:25	11/24/14 11:31	1
Styrene	5.0	U	5.0	1.0	ug/Kg		11/24/14 10:25	11/24/14 11:31	1
Tert-amyl methyl ether	5.0	U	5.0	1.0	ug/Kg		11/24/14 10:25	11/24/14 11:31	1
tert-Butyl alcohol	10	U	10	8.0	ug/Kg		11/24/14 10:25	11/24/14 11:31	1
1,1,2,2-Tetrachloroethane	5.0	U	5.0	2.5	ug/Kg		11/24/14 10:25	11/24/14 11:31	1
Tetrachloroethene	5.0	U	5.0	2.5	ug/Kg		11/24/14 10:25	11/24/14 11:31	1
Toluene	5.0	U	5.0	1.0	ug/Kg		11/24/14 10:25	11/24/14 11:31	1
trans-1,2-Dichloroethene	5.0	U	5.0	2.5	ug/Kg		11/24/14 10:25	11/24/14 11:31	1
trans-1,3-Dichloropropene	5.0	U	5.0	2.5	ug/Kg		11/24/14 10:25	11/24/14 11:31	1
1,2,4-Trichlorobenzene	5.0	U	5.0	2.0	ug/Kg		11/24/14 10:25	11/24/14 11:31	1
1,1,1-Trichloroethane	5.0	U	5.0	1.1	ug/Kg		11/24/14 10:25	11/24/14 11:31	1
1,1,2-Trichloroethane	5.0	U	5.0	2.5	ug/Kg		11/24/14 10:25	11/24/14 11:31	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 400-237765/1-A
Matrix: Solid
Analysis Batch: 237751

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 237765

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	5.0	U	5.0	1.0	ug/Kg		11/24/14 10:25	11/24/14 11:31	1
Trichlorofluoromethane	5.0	U	5.0	2.5	ug/Kg		11/24/14 10:25	11/24/14 11:31	1
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	2.0	ug/Kg		11/24/14 10:25	11/24/14 11:31	1
Vinyl chloride	5.0	U	5.0	2.5	ug/Kg		11/24/14 10:25	11/24/14 11:31	1
Xylenes, Total	5.0	U	5.0	1.0	ug/Kg		11/24/14 10:25	11/24/14 11:31	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*94*		*72 - 122*	*11/24/14 10:25*	*11/24/14 11:31*	*1*
Dibromofluoromethane	*107*		*79 - 123*	*11/24/14 10:25*	*11/24/14 11:31*	*1*
Toluene-d8 (Surr)	*94*		*80 - 120*	*11/24/14 10:25*	*11/24/14 11:31*	*1*

Lab Sample ID: LCS 400-237765/2-A
Matrix: Solid
Analysis Batch: 237751

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 237765

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	200	257		ug/Kg		128	43 - 150
Benzene	50.0	47.0		ug/Kg		94	74 - 119
Bromodichloromethane	50.0	54.2		ug/Kg		108	68 - 128
Bromoform	50.0	59.2		ug/Kg		118	54 - 125
Bromomethane	50.0	63.0		ug/Kg		126	25 - 150
Carbon disulfide	50.0	55.4		ug/Kg		111	26 - 150
Carbon tetrachloride	50.0	57.6		ug/Kg		115	70 - 128
Chlorobenzene	50.0	47.7		ug/Kg		95	80 - 116
Chloroethane	50.0	55.0		ug/Kg		110	22 - 150
Chloroform	50.0	49.2		ug/Kg		98	74 - 119
Chloromethane	50.0	56.8		ug/Kg		114	36 - 147
cis-1,2-Dichloroethene	50.0	49.7		ug/Kg		99	68 - 126
cis-1,3-Dichloropropene	50.0	53.9		ug/Kg		108	68 - 125
Cyclohexane	50.0	49.4		ug/Kg		99	62 - 126
Dibromochloromethane	50.0	54.1		ug/Kg		108	65 - 131
1,2-Dibromo-3-Chloropropane	50.0	52.4		ug/Kg		105	57 - 123
1,2-Dichlorobenzene	50.0	47.7		ug/Kg		95	76 - 120
1,3-Dichlorobenzene	50.0	46.4		ug/Kg		93	78 - 118
1,4-Dichlorobenzene	50.0	46.3		ug/Kg		93	77 - 118
Dichlorodifluoromethane	50.0	51.5		ug/Kg		103	44 - 145
1,1-Dichloroethane	50.0	50.1		ug/Kg		100	61 - 128
1,2-Dichloroethane	50.0	53.2		ug/Kg		106	70 - 125
1,1-Dichloroethene	50.0	52.1		ug/Kg		104	62 - 130
1,2-Dichloropropane	50.0	49.4		ug/Kg		99	64 - 129
Diisopropyl ether	50.0	52.8		ug/Kg		106	46 - 144
Ethylbenzene	50.0	49.3		ug/Kg		99	78 - 120
Ethylene Dibromide	50.0	48.8		ug/Kg		98	78 - 119
Ethyl tert-butyl ether	50.0	50.3		ug/Kg		101	60 - 128
2-Hexanone	200	247		ug/Kg		123	54 - 140
Isopropylbenzene	50.0	51.5		ug/Kg		103	78 - 119
Methyl acetate	250	297		ug/Kg		119	52 - 139
Methylcyclohexane	50.0	48.8		ug/Kg		98	65 - 126

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 400-237765/2-A
Matrix: Solid
Analysis Batch: 237751

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 237765

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methylene Chloride	50.0	48.8		ug/Kg		98	45 - 150
Methyl Ethyl Ketone	200	238		ug/Kg		119	62 - 126
methyl isobutyl ketone	200	250		ug/Kg		125	56 - 137
Methyl tert-butyl ether	50.0	53.4		ug/Kg		107	69 - 124
Naphthalene	50.0	50.7		ug/Kg		101	64 - 126
Styrene	50.0	51.8		ug/Kg		104	66 - 132
Tert-amyl methyl ether	50.0	51.5		ug/Kg		103	65 - 124
tert-Butyl alcohol	500	656		ug/Kg		131	12 - 150
1,1,2,2-Tetrachloroethane	50.0	47.8		ug/Kg		96	67 - 120
Tetrachloroethene	50.0	46.7		ug/Kg		93	74 - 126
Toluene	50.0	46.5		ug/Kg		93	76 - 120
trans-1,2-Dichloroethene	50.0	47.0		ug/Kg		94	65 - 130
trans-1,3-Dichloropropene	50.0	55.1		ug/Kg		110	65 - 126
1,2,4-Trichlorobenzene	50.0	47.1		ug/Kg		94	72 - 126
1,1,1-Trichloroethane	50.0	54.4		ug/Kg		109	72 - 121
1,1,2-Trichloroethane	50.0	48.1		ug/Kg		96	75 - 118
Trichloroethene	50.0	48.8		ug/Kg		98	76 - 122
Trichlorofluoromethane	50.0	60.4		ug/Kg		121	65 - 132
1,1,2-Trichloro-1,2,2-trifluoroethane	50.0	53.1		ug/Kg		106	74 - 123
Vinyl chloride	50.0	54.4		ug/Kg		109	52 - 134
Xylenes, Total	100	99.7		ug/Kg		100	70 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene	*100*		*72 - 122*
Dibromofluoromethane	*100*		*79 - 123*
Toluene-d8 (Surr)	*95*		*80 - 120*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 680-360040/2-A
Matrix: Solid
Analysis Batch: 360635

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 360040

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzaldehyde	330	U	330	58	ug/Kg		11/22/14 11:35	11/26/14 15:10	1
Phenol	330	U	330	34	ug/Kg		11/22/14 11:35	11/26/14 15:10	1
Bis(2-chloroethyl)ether	330	U	330	45	ug/Kg		11/22/14 11:35	11/26/14 15:10	1
2-Chlorophenol	330	U	330	40	ug/Kg		11/22/14 11:35	11/26/14 15:10	1
2-Methylphenol	330	U	330	27	ug/Kg		11/22/14 11:35	11/26/14 15:10	1
bis (2-chloroisopropyl) ether	330	U	330	30	ug/Kg		11/22/14 11:35	11/26/14 15:10	1
Acetophenone	330	U	330	28	ug/Kg		11/22/14 11:35	11/26/14 15:10	1
3 & 4 Methylphenol	330	U	330	43	ug/Kg		11/22/14 11:35	11/26/14 15:10	1
N-Nitrosodi-n-propylamine	330	U	330	32	ug/Kg		11/22/14 11:35	11/26/14 15:10	1
Hexachloroethane	330	U	330	28	ug/Kg		11/22/14 11:35	11/26/14 15:10	1
Nitrobenzene	330	U	330	26	ug/Kg		11/22/14 11:35	11/26/14 15:10	1
Isophorone	330	U	330	33	ug/Kg		11/22/14 11:35	11/26/14 15:10	1
2-Nitrophenol	330	U	330	41	ug/Kg		11/22/14 11:35	11/26/14 15:10	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 680-360040/2-A
Matrix: Solid
Analysis Batch: 360635

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 360040

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-Dimethylphenol	330	U	330	44	ug/Kg		11/22/14 11:35	11/26/14 15:10	1
Bis(2-chloroethoxy)methane	330	U	330	39	ug/Kg		11/22/14 11:35	11/26/14 15:10	1
2,4-Dichlorophenol	330	U	330	35	ug/Kg		11/22/14 11:35	11/26/14 15:10	1
Naphthalene	330	U	330	30	ug/Kg		11/22/14 11:35	11/26/14 15:10	1
4-Chloroaniline	660	U	660	52	ug/Kg		11/22/14 11:35	11/26/14 15:10	1
Hexachlorobutadiene	330	U	330	36	ug/Kg		11/22/14 11:35	11/26/14 15:10	1
Caprolactam	330	U	330	66	ug/Kg		11/22/14 11:35	11/26/14 15:10	1
4-Chloro-3-methylphenol	330	U	330	35	ug/Kg		11/22/14 11:35	11/26/14 15:10	1
2-Methylnaphthalene	330	U	330	38	ug/Kg		11/22/14 11:35	11/26/14 15:10	1
Hexachlorocyclopentadiene	330	U	330	41	ug/Kg		11/22/14 11:35	11/26/14 15:10	1
2,4,6-Trichlorophenol	330	U	330	29	ug/Kg		11/22/14 11:35	11/26/14 15:10	1
2,4,5-Trichlorophenol	330	U	330	35	ug/Kg		11/22/14 11:35	11/26/14 15:10	1
1,1'-Biphenyl	1700	U	1700	1700	ug/Kg		11/22/14 11:35	11/26/14 15:10	1
2-Chloronaphthalene	330	U	330	35	ug/Kg		11/22/14 11:35	11/26/14 15:10	1
2-Nitroaniline	1700	U	1700	45	ug/Kg		11/22/14 11:35	11/26/14 15:10	1
Dimethyl phthalate	330	U	330	34	ug/Kg		11/22/14 11:35	11/26/14 15:10	1
2,6-Dinitrotoluene	330	U	330	42	ug/Kg		11/22/14 11:35	11/26/14 15:10	1
Acenaphthylene	330	U	330	36	ug/Kg		11/22/14 11:35	11/26/14 15:10	1
3-Nitroaniline	1700	U	1700	46	ug/Kg		11/22/14 11:35	11/26/14 15:10	1
Acenaphthene	330	U	330	41	ug/Kg		11/22/14 11:35	11/26/14 15:10	1
2,4-Dinitrophenol	1700	U	1700	830	ug/Kg		11/22/14 11:35	11/26/14 15:10	1
4-Nitrophenol	1700	U	1700	330	ug/Kg		11/22/14 11:35	11/26/14 15:10	1
Dibenzofuran	330	U	330	33	ug/Kg		11/22/14 11:35	11/26/14 15:10	1
2,4-Dinitrotoluene	330	U	330	49	ug/Kg		11/22/14 11:35	11/26/14 15:10	1
Diethyl phthalate	330	U	330	37	ug/Kg		11/22/14 11:35	11/26/14 15:10	1
Fluorene	330	U	330	36	ug/Kg		11/22/14 11:35	11/26/14 15:10	1
4-Chlorophenyl phenyl ether	330	U	330	44	ug/Kg		11/22/14 11:35	11/26/14 15:10	1
4-Nitroaniline	1700	U	1700	49	ug/Kg		11/22/14 11:35	11/26/14 15:10	1
4,6-Dinitro-2-methylphenol	1700	U	1700	170	ug/Kg		11/22/14 11:35	11/26/14 15:10	1
N-Nitrosodiphenylamine	330	U	330	33	ug/Kg		11/22/14 11:35	11/26/14 15:10	1
4-Bromophenyl phenyl ether	330	U	330	36	ug/Kg		11/22/14 11:35	11/26/14 15:10	1
Hexachlorobenzene	330	U	330	39	ug/Kg		11/22/14 11:35	11/26/14 15:10	1
Atrazine	330	U	330	23	ug/Kg		11/22/14 11:35	11/26/14 15:10	1
Pentachlorophenol	1700	U	1700	330	ug/Kg		11/22/14 11:35	11/26/14 15:10	1
Phenanthrene	330	U	330	27	ug/Kg		11/22/14 11:35	11/26/14 15:10	1
Anthracene	330	U	330	25	ug/Kg		11/22/14 11:35	11/26/14 15:10	1
Carbazole	330	U	330	30	ug/Kg		11/22/14 11:35	11/26/14 15:10	1
Di-n-butyl phthalate	330	U	330	30	ug/Kg		11/22/14 11:35	11/26/14 15:10	1
Fluoranthene	330	U	330	32	ug/Kg		11/22/14 11:35	11/26/14 15:10	1
Pyrene	330	U	330	27	ug/Kg		11/22/14 11:35	11/26/14 15:10	1
Butyl benzyl phthalate	330	U	330	26	ug/Kg		11/22/14 11:35	11/26/14 15:10	1
3,3'-Dichlorobenzidine	660	U	660	28	ug/Kg		11/22/14 11:35	11/26/14 15:10	1
Benzo[a]anthracene	330	U	330	27	ug/Kg		11/22/14 11:35	11/26/14 15:10	1
Chrysene	330	U	330	21	ug/Kg		11/22/14 11:35	11/26/14 15:10	1
Bis(2-ethylhexyl) phthalate	330	U	330	29	ug/Kg		11/22/14 11:35	11/26/14 15:10	1
Di-n-octyl phthalate	330	U	330	29	ug/Kg		11/22/14 11:35	11/26/14 15:10	1
Benzo[b]fluoranthene	330	U	330	38	ug/Kg		11/22/14 11:35	11/26/14 15:10	1
Benzo[k]fluoranthene	330	U	330	65	ug/Kg		11/22/14 11:35	11/26/14 15:10	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 680-360040/2-A
Matrix: Solid
Analysis Batch: 360635

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 360040

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]pyrene	330	U	330	52	ug/Kg		11/22/14 11:35	11/26/14 15:10	1
Indeno[1,2,3-cd]pyrene	330	U	330	28	ug/Kg		11/22/14 11:35	11/26/14 15:10	1
Dibenz(a,h)anthracene	330	U	330	39	ug/Kg		11/22/14 11:35	11/26/14 15:10	1
Benzo[g,h,i]perylene	330	U	330	22	ug/Kg		11/22/14 11:35	11/26/14 15:10	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*81*		*37 - 115*	*11/22/14 11:35*	*11/26/14 15:10*	*1*
2-Fluorobiphenyl	*91*		*41 - 116*	*11/22/14 11:35*	*11/26/14 15:10*	*1*
Terphenyl-d14 (Surr)	*101*		*46 - 126*	*11/22/14 11:35*	*11/26/14 15:10*	*1*
Phenol-d5 (Surr)	*84*		*38 - 122*	*11/22/14 11:35*	*11/26/14 15:10*	*1*
2-Fluorophenol (Surr)	*83*		*39 - 114*	*11/22/14 11:35*	*11/26/14 15:10*	*1*
2,4,6-Tribromophenol (Surr)	*104*		*45 - 129*	*11/22/14 11:35*	*11/26/14 15:10*	*1*

Lab Sample ID: LCS 680-360040/3-A
Matrix: Solid
Analysis Batch: 360635

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 360040

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzaldehyde	3300	308	J *	ug/Kg		9	10 - 130
Phenol	3300	2790		ug/Kg		85	47 - 130
Bis(2-chloroethyl)ether	3300	2510		ug/Kg		76	37 - 130
2-Chlorophenol	3300	2650		ug/Kg		80	47 - 130
2-Methylphenol	3300	2730		ug/Kg		82	46 - 130
bis (2-chloroisopropyl) ether	3300	2330		ug/Kg		71	38 - 130
Acetophenone	3300	2640		ug/Kg		80	44 - 130
3 & 4 Methylphenol	3300	2750		ug/Kg		83	46 - 130
N-Nitrosodi-n-propylamine	3300	2570		ug/Kg		78	38 - 130
Hexachloroethane	3300	2460		ug/Kg		74	42 - 130
Nitrobenzene	3300	2620		ug/Kg		79	45 - 130
Isophorone	3300	2740		ug/Kg		83	48 - 130
2-Nitrophenol	3300	2990		ug/Kg		90	43 - 130
2,4-Dimethylphenol	3300	2780		ug/Kg		84	43 - 130
Bis(2-chloroethoxy)methane	3300	2680		ug/Kg		81	47 - 130
2,4-Dichlorophenol	3300	2980		ug/Kg		90	48 - 130
Naphthalene	3300	2730		ug/Kg		83	47 - 130
4-Chloroaniline	3300	1500		ug/Kg		45	10 - 130
Hexachlorobutadiene	3300	2840		ug/Kg		86	48 - 130
Caprolactam	3300	2590		ug/Kg		78	44 - 130
4-Chloro-3-methylphenol	3300	2930		ug/Kg		89	51 - 130
2-Methylnaphthalene	3300	2800		ug/Kg		85	48 - 130
Hexachlorocyclopentadiene	3300	2790		ug/Kg		84	28 - 130
2,4,6-Trichlorophenol	3300	2990		ug/Kg		90	50 - 130
2,4,5-Trichlorophenol	3300	3010		ug/Kg		91	51 - 130
1,1'-Biphenyl	3300	2760		ug/Kg		83	48 - 130
2-Chloronaphthalene	3300	2790		ug/Kg		84	48 - 130
2-Nitroaniline	3300	2850		ug/Kg		86	44 - 130
Dimethyl phthalate	3300	2930		ug/Kg		89	50 - 130
2,6-Dinitrotoluene	3300	2990		ug/Kg		91	49 - 130

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 680-360040/3-A
Matrix: Solid
Analysis Batch: 360635

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 360040

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acenaphthylene	3300	2810		ug/Kg		85	45 - 130
3-Nitroaniline	3300	1970		ug/Kg		60	21 - 130
Acenaphthene	3300	2520		ug/Kg		76	47 - 130
2,4-Dinitrophenol	6610	1870		ug/Kg		28	10 - 130
4-Nitrophenol	6610	5910		ug/Kg		89	40 - 130
Dibenzofuran	3300	2880		ug/Kg		87	49 - 130
2,4-Dinitrotoluene	3300	2980		ug/Kg		90	49 - 111
Diethyl phthalate	3300	2900		ug/Kg		88	49 - 130
Fluorene	3300	2920		ug/Kg		88	52 - 130
4-Chlorophenyl phenyl ether	3300	2940		ug/Kg		89	49 - 130
4-Nitroaniline	3300	2510		ug/Kg		76	41 - 130
4,6-Dinitro-2-methylphenol	6610	3420		ug/Kg		52	23 - 130
N-Nitrosodiphenylamine	3300	2890		ug/Kg		88	50 - 130
4-Bromophenyl phenyl ether	3300	3080		ug/Kg		93	53 - 130
Hexachlorobenzene	3300	3020		ug/Kg		91	53 - 130
Atrazine	3300	2970		ug/Kg		90	47 - 130
Pentachlorophenol	6610	5690		ug/Kg		86	41 - 130
Phenanthrene	3300	2870		ug/Kg		87	52 - 130
Anthracene	3300	2910		ug/Kg		88	50 - 130
Carbazole	3300	2870		ug/Kg		87	51 - 130
Di-n-butyl phthalate	3300	2950		ug/Kg		89	52 - 130
Fluoranthene	3300	2950		ug/Kg		89	51 - 130
Pyrene	3300	2930		ug/Kg		89	50 - 130
Butyl benzyl phthalate	3300	2960		ug/Kg		90	53 - 134
3,3'-Dichlorobenzidine	3300	1560		ug/Kg		47	16 - 130
Benzo[a]anthracene	3300	2910		ug/Kg		88	50 - 130
Chrysene	3300	2920		ug/Kg		88	47 - 130
Bis(2-ethylhexyl) phthalate	3300	2860		ug/Kg		87	48 - 130
Di-n-octyl phthalate	3300	2760		ug/Kg		84	46 - 130
Benzo[b]fluoranthene	3300	2860		ug/Kg		86	48 - 130
Benzo[k]fluoranthene	3300	3230		ug/Kg		98	48 - 108
Benzo[a]pyrene	3300	3060		ug/Kg		93	47 - 131
Indeno[1,2,3-cd]pyrene	3300	3050		ug/Kg		92	41 - 130
Dibenz(a,h)anthracene	3300	3070		ug/Kg		93	44 - 130
Benzo[g,h,i]perylene	3300	3070		ug/Kg		93	42 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Nitrobenzene-d5 (Surr)	*83*		*37 - 115*
2-Fluorobiphenyl	*87*		*41 - 116*
Terphenyl-d14 (Surr)	*92*		*46 - 126*
Phenol-d5 (Surr)	*83*		*38 - 122*
2-Fluorophenol (Surr)	*83*		*39 - 114*
2,4,6-Tribromophenol (Surr)	*100*		*45 - 129*

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 680-107499-1 MS
Matrix: Solid
Analysis Batch: 360635

Client Sample ID: MW-71(15-16)(112014)
Prep Type: Total/NA
Prep Batch: 360040

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzaldehyde	400	U *	4100	3040		ug/Kg	☼	74	10 - 130
Phenol	400	U	4100	3050		ug/Kg	☼	74	46 - 130
Bis(2-chloroethyl)ether	400	U	4100	2830		ug/Kg	☼	69	42 - 130
2-Chlorophenol	400	U	4100	3060		ug/Kg	☼	75	51 - 130
2-Methylphenol	400	U	4100	3090		ug/Kg	☼	75	49 - 130
bis (2-chloroisopropyl) ether	400	U	4100	2660		ug/Kg	☼	65	44 - 130
Acetophenone	400	U	4100	3090		ug/Kg	☼	75	42 - 130
3 & 4 Methylphenol	400	U	4100	3060		ug/Kg	☼	75	50 - 130
N-Nitrosodi-n-propylamine	400	U	4100	2920		ug/Kg	☼	71	48 - 130
Hexachloroethane	400	U	4100	2820		ug/Kg	☼	69	44 - 130
Nitrobenzene	400	U	4100	2900		ug/Kg	☼	71	43 - 130
Isophorone	400	U	4100	3130		ug/Kg	☼	76	48 - 130
2-Nitrophenol	400	U	4100	2670		ug/Kg	☼	65	45 - 130
2,4-Dimethylphenol	400	U	4100	3200		ug/Kg	☼	78	47 - 130
Bis(2-chloroethoxy)methane	400	U	4100	3080		ug/Kg	☼	75	56 - 130
2,4-Dichlorophenol	400	U	4100	3500		ug/Kg	☼	85	53 - 130
Naphthalene	400	U	4100	3160		ug/Kg	☼	77	54 - 130
4-Chloroaniline	810	U	4100	1600		ug/Kg	☼	39	36 - 130
Hexachlorobutadiene	400	U	4100	3220		ug/Kg	☼	79	47 - 130
Caprolactam	400	U	4100	2460		ug/Kg	☼	60	52 - 130
4-Chloro-3-methylphenol	400	U	4100	3360		ug/Kg	☼	82	52 - 130
2-Methylnaphthalene	400	U	4100	3210		ug/Kg	☼	78	55 - 130
Hexachlorocyclopentadiene	400	U	4100	2260		ug/Kg	☼	55	35 - 130
2,4,6-Trichlorophenol	400	U	4100	3560		ug/Kg	☼	87	53 - 130
2,4,5-Trichlorophenol	400	U	4100	3610		ug/Kg	☼	88	60 - 130
1,1'-Biphenyl	2100	U	4100	3260		ug/Kg	☼	80	57 - 130
2-Chloronaphthalene	400	U	4100	3300		ug/Kg	☼	80	55 - 130
2-Nitroaniline	2100	U	4100	3330		ug/Kg	☼	81	52 - 130
Dimethyl phthalate	400	U	4100	3370		ug/Kg	☼	82	63 - 130
2,6-Dinitrotoluene	400	U	4100	3240		ug/Kg	☼	79	57 - 130
Acenaphthylene	400	U	4100	3270		ug/Kg	☼	80	58 - 130
3-Nitroaniline	2100	U	4100	1830	J	ug/Kg	☼	45	42 - 130
Acenaphthene	400	U	4100	2890		ug/Kg	☼	71	58 - 130
2,4-Dinitrophenol	2100	U	8210	2100	U F1	ug/Kg	☼	0	10 - 154
4-Nitrophenol	2100	U	8210	6700		ug/Kg	☼	82	30 - 130
Dibenzofuran	400	U	4100	3400		ug/Kg	☼	83	56 - 130
2,4-Dinitrotoluene	400	U	4100	3180		ug/Kg	☼	77	55 - 130
Diethyl phthalate	400	U	4100	3480		ug/Kg	☼	85	62 - 130
Fluorene	400	U	4100	3490		ug/Kg	☼	85	58 - 130
4-Chlorophenyl phenyl ether	400	U	4100	3510		ug/Kg	☼	86	61 - 130
4-Nitroaniline	2100	U	4100	2250		ug/Kg	☼	55	49 - 130
4,6-Dinitro-2-methylphenol	2100	U	8210	1330	J	ug/Kg	☼	16	14 - 137
N-Nitrosodiphenylamine	400	U	4100	3550		ug/Kg	☼	87	62 - 130
4-Bromophenyl phenyl ether	400	U	4100	3770		ug/Kg	☼	92	65 - 130
Hexachlorobenzene	400	U	4100	3690		ug/Kg	☼	90	59 - 130
Atrazine	400	U	4100	3720		ug/Kg	☼	91	54 - 141
Pentachlorophenol	2100	U	8210	6600		ug/Kg	☼	80	38 - 131
Phenanthrene	38	J	4100	3530		ug/Kg	☼	85	61 - 130

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 680-107499-1 MS — **Client Sample ID: MW-71(15-16)(112014)**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 360635 — **Prep Batch: 360040**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Anthracene	400	U	4100	3540		ug/Kg	☼	86	60 - 130
Carbazole	400	U	4100	3510		ug/Kg	☼	86	60 - 130
Di-n-butyl phthalate	400	U	4100	3490		ug/Kg	☼	85	65 - 130
Fluoranthene	400	U	4100	3610		ug/Kg	☼	88	62 - 130
Pyrene	400	U	4100	3550		ug/Kg	☼	87	59 - 130
Butyl benzyl phthalate	400	U	4100	3500		ug/Kg	☼	85	65 - 134
3,3'-Dichlorobenzidine	810	U	4100	3280		ug/Kg	☼	80	45 - 130
Benzo[a]anthracene	400	U	4100	3500		ug/Kg	☼	85	62 - 130
Chrysene	400	U	4100	3480		ug/Kg	☼	85	62 - 130
Bis(2-ethylhexyl) phthalate	400	U	4100	3500		ug/Kg	☼	85	62 - 132
Di-n-octyl phthalate	400	U	4100	3340		ug/Kg	☼	81	59 - 146
Benzo[b]fluoranthene	400	U	4100	3450		ug/Kg	☼	84	53 - 130
Benzo[k]fluoranthene	400	U	4100	3670		ug/Kg	☼	89	57 - 130
Benzo[a]pyrene	400	U	4100	3580		ug/Kg	☼	87	68 - 131
Indeno[1,2,3-cd]pyrene	400	U	4100	3510		ug/Kg	☼	86	52 - 130
Dibenz(a,h)anthracene	400	U	4100	3570		ug/Kg	☼	87	56 - 130
Benzo[g,h,i]perylene	400	U	4100	3480		ug/Kg	☼	85	54 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Nitrobenzene-d5 (Surr)	*74*		*37 - 115*
2-Fluorobiphenyl	*83*		*41 - 116*
Terphenyl-d14 (Surr)	*90*		*46 - 126*
Phenol-d5 (Surr)	*75*		*38 - 122*
2-Fluorophenol (Surr)	*76*		*39 - 114*
2,4,6-Tribromophenol (Surr)	*95*		*45 - 129*

Lab Sample ID: 680-107499-1 MSD — **Client Sample ID: MW-71(15-16)(112014)**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 360635 — **Prep Batch: 360040**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzaldehyde	400	U *	4100	3300		ug/Kg	☼	80	10 - 130	8	50
Phenol	400	U	4100	3100		ug/Kg	☼	75	46 - 130	2	50
Bis(2-chloroethyl)ether	400	U	4100	2860		ug/Kg	☼	70	42 - 130	1	50
2-Chlorophenol	400	U	4100	3070		ug/Kg	☼	75	51 - 130	0	50
2-Methylphenol	400	U	4100	3070		ug/Kg	☼	75	49 - 130	1	50
bis (2-chloroisopropyl) ether	400	U	4100	2720		ug/Kg	☼	66	44 - 130	2	50
Acetophenone	400	U	4100	3120		ug/Kg	☼	76	42 - 130	1	50
3 & 4 Methylphenol	400	U	4100	3150		ug/Kg	☼	77	50 - 130	3	50
N-Nitrosodi-n-propylamine	400	U	4100	2920		ug/Kg	☼	71	48 - 130	0	50
Hexachloroethane	400	U	4100	2900		ug/Kg	☼	71	44 - 130	3	50
Nitrobenzene	400	U	4100	2880		ug/Kg	☼	70	43 - 130	1	50
Isophorone	400	U	4100	3150		ug/Kg	☼	77	48 - 130	1	50
2-Nitrophenol	400	U	4100	2200		ug/Kg	☼	54	45 - 130	20	50
2,4-Dimethylphenol	400	U	4100	3200		ug/Kg	☼	78	47 - 130	0	50
Bis(2-chloroethoxy)methane	400	U	4100	3180		ug/Kg	☼	78	56 - 130	3	50
2,4-Dichlorophenol	400	U	4100	3490		ug/Kg	☼	85	53 - 130	0	50
Naphthalene	400	U	4100	3200		ug/Kg	☼	78	54 - 130	1	50

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 680-107499-1 MSD | **Client Sample ID: MW-71(15-16)(112014)**
Matrix: Solid | **Prep Type: Total/NA**
Analysis Batch: 360635 | **Prep Batch: 360040**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
4-Chloroaniline	810	U	4100	1210	F1	ug/Kg	☼	29	36 - 130	28	50
Hexachlorobutadiene	400	U	4100	3250		ug/Kg	☼	79	47 - 130	1	50
Caprolactam	400	U	4100	2600		ug/Kg	☼	63	52 - 130	5	50
4-Chloro-3-methylphenol	400	U	4100	3340		ug/Kg	☼	81	52 - 130	1	50
2-Methylnaphthalene	400	U	4100	3230		ug/Kg	☼	79	55 - 130	1	50
Hexachlorocyclopentadiene	400	U	4100	2150		ug/Kg	☼	52	35 - 130	5	50
2,4,6-Trichlorophenol	400	U	4100	3590		ug/Kg	☼	88	53 - 130	1	50
2,4,5-Trichlorophenol	400	U	4100	3600		ug/Kg	☼	88	60 - 130	0	50
1,1'-Biphenyl	2100	U	4100	3350		ug/Kg	☼	82	57 - 130	3	50
2-Chloronaphthalene	400	U	4100	3320		ug/Kg	☼	81	55 - 130	1	50
2-Nitroaniline	2100	U	4100	3280		ug/Kg	☼	80	52 - 130	2	50
Dimethyl phthalate	400	U	4100	3320		ug/Kg	☼	81	63 - 130	1	50
2,6-Dinitrotoluene	400	U	4100	2980		ug/Kg	☼	73	57 - 130	8	50
Acenaphthylene	400	U	4100	3310		ug/Kg	☼	81	58 - 130	1	50
3-Nitroaniline	2100	U	4100	1300	J F1	ug/Kg	☼	32	42 - 130	34	50
Acenaphthene	400	U	4100	2940		ug/Kg	☼	72	58 - 130	2	50
2,4-Dinitrophenol	2100	U	8200	2100	U F1	ug/Kg	☼	0	10 - 154	NC	50
4-Nitrophenol	2100	U	8200	6620		ug/Kg	☼	81	30 - 130	1	50
Dibenzofuran	400	U	4100	3400		ug/Kg	☼	83	56 - 130	0	50
2,4-Dinitrotoluene	400	U	4100	2970		ug/Kg	☼	73	55 - 130	7	50
Diethyl phthalate	400	U	4100	3390		ug/Kg	☼	83	62 - 130	3	50
Fluorene	400	U	4100	3430		ug/Kg	☼	84	58 - 130	2	50
4-Chlorophenyl phenyl ether	400	U	4100	3460		ug/Kg	☼	84	61 - 130	1	50
4-Nitroaniline	2100	U	4100	2000	J	ug/Kg	☼	49	49 - 130	12	50
4,6-Dinitro-2-methylphenol	2100	U	8200	1500	J	ug/Kg	☼	18	14 - 137	12	50
N-Nitrosodiphenylamine	400	U	4100	3500		ug/Kg	☼	85	62 - 130	2	50
4-Bromophenyl phenyl ether	400	U	4100	3730		ug/Kg	☼	91	65 - 130	1	50
Hexachlorobenzene	400	U	4100	3630		ug/Kg	☼	89	59 - 130	2	50
Atrazine	400	U	4100	3690		ug/Kg	☼	90	54 - 141	1	50
Pentachlorophenol	2100	U	8200	6770		ug/Kg	☼	82	38 - 131	2	50
Phenanthrene	38	J	4100	3520		ug/Kg	☼	85	61 - 130	0	50
Anthracene	400	U	4100	3460		ug/Kg	☼	84	60 - 130	2	50
Carbazole	400	U	4100	3530		ug/Kg	☼	86	60 - 130	0	50
Di-n-butyl phthalate	400	U	4100	3550		ug/Kg	☼	87	65 - 130	2	50
Fluoranthene	400	U	4100	3560		ug/Kg	☼	87	62 - 130	1	50
Pyrene	400	U	4100	3500		ug/Kg	☼	85	59 - 130	1	50
Butyl benzyl phthalate	400	U	4100	3460		ug/Kg	☼	84	65 - 134	1	50
3,3'-Dichlorobenzidine	810	U	4100	3190		ug/Kg	☼	78	45 - 130	3	50
Benzo[a]anthracene	400	U	4100	3520		ug/Kg	☼	86	62 - 130	1	50
Chrysene	400	U	4100	3540		ug/Kg	☼	86	62 - 130	2	50
Bis(2-ethylhexyl) phthalate	400	U	4100	3480		ug/Kg	☼	85	62 - 132	1	50
Di-n-octyl phthalate	400	U	4100	3350		ug/Kg	☼	82	59 - 146	0	50
Benzo[b]fluoranthene	400	U	4100	3420		ug/Kg	☼	83	53 - 130	1	50
Benzo[k]fluoranthene	400	U	4100	3730		ug/Kg	☼	91	57 - 130	2	50
Benzo[a]pyrene	400	U	4100	3560		ug/Kg	☼	87	68 - 131	0	50
Indeno[1,2,3-cd]pyrene	400	U	4100	3550		ug/Kg	☼	87	52 - 130	1	50
Dibenz(a,h)anthracene	400	U	4100	3580		ug/Kg	☼	87	56 - 130	1	50
Benzo[g,h,i]perylene	400	U	4100	3540		ug/Kg	☼	86	54 - 130	2	50

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 680-107499-1 MSD
Matrix: Solid
Analysis Batch: 360635

Client Sample ID: MW-71(15-16)(112014)
Prep Type: Total/NA
Prep Batch: 360040

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Nitrobenzene-d5 (Surr)	*72*		*37 - 115*
2-Fluorobiphenyl	*83*		*41 - 116*
Terphenyl-d14 (Surr)	*88*		*46 - 126*
Phenol-d5 (Surr)	*76*		*38 - 122*
2-Fluorophenol (Surr)	*77*		*39 - 114*
2,4,6-Tribromophenol (Surr)	*98*		*45 - 129*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Gasoline Range Organics)

Lab Sample ID: MB 680-361675/8
Matrix: Solid
Analysis Batch: 361675

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	0.945	J	5.0	0.38	mg/Kg			12/04/14 17:24	20

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*101*		*70 - 131*		*12/04/14 17:24*	*20*

Lab Sample ID: LCS 680-361675/5
Matrix: Solid
Analysis Batch: 361675

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline Range Organics (GRO) -C6-C10			40.0	42.2		mg/Kg		105	64 - 133		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*81*		*70 - 131*

Lab Sample ID: LCSD 680-361675/6
Matrix: Solid
Analysis Batch: 361675

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10			40.0	39.2		mg/Kg		98	64 - 133	7	50

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*83*		*70 - 131*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics)

Lab Sample ID: MB 680-360039/3-A
Matrix: Solid
Analysis Batch: 360265

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 360039

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	3.3	U	3.3	2.1	mg/Kg		11/22/14 11:35	11/24/14 18:42	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*101*		*45 - 130*	*11/22/14 11:35*	*11/24/14 18:42*	*1*

Lab Sample ID: LCS 680-360039/4-A
Matrix: Solid
Analysis Batch: 360265

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 360039

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]	33.3	35.4		mg/Kg		106	35 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*99*		*45 - 130*

GC/MS VOA

Analysis Batch: 237751

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-107499-1	MW-71(15-16)(112014)	Total/NA	Solid	8260B	237765
LCS 400-237765/2-A	Lab Control Sample	Total/NA	Solid	8260B	237765
MB 400-237765/1-A	Method Blank	Total/NA	Solid	8260B	237765

Prep Batch: 237765

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-107499-1	MW-71(15-16)(112014)	Total/NA	Solid	5035	
LCS 400-237765/2-A	Lab Control Sample	Total/NA	Solid	5035	
MB 400-237765/1-A	Method Blank	Total/NA	Solid	5035	

GC/MS Semi VOA

Prep Batch: 360040

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-107499-1	MW-71(15-16)(112014)	Total/NA	Solid	3546	
680-107499-1 MS	MW-71(15-16)(112014)	Total/NA	Solid	3546	
680-107499-1 MSD	MW-71(15-16)(112014)	Total/NA	Solid	3546	
LCS 680-360040/3-A	Lab Control Sample	Total/NA	Solid	3546	
MB 680-360040/2-A	Method Blank	Total/NA	Solid	3546	

Analysis Batch: 360635

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-107499-1	MW-71(15-16)(112014)	Total/NA	Solid	8270D	360040
680-107499-1 MS	MW-71(15-16)(112014)	Total/NA	Solid	8270D	360040
680-107499-1 MSD	MW-71(15-16)(112014)	Total/NA	Solid	8270D	360040
LCS 680-360040/3-A	Lab Control Sample	Total/NA	Solid	8270D	360040
MB 680-360040/2-A	Method Blank	Total/NA	Solid	8270D	360040

GC VOA

Prep Batch: 360001

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-107499-1	MW-71(15-16)(112014)	Total/NA	Solid	5035	

Analysis Batch: 361675

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-107499-1	MW-71(15-16)(112014)	Total/NA	Solid	8015C	360001
LCS 680-361675/5	Lab Control Sample	Total/NA	Solid	8015C	
LCSD 680-361675/6	Lab Control Sample Dup	Total/NA	Solid	8015C	
MB 680-361675/8	Method Blank	Total/NA	Solid	8015C	

GC Semi VOA

Prep Batch: 360039

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-107499-1	MW-71(15-16)(112014)	Total/NA	Solid	3546	
LCS 680-360039/4-A	Lab Control Sample	Total/NA	Solid	3546	
MB 680-360039/3-A	Method Blank	Total/NA	Solid	3546	

GC Semi VOA (Continued)

Analysis Batch: 360265

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-107499-1	MW-71(15-16)(112014)	Total/NA	Solid	8015C	360039
LCS 680-360039/4-A	Lab Control Sample	Total/NA	Solid	8015C	360039
MB 680-360039/3-A	Method Blank	Total/NA	Solid	8015C	360039

General Chemistry

Analysis Batch: 360008

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-107499-1	MW-71(15-16)(112014)	Total/NA	Solid	Moisture	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: CSX C&O Canal Brunswick, MD

TestAmerica Job ID: 680-107499-1

Client Sample ID: MW-71(15-16)(112014)
Date Collected: 11/20/14 09:15
Date Received: 11/21/14 10:00

Lab Sample ID: 680-107499-1
Matrix: Solid
Percent Solids: 80.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			3.21 g	5.00 g	237765	11/24/14 10:25	CAR	TAL PEN
Total/NA	Analysis	8260B		1	3.21 g	5.00 g	237751	11/24/14 19:06	CAR	TAL PEN
	Instrument ID: CH_LARS									
Total/NA	Prep	3546			30.38 g	1 mL	360040	11/22/14 11:35	JMK	TAL SAV
Total/NA	Analysis	8270D		1	30.38 g	1 mL	360635	11/26/14 15:35	LEG	TAL SAV
	Instrument ID: CMSE									
Total/NA	Prep	5035			9.49 g	5 mL	360001	11/21/14 15:58	FES	TAL SAV
Total/NA	Analysis	8015C		20	9.49 g	5 mL	361675	12/04/14 17:46	AJMC	TAL SAV
	Instrument ID: CVGWFID1									
Total/NA	Prep	3546			30.24 g	1 mL	360039	11/22/14 11:35	JMK	TAL SAV
Total/NA	Analysis	8015C		1	30.24 g	1 mL	360265	11/24/14 19:11	SSP	TAL SAV
	Instrument ID: CSGQ									
Total/NA	Analysis	Moisture		1			360008	11/21/14 16:35	HML	TAL SAV
	Instrument ID: NOEQUIP									

Laboratory References:

TAL PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

GRO + DRO → SAVANNAH
VOCs → PENSACOLA

TestAmerica Baltimore
7526 Connelley Drive Suite F
Hanover, MD 21076
Phone (410) 766-2516 Fax (410) xxx-xxxx

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: LAUREN LAMP	Lab PM: Harvey, Lisa M	Carrier Tracking No(s):	COC No: ~~680-60196-26420.1~~ 112014-1
Client Contact: Joshua Wilson	Phone: 571.375.5180	E-Mail: lisa.harvey@testamericainc.com		Page: Page 1 of 1
Company: ARCADIS U.S., Inc.				Job #:
Address: 1114 Benfield Blvd. Suite A	Due Date Requested: —			
City: Millersville	TAT Requested (days): CSXT STANDARD			
State, Zip: MD, 21108				
Phone:	PO #: ENV00000035683 LWON			
Email: joshua.wilson@arcadis-us.com	WO #: R9415381 CSXT PN			
Project Name: CSX C&O Canal Brunswick, MD	Project #: 68001180			
Site: BRUNSWICK RAIL YARD	SSOW#: MD000843.0011			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - (MOD) Full List VOCs (Site specific)	8015C_GRO - GRO - Gasoline Range Organics	8015C_DRO, 8270D	8260B - (MOD) TCLP	8260B - BTEX	8015C_DRO, 8081B, 8151A, 8270D	8082A - Routine PCBs	Total Number of containers	Special Instructions/Note:
				Preservation Code:			N	N	N	N	N	N	N		
MW-71 (15-16) (112014)	11.20.14	0915	G	Solid	N	N	X	X	X						
				Solid											
				Solid											
				Solid											
				Solid											
				Solid											
				Solid											
				Solid											
				Solid											
				Solid											
				Solid											

680-107499 Chain of Custody

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) CSXT STANDARD

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
[signature]	11.20.14 1524	ARCADIS	[signature]	11-20-2014/1524	TestAmerica
[signature]	11-20-2014 / 1540		[signature]	11-2-14 1000	JAS

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.: 680-107499	Cooler Temperature(s) °C and Other Remarks: CWRS: 2.8/CORR 25°C

12/5/2014

23

TestAmerica Baltimore
7526 Connelley Drive Suite F
Hanover, MD 21076
Phone (410) 766-2516 Fax (410) xxx-xxxx

GRO + DRO → SAVANNAH
VOCs → PENSACOLA

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: LAUREN LAMP	Lab PM: Harvey, Lisa M	Carrier Tracking No(s):	COC No: ~~680-60196-26420.1~~ 112014-1
Client Contact: Joshua Wilson	Phone: 571.375.5180	E-Mail: lisa.harvey@testamericainc.com		Page: Page 1 of 1
Company: ARCADIS U.S., Inc.				Job #:
Address: 1114 Benfield Blvd. Suite A	Due Date Requested:			
City: Millersville	TAT Requested (days): CSXT STANDARD			
State, Zip: MD, 21108				
Phone:	PO #: ENV00000035683 LWON			
Email: joshua.wilson@arcadis-us.com	WO #: R9415381 CSXT PN			
Project Name: CSX C&O Canal Brunswick, MD	Project #: 68001180			
Site: BRUNSWICK RAIL YARD	SSOW#: MD000543.0011			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA
M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - (MOD) Full List VOCs (Site specific)	8015C_GRO - GRO - Gasoline Range Organics	8015C_DRO, 8270D	8260B - (MOD) TCLP	8260B - BTEX	8015C_DRO, 8081B, 8151A, 8270D	8082A - Routine PCBs	Total Number of containers	Special Instructions/Note:
MW-71 (15-16) (112014)	11.20.14	0915	G	Solid	N	N	X	X	X						
				Solid											
				Solid											
				Solid											
				Solid											
				Solid											
				Solid											
				Solid											
				Solid											
				Solid											
				Solid											

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: (I), II, III, IV, Other (specify) CSXT STANDARD

Special Instructions/QC Requirements:

Empty Kit Relinquished by: | Date: | Time: | Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
[signature]	11.20.14 1524	ARCADIS	[signature]	11-20-2014/1524	TestAmerica
[signature]	11-20-2014 / 1540		DC Ahus	11-21-14 0917	TA

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 0.6°C IR-5

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 680-107499-1

Login Number: 107499

List Source: TestAmerica Savannah

List Number: 1

Creator: Banda, Christy S

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 680-107499-1

Login Number: 107499
List Number: 2
Creator: Blackburn, Dominic S

List Source: TestAmerica Pensacola
List Creation: 11/21/14 11:23 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	0.6°C IR5
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: CSX C&O Canal Brunswick, MD

TestAmerica Job ID: 680-107499-1

Laboratory: TestAmerica Savannah

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Maryland	State Program	3	250	12-31-14 *

Laboratory: TestAmerica Pensacola

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Maryland	State Program	3	233	09-30-15

* Certification renewal pending - certification considered valid.

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Tel: (912)354-7858

TestAmerica Job ID: 680-107453-1
Client Project/Site: CSX C&O Canal Brunswick, MD

For:
ARCADIS U.S., Inc.
1114 Benfield Blvd.
Suite A
Millersville, Maryland 21108

Attn: Ms. Megan Kellner

Authorized for release by:
12/5/2014 2:37:15 PM

Lisa Harvey, Project Manager II
(912)354-7858 e.3221
lisa.harvey@testamericainc.com

LINKS

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Have a Question? Ask The Expert

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Job ID: 680-107453-1

Laboratory: TestAmerica Savannah

Narrative

CASE NARRATIVE
Client: ARCADIS U.S., Inc.
Project: CSX C&O Canal Brunswick, MD
Report Number: 680-107453-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In the event of interference or analytes present at high concentrations, samples may be diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

RECEIPT

The samples were received on 11/20/2014 9:28 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 0.3º C, 0.7º C and 5.9º C.

VOLATILE ORGANIC COMPOUNDS (GC-MS)

Samples GP-80(18-19) (111814) (680-107453-1), GP-80(14-15) (111814) (680-107453-2), GP-81(13-14)(111814) (680-107453-3), GP-81(14-15)(111814) (680-107453-4), GP-82(14-15)(111814) (680-107453-5), GP-82(16.5-17.5)(111814) (680-107453-6), GP-83(13-14)(111814) (680-107453-7), GP-83(14-15)(111814) (680-107453-8), GP-84(14-15)(111814) (680-107453-9), GP-84(15.5-16.5)(111814) (680-107453-10), GP-85(6-7)(111814) (680-107453-11), GP-85(15.5-16.5)(111814) (680-107453-12), GP-86(14-15)(111814) (680-107453-13), GP-86(16-17)(111814) (680-107453-14), GP-87(14-15)(111914) (680-107453-15), GP-87(16-17)(111914) (680-107453-16), GP-88(12-13)(111914) (680-107453-17), GP-88(15-16)(111914) (680-107453-18), GP-89(12-13)(111914) (680-107453-19), GP-89(15.5-16.5)(111914) (680-107453-20), GP-90(9-10)(111914) (680-107453-21), GP-90(12.5-13.5)(111914) (680-107453-22), GP-91(11-12)(111914) (680-107453-23), GP-91(15-16)(111914) (680-107453-24), GP-92(14-15)(111914) (680-107453-25), GP-92(15.5-16.5)(111914) (680-107453-26), GP-93(14-15)(111914) (680-107453-27), GP-93(15.5-16.5)(111914) (680-107453-28), GP-94(14-15)(111914) (680-107453-29), GP-94(13-14)(111914) (680-107453-30), GP-95(12-13)(111914) (680-107453-31), GP-95(15-16)(111914) (680-107453-32), GP-96(7-8)(111914) (680-107453-33) and GP-96(15-16)(111914) (680-107453-34) were analyzed for Volatile Organic Compounds (GC-MS) in accordance with EPA SW-846 Method 8260B. The samples were prepared on 11/22/2014, 11/23/2014 and 12/01/2014 and analyzed on 11/23/2014 and 12/01/2014.

Terracores containing sample and Deionized (DI) water that were collected on 11/18 were not frozen within the 48-hour hold time for method 8260B.

Method(s) 8260B: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate(MS/MSD) associated with preparation batch 237702.

Method(s) 8260B: One of three surrogate recoveries for the following samples was outside control limits: GP-82(16.5-17.5)(111814) (680-107453-6), GP-95(12-13)(111914) (680-107453-31), GP-95(15-16)(111914) (680-107453-32). Evidence of matrix interference is present; therefore, re-analysis was not performed.

Method(s) 8260B: The following samples were diluted due to the nature of the sample matrix: GP-91(11-12)(111914) (680-107453-23), GP-93(15.5-16.5)(111914) (680-107453-28). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GC-MS)

Sample TRIPBLANK(111914) (680-107453-35) was analyzed for Volatile Organic Compounds (GC-MS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 11/25/2014.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

SEMIVOLATILE ORGANIC COMPOUNDS (SOLID)

Job ID: 680-107453-1 (Continued)

Laboratory: TestAmerica Savannah (Continued)

Samples GP-80(18-19) (111814) (680-107453-1), GP-80(14-15) (111814) (680-107453-2), GP-81(13-14)(111814) (680-107453-3), GP-81(14-15)(111814) (680-107453-4), GP-82(14-15)(111814) (680-107453-5), GP-82(16.5-17.5)(111814) (680-107453-6), GP-83(13-14)(111814) (680-107453-7), GP-83(14-15)(111814) (680-107453-8), GP-84(14-15)(111814) (680-107453-9), GP-84(15.5-16.5)(111814) (680-107453-10), GP-85(6-7)(111814) (680-107453-11), GP-85(15.5-16.5)(111814) (680-107453-12), GP-86(14-15)(111814) (680-107453-13), GP-86(16-17)(111814) (680-107453-14), GP-87(14-15)(111914) (680-107453-15), GP-87(16-17)(111914) (680-107453-16), GP-88(12-13)(111914) (680-107453-17), GP-88(15-16)(111914) (680-107453-18), GP-89(12-13)(111914) (680-107453-19), GP-89(15.5-16.5)(111914) (680-107453-20), GP-90(9-10)(111914) (680-107453-21), GP-90(12.5-13.5)(111914) (680-107453-22), GP-91(11-12)(111914) (680-107453-23), GP-91(15-16)(111914) (680-107453-24), GP-92(14-15)(111914) (680-107453-25), GP-92(15.5-16.5)(111914) (680-107453-26), GP-93(14-15)(111914) (680-107453-27), GP-93(15.5-16.5)(111914) (680-107453-28), GP-94(14-15)(111914) (680-107453-29), GP-94(13-14)(111914) (680-107453-30), GP-95(12-13)(111914) (680-107453-31), GP-95(15-16)(111914) (680-107453-32), GP-96(7-8)(111914) (680-107453-33) and GP-96(15-16)(111914) (680-107453-34) were analyzed for Semivolatile Organic Compounds (Solid) in accordance with EPA SW-846 Method 8270D. The samples were prepared on 11/20/2014 and analyzed on 11/24/2014 and 11/25/2014.

Method(s) 8270D: The continuing calibration verification (CCV) analyzed in batch 360400 was outside the method criteria for the following analyte(s): 2,4-dinitrophenol. A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte(s) is considered estimated.

Method(s) 8270D: The following samples was diluted due to the abundance of target analytes: GP-93(14-15)(111914) (680-107453-27). As such, surrogate recoveries are below the calibration range or are not reported, and elevated reporting limits (RLs) are provided.

Method(s) 8270D: Six surrogates are used for this analysis. The laboratory's SOP allows 2 of these surrogates to be outside acceptance criteria without performing re-extraction/re-analysis. The following sample(s) contained an allowable number of surrogate compounds outside limits: GP-90(12.5-13.5)(111914) (680-107453-22), GP-90(9-10)(111914) (680-107453-21), GP-91(11-12)(111914) (680-107453-23), GP-92(14-15)(111914) (680-107453-25), GP-92(15.5-16.5)(111914) (680-107453-26), GP-93(15.5-16.5)(111914) (680-107453-28), GP-94(13-14)(111914) (680-107453-30), GP-94(14-15)(111914) (680-107453-29), GP-95(12-13)(111914) (680-107453-31), GP-95(15-16)(111914) (680-107453-32), GP-96(15-16)(111914) (680-107453-34), GP-96(7-8)(111914) (680-107453-33). These results have been reported and qualified.

Several analytes have recovery outside criteria low for the MS of sample GP-89(15.5-16.5)(111914)MS (680-107453-20) in batch 680-360199.

Several analytes exceeded the RPD limit for the MSD of sample GP-89(15.5-16.5)(111914)MSD (680-107453-20) in batch 680-360199.

Several analytes have recovery outside criteria low for the MS and/or MSD of sample GP-90(9-10)(111914) (680-107453-21) in batch 680-360248.

Refer to the QC report for details.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO)

Sample GP-96(15-16)(111914) (680-107453-34) was analyzed for gasoline range organics (GRO) in accordance with SW 846 8015C GRO. Samples GP-80(18-19) (111814) (680-107453-1), GP-80(14-15) (111814) (680-107453-2), GP-81(13-14)(111814) (680-107453-3), GP-81(14-15)(111814) (680-107453-4), GP-82(14-15)(111814) (680-107453-5), GP-82(16.5-17.5)(111814) (680-107453-6), GP-83(13-14)(111814) (680-107453-7), GP-83(14-15)(111814) (680-107453-8), GP-84(14-15)(111814) (680-107453-9), GP-84(15.5-16.5)(111814) (680-107453-10), GP-85(6-7)(111814) (680-107453-11), GP-85(15.5-16.5)(111814) (680-107453-12), GP-86(14-15)(111814) (680-107453-13), GP-86(16-17)(111814) (680-107453-14), GP-87(14-15)(111914) (680-107453-15), GP-87(16-17)(111914) (680-107453-16), GP-88(12-13)(111914) (680-107453-17), GP-88(15-16)(111914) (680-107453-18), GP-89(12-13)(111914) (680-107453-19), GP-89(15.5-16.5)(111914) (680-107453-20), GP-90(9-10)(111914) (680-107453-21), GP-90(12.5-13.5)(111914) (680-107453-22), GP-91(11-12)(111914) (680-107453-23), GP-91(15-16)(111914) (680-107453-24), GP-92(14-15)(111914) (680-107453-25), GP-92(15.5-16.5)(111914) (680-107453-26), GP-93(14-15)(111914) (680-107453-27), GP-93(15.5-16.5)(111914) (680-107453-28), GP-94(14-15)(111914) (680-107453-29), GP-94(13-14)(111914) (680-107453-30), GP-95(12-13)(111914) (680-107453-31), GP-95(15-16)(111914) (680-107453-32) and GP-96(7-8)(111914) (680-107453-33) were

Job ID: 680-107453-1 (Continued)

Laboratory: TestAmerica Savannah (Continued)

analyzed for gasoline range organics (GRO) in accordance with EPA SW-846 Method 8015B. The samples were prepared on 11/20/2014 and analyzed on 11/22/2014, 11/23/2014, 11/24/2014, 11/28/2014 and 12/01/2014.

Method(s) 5035, 8015C: Terra core -14D (H2O) had no preservative in the vial. Remaing vials used for analysis.

Method(s) 5035: The associated samples were recieved with tare weights and vial & sample weights that did not calculate because the vial & sample weight did not exceed the tare weight. Inspection of the vials revealed that all or a majority of the methanol volume had leaked from the container. In the associated prep batch, values have been entered to allow for appropriate calcuation; these values are 25 grams and 30 grams respectively. The actual weights for the individual vials are as follows: 15- 37.46 grams and 34.62 grams, 17- 37.46 and 31.23, 21- not readable, not recorded, and 34- 37.71 grams and 37.42 grams. These will not be used for analysis of these samples. GP-87(14-15)(111914) (680-107453-15), GP-88(12-13)(111914) (680-107453-17), GP-90(9-10)(111914) (680-107453-21), GP-96(15-16)(111914) (680-107453-34).

All of the samples for 680-107453 were received in pre-weighed containers with a label that was added in the field, which would cause a slight low bias in the final results. The tare weights were covered with the client ID labels. Tare weight on terra core -21B (MeOH) could not be read after peeling the label.

Method(s) 5035, 8015C: The following terra core vials are underweight: -15B, -17B and -34B (MeOH) and -16C and -16D (H2O). See batch 680-359819.

Method(s) 8015C: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with batches 360056, 360082, 360143, 361045, 360539.

Method(s) 8015C: The following sample required a dilution due to the nature of the sample matrix: GP-81(14-15)(111814) (680-107453-4), GP-91(15-16)(111914) (680-107453-24), GP-92(14-15)(111914) (680-107453-25), GP-92(15.5-16.5)(111914) (680-107453-26), GP-93(14-15)(111914) (680-107453-27), GP-95(15-16)(111914) (680-107453-32). Because of this dilution, the surrogate spikes are not reported.

Method(s) 8015C: Surrogate recovery for the following samples were outside control limits: GP-87(16-17)(111914) (680-107453-16), GP-91(11-12)(111914) (680-107453-23), GP-94(14-15)(111914) (680-107453-29). Re-analysis was performed with concurring results. The original analysis has been reported.

Method(s) 8015C: The method blank for batch 361045 and 360539 contained C6-C10 above the method detection limit (MDL). This target analyte concentration was less than the project-specific action limit; therefore, re-extraction and/or re-analysis of samples was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DIESEL RANGE ORGANICS (DRO)

Samples GP-80(18-19) (111814) (680-107453-1), GP-80(14-15) (111814) (680-107453-2), GP-81(13-14)(111814) (680-107453-3), GP-81(14-15)(111814) (680-107453-4), GP-82(14-15)(111814) (680-107453-5), GP-82(16.5-17.5)(111814) (680-107453-6), GP-83(13-14)(111814) (680-107453-7), GP-83(14-15)(111814) (680-107453-8), GP-84(14-15)(111814) (680-107453-9), GP-84(15.5-16.5)(111814) (680-107453-10), GP-85(6-7)(111814) (680-107453-11), GP-85(15.5-16.5)(111814) (680-107453-12), GP-86(14-15)(111814) (680-107453-13), GP-86(16-17)(111814) (680-107453-14), GP-87(14-15)(111914) (680-107453-15), GP-87(16-17)(111914) (680-107453-16), GP-88(12-13)(111914) (680-107453-17), GP-88(15-16)(111914) (680-107453-18), GP-89(12-13)(111914) (680-107453-19), GP-89(15.5-16.5)(111914) (680-107453-20), GP-90(9-10)(111914) (680-107453-21), GP-90(12.5-13.5)(111914) (680-107453-22), GP-91(11-12)(111914) (680-107453-23), GP-91(15-16)(111914) (680-107453-24), GP-92(14-15)(111914) (680-107453-25), GP-92(15.5-16.5)(111914) (680-107453-26), GP-93(14-15)(111914) (680-107453-27), GP-93(15.5-16.5)(111914) (680-107453-28), GP-94(14-15)(111914) (680-107453-29), GP-94(13-14)(111914) (680-107453-30), GP-95(12-13)(111914) (680-107453-31), GP-95(15-16)(111914) (680-107453-32), GP-96(7-8)(111914) (680-107453-33) and GP-96(15-16)(111914) (680-107453-34) were analyzed for Diesel Range Organics (DRO) in accordance with EPA SW-846 Method 8015C. The samples were prepared on 11/20/2014 and analyzed on 11/21/2014, 11/22/2014 and 11/24/2014.

Method(s) 8015C: The following sample(s) was diluted due to an abundance of target analytes: GP-82(16.5-17.5)(111814) (680-107453-6), GP-91(15-16)(111914) (680-107453-24), GP-92(14-15)(111914) (680-107453-25), GP-92(15.5-16.5)(111914)

Job ID: 680-107453-1 (Continued)

Laboratory: TestAmerica Savannah (Continued)

(680-107453-26), GP-93(14-15)(111914) (680-107453-27), GP-93(15.5-16.5)(111914) (680-107453-28), GP-94(14-15)(111914) (680-107453-29), GP-95(12-13)(111914) (680-107453-31), GP-95(15-16)(111914) (680-107453-32). As such, surrogate recoveries are below the calibration range or are not reported, and elevated reporting limits (RLs) are provided.

Method(s) 8015C: Surrogate recovery for the following sample(s) was outside control limits: GP-90(12.5-13.5)(111914) (680-107453-22). Re-extraction and/or re-analysis was performed with concurring results. The original analysis has been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS/MOISTURE

Samples GP-80(18-19) (111814) (680-107453-1), GP-80(14-15) (111814) (680-107453-2), GP-81(13-14)(111814) (680-107453-3), GP-81(14-15)(111814) (680-107453-4), GP-82(14-15)(111814) (680-107453-5), GP-82(16.5-17.5)(111814) (680-107453-6), GP-83(13-14)(111814) (680-107453-7), GP-83(14-15)(111814) (680-107453-8), GP-84(14-15)(111814) (680-107453-9), GP-84(15.5-16.5)(111814) (680-107453-10), GP-85(6-7)(111814) (680-107453-11), GP-85(15.5-16.5)(111814) (680-107453-12), GP-86(14-15)(111814) (680-107453-13), GP-86(16-17)(111814) (680-107453-14), GP-87(14-15)(111914) (680-107453-15), GP-87(16-17)(111914) (680-107453-16), GP-88(12-13)(111914) (680-107453-17), GP-88(15-16)(111914) (680-107453-18), GP-89(12-13)(111914) (680-107453-19), GP-89(15.5-16.5)(111914) (680-107453-20), GP-90(9-10)(111914) (680-107453-21), GP-90(12.5-13.5)(111914) (680-107453-22), GP-91(11-12)(111914) (680-107453-23), GP-91(15-16)(111914) (680-107453-24), GP-92(14-15)(111914) (680-107453-25), GP-92(15.5-16.5)(111914) (680-107453-26), GP-93(14-15)(111914) (680-107453-27), GP-93(15.5-16.5)(111914) (680-107453-28), GP-94(14-15)(111914) (680-107453-29), GP-94(13-14)(111914) (680-107453-30), GP-95(12-13)(111914) (680-107453-31), GP-95(15-16)(111914) (680-107453-32), GP-96(7-8)(111914) (680-107453-33) and GP-96(15-16)(111914) (680-107453-34) were analyzed for Percent Solids/Moisture in accordance with TestAmerica SOP. The samples were analyzed on 11/20/2014.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: CSX C&O Canal Brunswick, MD

TestAmerica Job ID: 680-107453-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-107453-1	GP-80(18-19) (111814)	Solid	11/18/14 09:40	11/20/14 09:28
680-107453-2	GP-80(14-15) (111814)	Solid	11/18/14 09:45	11/20/14 09:28
680-107453-3	GP-81(13-14)(111814)	Solid	11/18/14 11:05	11/20/14 09:28
680-107453-4	GP-81(14-15)(111814)	Solid	11/18/14 11:10	11/20/14 09:28
680-107453-5	GP-82(14-15)(111814)	Solid	11/18/14 11:50	11/20/14 09:28
680-107453-6	GP-82(16.5-17.5)(111814)	Solid	11/18/14 11:55	11/20/14 09:28
680-107453-7	GP-83(13-14)(111814)	Solid	11/18/14 13:10	11/20/14 09:28
680-107453-8	GP-83(14-15)(111814)	Solid	11/18/14 13:15	11/20/14 09:28
680-107453-9	GP-84(14-15)(111814)	Solid	11/18/14 14:00	11/20/14 09:28
680-107453-10	GP-84(15.5-16.5)(111814)	Solid	11/18/14 14:05	11/20/14 09:28
680-107453-11	GP-85(6-7)(111814)	Solid	11/18/14 14:50	11/20/14 09:28
680-107453-12	GP-85(15.5-16.5)(111814)	Solid	11/18/14 15:00	11/20/14 09:28
680-107453-13	GP-86(14-15)(111814)	Solid	11/18/14 15:55	11/20/14 09:28
680-107453-14	GP-86(16-17)(111814)	Solid	11/18/14 16:00	11/20/14 09:28
680-107453-15	GP-87(14-15)(111914)	Solid	11/19/14 08:25	11/20/14 09:28
680-107453-16	GP-87(16-17)(111914)	Solid	11/19/14 08:30	11/20/14 09:28
680-107453-17	GP-88(12-13)(111914)	Solid	11/19/14 09:10	11/20/14 09:28
680-107453-18	GP-88(15-16)(111914)	Solid	11/19/14 09:15	11/20/14 09:28
680-107453-19	GP-89(12-13)(111914)	Solid	11/19/14 10:10	11/20/14 09:28
680-107453-20	GP-89(15.5-16.5)(111914)	Solid	11/19/14 10:15	11/20/14 09:28
680-107453-21	GP-90(9-10)(111914)	Solid	11/19/14 10:45	11/20/14 09:28
680-107453-22	GP-90(12.5-13.5)(111914)	Solid	11/19/14 10:50	11/20/14 09:28
680-107453-23	GP-91(11-12)(111914)	Solid	11/19/14 11:50	11/20/14 09:28
680-107453-24	GP-91(15-16)(111914)	Solid	11/19/14 11:55	11/20/14 09:28
680-107453-25	GP-92(14-15)(111914)	Solid	11/19/14 13:35	11/20/14 09:28
680-107453-26	GP-92(15.5-16.5)(111914)	Solid	11/19/14 13:40	11/20/14 09:28
680-107453-27	GP-93(14-15)(111914)	Solid	11/19/14 14:25	11/20/14 09:28
680-107453-28	GP-93(15.5-16.5)(111914)	Solid	11/19/14 14:30	11/20/14 09:28
680-107453-29	GP-94(14-15)(111914)	Solid	11/19/14 15:05	11/20/14 09:28
680-107453-30	GP-94(13-14)(111914)	Solid	11/19/14 15:10	11/20/14 09:28
680-107453-31	GP-95(12-13)(111914)	Solid	11/19/14 15:55	11/20/14 09:28
680-107453-32	GP-95(15-16)(111914)	Solid	11/19/14 16:00	11/20/14 09:28
680-107453-33	GP-96(7-8)(111914)	Solid	11/19/14 16:20	11/20/14 09:28
680-107453-34	GP-96(15-16)(111914)	Solid	11/19/14 16:25	11/20/14 09:28
680-107453-35	TRIPBLANK(111914)	Water	11/19/14 00:00	11/20/14 09:28

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: CSX C&O Canal Brunswick, MD

TestAmerica Job ID: 680-107453-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL PEN
8270D	Semivolatile Organic Compounds (GC/MS)	SW846	TAL SAV
8015C	Nonhalogenated Organics using GC/FID -Modified (Gasoline Range Organics)	SW846	TAL SAV
8015C	Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics)	SW846	TAL SAV
Moisture	Percent Moisture	EPA	TAL SAV

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
X	Surrogate is outside control limits

GC/MS Semi VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
F1	MS and/or MSD Recovery exceeds the control limits
F2	MS/MSD RPD exceeds control limits
X	Surrogate is outside control limits
D	Surrogate or matrix spike recoveries were not obtained because the extract was diluted for analysis; also compounds analyzed at a dilution may be flagged with a D.

GC VOA

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.
X	Surrogate is outside control limits

GC Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.
X	Surrogate is outside control limits
D	Surrogate or matrix spike recoveries were not obtained because the extract was diluted for analysis; also compounds analyzed at a dilution may be flagged with a D.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client: ARCADIS U.S., Inc.
Project/Site: CSX C&O Canal Brunswick, MD

TestAmerica Job ID: 680-107453-1

Client Sample ID: GP-80(18-19) (111814)
Date Collected: 11/18/14 09:40
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-1
Matrix: Solid
Percent Solids: 84.4

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	8.9	J	25	7.3	ug/Kg	☼	12/01/14 09:24	12/01/14 14:17	1
Benzene	5.0	U	5.0	1.1	ug/Kg	☼	12/01/14 09:24	12/01/14 14:17	1
Bromodichloromethane	5.0	U	5.0	2.5	ug/Kg	☼	12/01/14 09:24	12/01/14 14:17	1
Bromoform	5.0	U	5.0	2.5	ug/Kg	☼	12/01/14 09:24	12/01/14 14:17	1
Bromomethane	5.0	U	5.0	2.5	ug/Kg	☼	12/01/14 09:24	12/01/14 14:17	1
Carbon disulfide	5.0	U	5.0	2.5	ug/Kg	☼	12/01/14 09:24	12/01/14 14:17	1
Carbon tetrachloride	5.0	U	5.0	1.7	ug/Kg	☼	12/01/14 09:24	12/01/14 14:17	1
Chlorobenzene	5.0	U	5.0	0.52	ug/Kg	☼	12/01/14 09:24	12/01/14 14:17	1
Chloroethane	5.0	U	5.0	2.5	ug/Kg	☼	12/01/14 09:24	12/01/14 14:17	1
Chloroform	5.0	U	5.0	2.5	ug/Kg	☼	12/01/14 09:24	12/01/14 14:17	1
Chloromethane	5.0	U	5.0	0.99	ug/Kg	☼	12/01/14 09:24	12/01/14 14:17	1
cis-1,2-Dichloroethene	5.0	U	5.0	0.76	ug/Kg	☼	12/01/14 09:24	12/01/14 14:17	1
cis-1,3-Dichloropropene	5.0	U	5.0	1.2	ug/Kg	☼	12/01/14 09:24	12/01/14 14:17	1
Cyclohexane	5.0	U	5.0	0.93	ug/Kg	☼	12/01/14 09:24	12/01/14 14:17	1
Dibromochloromethane	5.0	U	5.0	2.5	ug/Kg	☼	12/01/14 09:24	12/01/14 14:17	1
1,2-Dibromo-3-Chloropropane	5.0	U	5.0	3.3	ug/Kg	☼	12/01/14 09:24	12/01/14 14:17	1
1,2-Dichlorobenzene	5.0	U	5.0	0.71	ug/Kg	☼	12/01/14 09:24	12/01/14 14:17	1
1,3-Dichlorobenzene	5.0	U	5.0	0.94	ug/Kg	☼	12/01/14 09:24	12/01/14 14:17	1
1,4-Dichlorobenzene	5.0	U	5.0	2.5	ug/Kg	☼	12/01/14 09:24	12/01/14 14:17	1
Dichlorodifluoromethane	5.0	U	5.0	1.3	ug/Kg	☼	12/01/14 09:24	12/01/14 14:17	1
1,1-Dichloroethane	5.0	U	5.0	0.83	ug/Kg	☼	12/01/14 09:24	12/01/14 14:17	1
1,2-Dichloroethane	5.0	U	5.0	0.82	ug/Kg	☼	12/01/14 09:24	12/01/14 14:17	1
1,1-Dichloroethene	5.0	U	5.0	2.5	ug/Kg	☼	12/01/14 09:24	12/01/14 14:17	1
1,2-Dichloropropane	5.0	U	5.0	2.5	ug/Kg	☼	12/01/14 09:24	12/01/14 14:17	1
Diisopropyl ether	5.0	U	5.0	0.55	ug/Kg	☼	12/01/14 09:24	12/01/14 14:17	1
Ethylbenzene	5.0	U	5.0	0.61	ug/Kg	☼	12/01/14 09:24	12/01/14 14:17	1
Ethylene Dibromide	5.0	U	5.0	0.99	ug/Kg	☼	12/01/14 09:24	12/01/14 14:17	1
Ethyl tert-butyl ether	5.0	U	5.0	2.5	ug/Kg	☼	12/01/14 09:24	12/01/14 14:17	1
2-Hexanone	25	U	25	5.0	ug/Kg	☼	12/01/14 09:24	12/01/14 14:17	1
Isopropylbenzene	5.0	U	5.0	0.68	ug/Kg	☼	12/01/14 09:24	12/01/14 14:17	1
Methyl acetate	5.0	U	5.0	4.6	ug/Kg	☼	12/01/14 09:24	12/01/14 14:17	1
Methylcyclohexane	5.0	U	5.0	1.5	ug/Kg	☼	12/01/14 09:24	12/01/14 14:17	1
Methylene Chloride	15	U	15	9.9	ug/Kg	☼	12/01/14 09:24	12/01/14 14:17	1
Methyl Ethyl Ketone	25	U	25	6.0	ug/Kg	☼	12/01/14 09:24	12/01/14 14:17	1
methyl isobutyl ketone	25	U	25	5.0	ug/Kg	☼	12/01/14 09:24	12/01/14 14:17	1
Methyl tert-butyl ether	5.0	U	5.0	0.99	ug/Kg	☼	12/01/14 09:24	12/01/14 14:17	1
Naphthalene	5.0	U	5.0	2.0	ug/Kg	☼	12/01/14 09:24	12/01/14 14:17	1
Styrene	5.0	U	5.0	0.99	ug/Kg	☼	12/01/14 09:24	12/01/14 14:17	1
Tert-amyl methyl ether	5.0	U	5.0	0.99	ug/Kg	☼	12/01/14 09:24	12/01/14 14:17	1
tert-Butyl alcohol	9.9	U	9.9	8.0	ug/Kg	☼	12/01/14 09:24	12/01/14 14:17	1
1,1,2,2-Tetrachloroethane	5.0	U	5.0	2.5	ug/Kg	☼	12/01/14 09:24	12/01/14 14:17	1
Tetrachloroethene	5.0	U	5.0	2.5	ug/Kg	☼	12/01/14 09:24	12/01/14 14:17	1
Toluene	5.0	U	5.0	0.99	ug/Kg	☼	12/01/14 09:24	12/01/14 14:17	1
trans-1,2-Dichloroethene	5.0	U	5.0	2.5	ug/Kg	☼	12/01/14 09:24	12/01/14 14:17	1
trans-1,3-Dichloropropene	5.0	U	5.0	2.5	ug/Kg	☼	12/01/14 09:24	12/01/14 14:17	1
1,2,4-Trichlorobenzene	5.0	U	5.0	2.0	ug/Kg	☼	12/01/14 09:24	12/01/14 14:17	1
1,1,1-Trichloroethane	5.0	U	5.0	1.1	ug/Kg	☼	12/01/14 09:24	12/01/14 14:17	1
1,1,2-Trichloroethane	5.0	U	5.0	2.5	ug/Kg	☼	12/01/14 09:24	12/01/14 14:17	1
Trichloroethene	5.0	U	5.0	0.99	ug/Kg	☼	12/01/14 09:24	12/01/14 14:17	1

Client Sample ID: GP-80(18-19) (111814)
Date Collected: 11/18/14 09:40
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-1
Matrix: Solid
Percent Solids: 84.4

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichlorofluoromethane	5.0	U	5.0	2.5	ug/Kg	☼	12/01/14 09:24	12/01/14 14:17	1
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	2.0	ug/Kg	☼	12/01/14 09:24	12/01/14 14:17	1
Vinyl chloride	5.0	U	5.0	2.5	ug/Kg	☼	12/01/14 09:24	12/01/14 14:17	1
Xylenes, Total	5.0	U	5.0	0.99	ug/Kg	☼	12/01/14 09:24	12/01/14 14:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*105*		*72 - 122*	*12/01/14 09:24*	*12/01/14 14:17*	*1*
Dibromofluoromethane	*103*		*79 - 123*	*12/01/14 09:24*	*12/01/14 14:17*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*	*12/01/14 09:24*	*12/01/14 14:17*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzaldehyde	390	U	390	69	ug/Kg	☼	11/20/14 17:27	11/24/14 14:03	1
Phenol	390	U	390	40	ug/Kg	☼	11/20/14 17:27	11/24/14 14:03	1
Bis(2-chloroethyl)ether	390	U	390	53	ug/Kg	☼	11/20/14 17:27	11/24/14 14:03	1
2-Chlorophenol	390	U	390	47	ug/Kg	☼	11/20/14 17:27	11/24/14 14:03	1
2-Methylphenol	390	U	390	32	ug/Kg	☼	11/20/14 17:27	11/24/14 14:03	1
bis (2-chloroisopropyl) ether	390	U	390	35	ug/Kg	☼	11/20/14 17:27	11/24/14 14:03	1
Acetophenone	390	U	390	33	ug/Kg	☼	11/20/14 17:27	11/24/14 14:03	1
3 & 4 Methylphenol	390	U	390	51	ug/Kg	☼	11/20/14 17:27	11/24/14 14:03	1
N-Nitrosodi-n-propylamine	390	U	390	38	ug/Kg	☼	11/20/14 17:27	11/24/14 14:03	1
Hexachloroethane	390	U	390	33	ug/Kg	☼	11/20/14 17:27	11/24/14 14:03	1
Nitrobenzene	390	U	390	31	ug/Kg	☼	11/20/14 17:27	11/24/14 14:03	1
Isophorone	390	U	390	39	ug/Kg	☼	11/20/14 17:27	11/24/14 14:03	1
2-Nitrophenol	390	U	390	48	ug/Kg	☼	11/20/14 17:27	11/24/14 14:03	1
2,4-Dimethylphenol	390	U	390	52	ug/Kg	☼	11/20/14 17:27	11/24/14 14:03	1
Bis(2-chloroethoxy)methane	390	U	390	46	ug/Kg	☼	11/20/14 17:27	11/24/14 14:03	1
2,4-Dichlorophenol	390	U	390	41	ug/Kg	☼	11/20/14 17:27	11/24/14 14:03	1
Naphthalene	390	U	390	35	ug/Kg	☼	11/20/14 17:27	11/24/14 14:03	1
4-Chloroaniline	780	U	780	62	ug/Kg	☼	11/20/14 17:27	11/24/14 14:03	1
Hexachlorobutadiene	390	U	390	43	ug/Kg	☼	11/20/14 17:27	11/24/14 14:03	1
Caprolactam	390	U	390	78	ug/Kg	☼	11/20/14 17:27	11/24/14 14:03	1
4-Chloro-3-methylphenol	390	U	390	41	ug/Kg	☼	11/20/14 17:27	11/24/14 14:03	1
2-Methylnaphthalene	390	U	390	45	ug/Kg	☼	11/20/14 17:27	11/24/14 14:03	1
Hexachlorocyclopentadiene	390	U	390	48	ug/Kg	☼	11/20/14 17:27	11/24/14 14:03	1
2,4,6-Trichlorophenol	390	U	390	34	ug/Kg	☼	11/20/14 17:27	11/24/14 14:03	1
2,4,5-Trichlorophenol	390	U	390	41	ug/Kg	☼	11/20/14 17:27	11/24/14 14:03	1
1,1'-Biphenyl	2000	U	2000	2000	ug/Kg	☼	11/20/14 17:27	11/24/14 14:03	1
2-Chloronaphthalene	390	U	390	41	ug/Kg	☼	11/20/14 17:27	11/24/14 14:03	1
2-Nitroaniline	2000	U	2000	53	ug/Kg	☼	11/20/14 17:27	11/24/14 14:03	1
Dimethyl phthalate	390	U	390	40	ug/Kg	☼	11/20/14 17:27	11/24/14 14:03	1
2,6-Dinitrotoluene	390	U	390	50	ug/Kg	☼	11/20/14 17:27	11/24/14 14:03	1
Acenaphthylene	390	U	390	43	ug/Kg	☼	11/20/14 17:27	11/24/14 14:03	1
3-Nitroaniline	2000	U	2000	54	ug/Kg	☼	11/20/14 17:27	11/24/14 14:03	1
Acenaphthene	390	U	390	48	ug/Kg	☼	11/20/14 17:27	11/24/14 14:03	1
2,4-Dinitrophenol	2000	U	2000	980	ug/Kg	☼	11/20/14 17:27	11/24/14 14:03	1
4-Nitrophenol	2000	U	2000	390	ug/Kg	☼	11/20/14 17:27	11/24/14 14:03	1
Dibenzofuran	390	U	390	39	ug/Kg	☼	11/20/14 17:27	11/24/14 14:03	1
2,4-Dinitrotoluene	390	U	390	58	ug/Kg	☼	11/20/14 17:27	11/24/14 14:03	1
Diethyl phthalate	390	U	390	44	ug/Kg	☼	11/20/14 17:27	11/24/14 14:03	1

Client Sample ID: GP-80(18-19) (111814)
Date Collected: 11/18/14 09:40
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-1
Matrix: Solid
Percent Solids: 84.4

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluorene	390	U	390	43	ug/Kg	☼	11/20/14 17:27	11/24/14 14:03	1
4-Chlorophenyl phenyl ether	390	U	390	52	ug/Kg	☼	11/20/14 17:27	11/24/14 14:03	1
4-Nitroaniline	2000	U	2000	58	ug/Kg	☼	11/20/14 17:27	11/24/14 14:03	1
4,6-Dinitro-2-methylphenol	2000	U	2000	200	ug/Kg	☼	11/20/14 17:27	11/24/14 14:03	1
N-Nitrosodiphenylamine	390	U	390	39	ug/Kg	☼	11/20/14 17:27	11/24/14 14:03	1
4-Bromophenyl phenyl ether	390	U	390	43	ug/Kg	☼	11/20/14 17:27	11/24/14 14:03	1
Hexachlorobenzene	390	U	390	46	ug/Kg	☼	11/20/14 17:27	11/24/14 14:03	1
Atrazine	390	U	390	27	ug/Kg	☼	11/20/14 17:27	11/24/14 14:03	1
Pentachlorophenol	2000	U	2000	390	ug/Kg	☼	11/20/14 17:27	11/24/14 14:03	1
Phenanthrene	390	U	390	32	ug/Kg	☼	11/20/14 17:27	11/24/14 14:03	1
Anthracene	390	U	390	30	ug/Kg	☼	11/20/14 17:27	11/24/14 14:03	1
Carbazole	390	U	390	35	ug/Kg	☼	11/20/14 17:27	11/24/14 14:03	1
Di-n-butyl phthalate	390	U	390	35	ug/Kg	☼	11/20/14 17:27	11/24/14 14:03	1
Fluoranthene	390	U	390	38	ug/Kg	☼	11/20/14 17:27	11/24/14 14:03	1
Pyrene	390	U	390	32	ug/Kg	☼	11/20/14 17:27	11/24/14 14:03	1
Butyl benzyl phthalate	390	U	390	31	ug/Kg	☼	11/20/14 17:27	11/24/14 14:03	1
3,3'-Dichlorobenzidine	780	U	780	33	ug/Kg	☼	11/20/14 17:27	11/24/14 14:03	1
Benzo[a]anthracene	390	U	390	32	ug/Kg	☼	11/20/14 17:27	11/24/14 14:03	1
Chrysene	390	U	390	25	ug/Kg	☼	11/20/14 17:27	11/24/14 14:03	1
Bis(2-ethylhexyl) phthalate	390	U	390	34	ug/Kg	☼	11/20/14 17:27	11/24/14 14:03	1
Di-n-octyl phthalate	390	U	390	34	ug/Kg	☼	11/20/14 17:27	11/24/14 14:03	1
Benzo[b]fluoranthene	390	U	390	45	ug/Kg	☼	11/20/14 17:27	11/24/14 14:03	1
Benzo[k]fluoranthene	390	U	390	77	ug/Kg	☼	11/20/14 17:27	11/24/14 14:03	1
Benzo[a]pyrene	390	U	390	62	ug/Kg	☼	11/20/14 17:27	11/24/14 14:03	1
Indeno[1,2,3-cd]pyrene	390	U	390	33	ug/Kg	☼	11/20/14 17:27	11/24/14 14:03	1
Dibenz(a,h)anthracene	390	U	390	46	ug/Kg	☼	11/20/14 17:27	11/24/14 14:03	1
Benzo[g,h,i]perylene	390	U	390	26	ug/Kg	☼	11/20/14 17:27	11/24/14 14:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*54*		*37 - 115*	*11/20/14 17:27*	*11/24/14 14:03*	*1*
2-Fluorobiphenyl	*62*		*41 - 116*	*11/20/14 17:27*	*11/24/14 14:03*	*1*
Terphenyl-d14 (Surr)	*63*		*46 - 126*	*11/20/14 17:27*	*11/24/14 14:03*	*1*
Phenol-d5 (Surr)	*57*		*38 - 122*	*11/20/14 17:27*	*11/24/14 14:03*	*1*
2-Fluorophenol (Surr)	*58*		*39 - 114*	*11/20/14 17:27*	*11/24/14 14:03*	*1*
2,4,6-Tribromophenol (Surr)	*68*		*45 - 129*	*11/20/14 17:27*	*11/24/14 14:03*	*1*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Gasoline Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**0.055**	**J B**	0.25	0.019	mg/Kg	☼	11/20/14 16:38	11/24/14 13:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*96*		*70 - 131*	*11/20/14 16:38*	*11/24/14 13:52*	*1*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**3.0**	**J**	3.9	2.5	mg/Kg	☼	11/20/14 15:52	11/21/14 18:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*73*		*45 - 130*	*11/20/14 15:52*	*11/21/14 18:29*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: CSX C&O Canal Brunswick, MD

TestAmerica Job ID: 680-107453-1

Client Sample ID: GP-80(14-15) (111814)
Date Collected: 11/18/14 09:45
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-2
Matrix: Solid
Percent Solids: 82.6

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	10	J	22	6.5	ug/Kg	☼	12/01/14 09:24	12/01/14 14:42	1
Benzene	4.5	U	4.5	0.98	ug/Kg	☼	12/01/14 09:24	12/01/14 14:42	1
Bromodichloromethane	4.5	U	4.5	2.2	ug/Kg	☼	12/01/14 09:24	12/01/14 14:42	1
Bromoform	4.5	U	4.5	2.2	ug/Kg	☼	12/01/14 09:24	12/01/14 14:42	1
Bromomethane	4.5	U	4.5	2.2	ug/Kg	☼	12/01/14 09:24	12/01/14 14:42	1
Carbon disulfide	4.5	U	4.5	2.2	ug/Kg	☼	12/01/14 09:24	12/01/14 14:42	1
Carbon tetrachloride	4.5	U	4.5	1.5	ug/Kg	☼	12/01/14 09:24	12/01/14 14:42	1
Chlorobenzene	4.5	U	4.5	0.46	ug/Kg	☼	12/01/14 09:24	12/01/14 14:42	1
Chloroethane	4.5	U	4.5	2.2	ug/Kg	☼	12/01/14 09:24	12/01/14 14:42	1
Chloroform	4.5	U	4.5	2.2	ug/Kg	☼	12/01/14 09:24	12/01/14 14:42	1
Chloromethane	4.5	U	4.5	0.89	ug/Kg	☼	12/01/14 09:24	12/01/14 14:42	1
cis-1,2-Dichloroethene	4.5	U	4.5	0.68	ug/Kg	☼	12/01/14 09:24	12/01/14 14:42	1
cis-1,3-Dichloropropene	4.5	U	4.5	1.1	ug/Kg	☼	12/01/14 09:24	12/01/14 14:42	1
Cyclohexane	4.5	U	4.5	0.84	ug/Kg	☼	12/01/14 09:24	12/01/14 14:42	1
Dibromochloromethane	4.5	U	4.5	2.2	ug/Kg	☼	12/01/14 09:24	12/01/14 14:42	1
1,2-Dibromo-3-Chloropropane	4.5	U	4.5	2.9	ug/Kg	☼	12/01/14 09:24	12/01/14 14:42	1
1,2-Dichlorobenzene	4.5	U	4.5	0.63	ug/Kg	☼	12/01/14 09:24	12/01/14 14:42	1
1,3-Dichlorobenzene	4.5	U	4.5	0.85	ug/Kg	☼	12/01/14 09:24	12/01/14 14:42	1
1,4-Dichlorobenzene	4.5	U	4.5	2.2	ug/Kg	☼	12/01/14 09:24	12/01/14 14:42	1
Dichlorodifluoromethane	4.5	U	4.5	1.2	ug/Kg	☼	12/01/14 09:24	12/01/14 14:42	1
1,1-Dichloroethane	4.5	U	4.5	0.74	ug/Kg	☼	12/01/14 09:24	12/01/14 14:42	1
1,2-Dichloroethane	4.5	U	4.5	0.73	ug/Kg	☼	12/01/14 09:24	12/01/14 14:42	1
1,1-Dichloroethene	4.5	U	4.5	2.2	ug/Kg	☼	12/01/14 09:24	12/01/14 14:42	1
1,2-Dichloropropane	4.5	U	4.5	2.2	ug/Kg	☼	12/01/14 09:24	12/01/14 14:42	1
Diisopropyl ether	4.5	U	4.5	0.49	ug/Kg	☼	12/01/14 09:24	12/01/14 14:42	1
Ethylbenzene	4.5	U	4.5	0.54	ug/Kg	☼	12/01/14 09:24	12/01/14 14:42	1
Ethylene Dibromide	4.5	U	4.5	0.89	ug/Kg	☼	12/01/14 09:24	12/01/14 14:42	1
Ethyl tert-butyl ether	4.5	U	4.5	2.2	ug/Kg	☼	12/01/14 09:24	12/01/14 14:42	1
2-Hexanone	22	U	22	4.5	ug/Kg	☼	12/01/14 09:24	12/01/14 14:42	1
Isopropylbenzene	4.5	U	4.5	0.61	ug/Kg	☼	12/01/14 09:24	12/01/14 14:42	1
Methyl acetate	4.5	U	4.5	4.1	ug/Kg	☼	12/01/14 09:24	12/01/14 14:42	1
Methylcyclohexane	4.5	U	4.5	1.3	ug/Kg	☼	12/01/14 09:24	12/01/14 14:42	1
Methylene Chloride	13	U	13	8.9	ug/Kg	☼	12/01/14 09:24	12/01/14 14:42	1
Methyl Ethyl Ketone	22	U	22	5.4	ug/Kg	☼	12/01/14 09:24	12/01/14 14:42	1
methyl isobutyl ketone	22	U	22	4.5	ug/Kg	☼	12/01/14 09:24	12/01/14 14:42	1
Methyl tert-butyl ether	4.5	U	4.5	0.89	ug/Kg	☼	12/01/14 09:24	12/01/14 14:42	1
Naphthalene	4.5	U	4.5	1.8	ug/Kg	☼	12/01/14 09:24	12/01/14 14:42	1
Styrene	4.5	U	4.5	0.89	ug/Kg	☼	12/01/14 09:24	12/01/14 14:42	1
Tert-amyl methyl ether	4.5	U	4.5	0.89	ug/Kg	☼	12/01/14 09:24	12/01/14 14:42	1
tert-Butyl alcohol	8.9	U	8.9	7.1	ug/Kg	☼	12/01/14 09:24	12/01/14 14:42	1
1,1,2,2-Tetrachloroethane	4.5	U	4.5	2.2	ug/Kg	☼	12/01/14 09:24	12/01/14 14:42	1
Tetrachloroethene	4.5	U	4.5	2.2	ug/Kg	☼	12/01/14 09:24	12/01/14 14:42	1
Toluene	4.5	U	4.5	0.89	ug/Kg	☼	12/01/14 09:24	12/01/14 14:42	1
trans-1,2-Dichloroethene	4.5	U	4.5	2.2	ug/Kg	☼	12/01/14 09:24	12/01/14 14:42	1
trans-1,3-Dichloropropene	4.5	U	4.5	2.2	ug/Kg	☼	12/01/14 09:24	12/01/14 14:42	1
1,2,4-Trichlorobenzene	4.5	U	4.5	1.8	ug/Kg	☼	12/01/14 09:24	12/01/14 14:42	1
1,1,1-Trichloroethane	4.5	U	4.5	0.98	ug/Kg	☼	12/01/14 09:24	12/01/14 14:42	1
1,1,2-Trichloroethane	4.5	U	4.5	2.2	ug/Kg	☼	12/01/14 09:24	12/01/14 14:42	1
Trichloroethene	4.5	U	4.5	0.89	ug/Kg	☼	12/01/14 09:24	12/01/14 14:42	1

Client Sample ID: GP-80(14-15) (111814)
Date Collected: 11/18/14 09:45
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-2
Matrix: Solid
Percent Solids: 82.6

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichlorofluoromethane	4.5	U	4.5	2.2	ug/Kg	☼	12/01/14 09:24	12/01/14 14:42	1
1,1,2-Trichloro-1,2,2-trifluoroethane	4.5	U	4.5	1.8	ug/Kg	☼	12/01/14 09:24	12/01/14 14:42	1
Vinyl chloride	4.5	U	4.5	2.2	ug/Kg	☼	12/01/14 09:24	12/01/14 14:42	1
Xylenes, Total	4.5	U	4.5	0.89	ug/Kg	☼	12/01/14 09:24	12/01/14 14:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*108*		*72 - 122*	*12/01/14 09:24*	*12/01/14 14:42*	*1*
Dibromofluoromethane	*103*		*79 - 123*	*12/01/14 09:24*	*12/01/14 14:42*	*1*
Toluene-d8 (Surr)	*90*		*80 - 120*	*12/01/14 09:24*	*12/01/14 14:42*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzaldehyde	390	U	390	69	ug/Kg	☼	11/20/14 17:27	11/24/14 14:28	1
Phenol	390	U	390	41	ug/Kg	☼	11/20/14 17:27	11/24/14 14:28	1
Bis(2-chloroethyl)ether	390	U	390	54	ug/Kg	☼	11/20/14 17:27	11/24/14 14:28	1
2-Chlorophenol	390	U	390	48	ug/Kg	☼	11/20/14 17:27	11/24/14 14:28	1
2-Methylphenol	390	U	390	32	ug/Kg	☼	11/20/14 17:27	11/24/14 14:28	1
bis (2-chloroisopropyl) ether	390	U	390	36	ug/Kg	☼	11/20/14 17:27	11/24/14 14:28	1
Acetophenone	390	U	390	33	ug/Kg	☼	11/20/14 17:27	11/24/14 14:28	1
3 & 4 Methylphenol	390	U	390	51	ug/Kg	☼	11/20/14 17:27	11/24/14 14:28	1
N-Nitrosodi-n-propylamine	390	U	390	38	ug/Kg	☼	11/20/14 17:27	11/24/14 14:28	1
Hexachloroethane	390	U	390	33	ug/Kg	☼	11/20/14 17:27	11/24/14 14:28	1
Nitrobenzene	390	U	390	31	ug/Kg	☼	11/20/14 17:27	11/24/14 14:28	1
Isophorone	390	U	390	39	ug/Kg	☼	11/20/14 17:27	11/24/14 14:28	1
2-Nitrophenol	390	U	390	49	ug/Kg	☼	11/20/14 17:27	11/24/14 14:28	1
2,4-Dimethylphenol	390	U	390	53	ug/Kg	☼	11/20/14 17:27	11/24/14 14:28	1
Bis(2-chloroethoxy)methane	390	U	390	47	ug/Kg	☼	11/20/14 17:27	11/24/14 14:28	1
2,4-Dichlorophenol	390	U	390	42	ug/Kg	☼	11/20/14 17:27	11/24/14 14:28	1
Naphthalene	390	U	390	36	ug/Kg	☼	11/20/14 17:27	11/24/14 14:28	1
4-Chloroaniline	790	U	790	62	ug/Kg	☼	11/20/14 17:27	11/24/14 14:28	1
Hexachlorobutadiene	390	U	390	43	ug/Kg	☼	11/20/14 17:27	11/24/14 14:28	1
Caprolactam	390	U	390	79	ug/Kg	☼	11/20/14 17:27	11/24/14 14:28	1
4-Chloro-3-methylphenol	390	U	390	42	ug/Kg	☼	11/20/14 17:27	11/24/14 14:28	1
2-Methylnaphthalene	390	U	390	45	ug/Kg	☼	11/20/14 17:27	11/24/14 14:28	1
Hexachlorocyclopentadiene	390	U	390	49	ug/Kg	☼	11/20/14 17:27	11/24/14 14:28	1
2,4,6-Trichlorophenol	390	U	390	35	ug/Kg	☼	11/20/14 17:27	11/24/14 14:28	1
2,4,5-Trichlorophenol	390	U	390	42	ug/Kg	☼	11/20/14 17:27	11/24/14 14:28	1
1,1'-Biphenyl	2000	U	2000	2000	ug/Kg	☼	11/20/14 17:27	11/24/14 14:28	1
2-Chloronaphthalene	390	U	390	42	ug/Kg	☼	11/20/14 17:27	11/24/14 14:28	1
2-Nitroaniline	2000	U	2000	54	ug/Kg	☼	11/20/14 17:27	11/24/14 14:28	1
Dimethyl phthalate	390	U	390	41	ug/Kg	☼	11/20/14 17:27	11/24/14 14:28	1
2,6-Dinitrotoluene	390	U	390	50	ug/Kg	☼	11/20/14 17:27	11/24/14 14:28	1
Acenaphthylene	390	U	390	43	ug/Kg	☼	11/20/14 17:27	11/24/14 14:28	1
3-Nitroaniline	2000	U	2000	55	ug/Kg	☼	11/20/14 17:27	11/24/14 14:28	1
Acenaphthene	390	U	390	49	ug/Kg	☼	11/20/14 17:27	11/24/14 14:28	1
2,4-Dinitrophenol	2000	U	2000	990	ug/Kg	☼	11/20/14 17:27	11/24/14 14:28	1
4-Nitrophenol	2000	U	2000	390	ug/Kg	☼	11/20/14 17:27	11/24/14 14:28	1
Dibenzofuran	390	U	390	39	ug/Kg	☼	11/20/14 17:27	11/24/14 14:28	1
2,4-Dinitrotoluene	390	U	390	58	ug/Kg	☼	11/20/14 17:27	11/24/14 14:28	1
Diethyl phthalate	390	U	390	44	ug/Kg	☼	11/20/14 17:27	11/24/14 14:28	1

Client Sample ID: GP-80(14-15) (111814)
Date Collected: 11/18/14 09:45
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-2
Matrix: Solid
Percent Solids: 82.6

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluorene	390	U	390	43	ug/Kg	☼	11/20/14 17:27	11/24/14 14:28	1
4-Chlorophenyl phenyl ether	390	U	390	53	ug/Kg	☼	11/20/14 17:27	11/24/14 14:28	1
4-Nitroaniline	2000	U	2000	58	ug/Kg	☼	11/20/14 17:27	11/24/14 14:28	1
4,6-Dinitro-2-methylphenol	2000	U	2000	200	ug/Kg	☼	11/20/14 17:27	11/24/14 14:28	1
N-Nitrosodiphenylamine	390	U	390	39	ug/Kg	☼	11/20/14 17:27	11/24/14 14:28	1
4-Bromophenyl phenyl ether	390	U	390	43	ug/Kg	☼	11/20/14 17:27	11/24/14 14:28	1
Hexachlorobenzene	390	U	390	47	ug/Kg	☼	11/20/14 17:27	11/24/14 14:28	1
Atrazine	390	U	390	27	ug/Kg	☼	11/20/14 17:27	11/24/14 14:28	1
Pentachlorophenol	2000	U	2000	390	ug/Kg	☼	11/20/14 17:27	11/24/14 14:28	1
Phenanthrene	390	U	390	32	ug/Kg	☼	11/20/14 17:27	11/24/14 14:28	1
Anthracene	390	U	390	30	ug/Kg	☼	11/20/14 17:27	11/24/14 14:28	1
Carbazole	390	U	390	36	ug/Kg	☼	11/20/14 17:27	11/24/14 14:28	1
Di-n-butyl phthalate	390	U	390	36	ug/Kg	☼	11/20/14 17:27	11/24/14 14:28	1
Fluoranthene	390	U	390	38	ug/Kg	☼	11/20/14 17:27	11/24/14 14:28	1
Pyrene	390	U	390	32	ug/Kg	☼	11/20/14 17:27	11/24/14 14:28	1
Butyl benzyl phthalate	390	U	390	31	ug/Kg	☼	11/20/14 17:27	11/24/14 14:28	1
3,3'-Dichlorobenzidine	790	U	790	33	ug/Kg	☼	11/20/14 17:27	11/24/14 14:28	1
Benzo[a]anthracene	390	U	390	32	ug/Kg	☼	11/20/14 17:27	11/24/14 14:28	1
Chrysene	390	U	390	25	ug/Kg	☼	11/20/14 17:27	11/24/14 14:28	1
Bis(2-ethylhexyl) phthalate	390	U	390	35	ug/Kg	☼	11/20/14 17:27	11/24/14 14:28	1
Di-n-octyl phthalate	390	U	390	35	ug/Kg	☼	11/20/14 17:27	11/24/14 14:28	1
Benzo[b]fluoranthene	390	U	390	45	ug/Kg	☼	11/20/14 17:27	11/24/14 14:28	1
Benzo[k]fluoranthene	390	U	390	78	ug/Kg	☼	11/20/14 17:27	11/24/14 14:28	1
Benzo[a]pyrene	390	U	390	62	ug/Kg	☼	11/20/14 17:27	11/24/14 14:28	1
Indeno[1,2,3-cd]pyrene	390	U	390	33	ug/Kg	☼	11/20/14 17:27	11/24/14 14:28	1
Dibenz(a,h)anthracene	390	U	390	47	ug/Kg	☼	11/20/14 17:27	11/24/14 14:28	1
Benzo[g,h,i]perylene	390	U	390	26	ug/Kg	☼	11/20/14 17:27	11/24/14 14:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*69*		*37 - 115*	*11/20/14 17:27*	*11/24/14 14:28*	*1*
2-Fluorobiphenyl	*75*		*41 - 116*	*11/20/14 17:27*	*11/24/14 14:28*	*1*
Terphenyl-d14 (Surr)	*80*		*46 - 126*	*11/20/14 17:27*	*11/24/14 14:28*	*1*
Phenol-d5 (Surr)	*70*		*38 - 122*	*11/20/14 17:27*	*11/24/14 14:28*	*1*
2-Fluorophenol (Surr)	*70*		*39 - 114*	*11/20/14 17:27*	*11/24/14 14:28*	*1*
2,4,6-Tribromophenol (Surr)	*85*		*45 - 129*	*11/20/14 17:27*	*11/24/14 14:28*	*1*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Gasoline Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	0.22	U	0.22	0.017	mg/Kg	☼	11/20/14 16:38	11/22/14 17:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*73*		*70 - 131*	*11/20/14 16:38*	*11/22/14 17:16*	*1*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	4.0	U	4.0	2.5	mg/Kg	☼	11/20/14 15:52	11/21/14 18:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*69*		*45 - 130*	*11/20/14 15:52*	*11/21/14 18:44*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: CSX C&O Canal Brunswick, MD

TestAmerica Job ID: 680-107453-1

Client Sample ID: GP-81(13-14)(111814)
Date Collected: 11/18/14 11:05
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-3
Matrix: Solid
Percent Solids: 81.7

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	27	U	27	8.0	ug/Kg	☼	12/01/14 09:24	12/01/14 15:06	1
Benzene	5.5	U	5.5	1.2	ug/Kg	☼	12/01/14 09:24	12/01/14 15:06	1
Bromodichloromethane	5.5	U	5.5	2.7	ug/Kg	☼	12/01/14 09:24	12/01/14 15:06	1
Bromoform	5.5	U	5.5	2.7	ug/Kg	☼	12/01/14 09:24	12/01/14 15:06	1
Bromomethane	5.5	U	5.5	2.7	ug/Kg	☼	12/01/14 09:24	12/01/14 15:06	1
Carbon disulfide	5.5	U	5.5	2.7	ug/Kg	☼	12/01/14 09:24	12/01/14 15:06	1
Carbon tetrachloride	5.5	U	5.5	1.9	ug/Kg	☼	12/01/14 09:24	12/01/14 15:06	1
Chlorobenzene	5.5	U	5.5	0.57	ug/Kg	☼	12/01/14 09:24	12/01/14 15:06	1
Chloroethane	5.5	U	5.5	2.7	ug/Kg	☼	12/01/14 09:24	12/01/14 15:06	1
Chloroform	5.5	U	5.5	2.7	ug/Kg	☼	12/01/14 09:24	12/01/14 15:06	1
Chloromethane	5.5	U	5.5	1.1	ug/Kg	☼	12/01/14 09:24	12/01/14 15:06	1
cis-1,2-Dichloroethene	5.5	U	5.5	0.83	ug/Kg	☼	12/01/14 09:24	12/01/14 15:06	1
cis-1,3-Dichloropropene	5.5	U	5.5	1.3	ug/Kg	☼	12/01/14 09:24	12/01/14 15:06	1
Cyclohexane	5.5	U	5.5	1.0	ug/Kg	☼	12/01/14 09:24	12/01/14 15:06	1
Dibromochloromethane	5.5	U	5.5	2.7	ug/Kg	☼	12/01/14 09:24	12/01/14 15:06	1
1,2-Dibromo-3-Chloropropane	5.5	U	5.5	3.6	ug/Kg	☼	12/01/14 09:24	12/01/14 15:06	1
1,2-Dichlorobenzene	5.5	U	5.5	0.78	ug/Kg	☼	12/01/14 09:24	12/01/14 15:06	1
1,3-Dichlorobenzene	5.5	U	5.5	1.0	ug/Kg	☼	12/01/14 09:24	12/01/14 15:06	1
1,4-Dichlorobenzene	5.5	U	5.5	2.7	ug/Kg	☼	12/01/14 09:24	12/01/14 15:06	1
Dichlorodifluoromethane	5.5	U	5.5	1.4	ug/Kg	☼	12/01/14 09:24	12/01/14 15:06	1
1,1-Dichloroethane	5.5	U	5.5	0.91	ug/Kg	☼	12/01/14 09:24	12/01/14 15:06	1
1,2-Dichloroethane	5.5	U	5.5	0.90	ug/Kg	☼	12/01/14 09:24	12/01/14 15:06	1
1,1-Dichloroethene	5.5	U	5.5	2.7	ug/Kg	☼	12/01/14 09:24	12/01/14 15:06	1
1,2-Dichloropropane	5.5	U	5.5	2.7	ug/Kg	☼	12/01/14 09:24	12/01/14 15:06	1
Diisopropyl ether	5.5	U	5.5	0.60	ug/Kg	☼	12/01/14 09:24	12/01/14 15:06	1
Ethylbenzene	5.5	U	5.5	0.67	ug/Kg	☼	12/01/14 09:24	12/01/14 15:06	1
Ethylene Dibromide	5.5	U	5.5	1.1	ug/Kg	☼	12/01/14 09:24	12/01/14 15:06	1
Ethyl tert-butyl ether	5.5	U	5.5	2.7	ug/Kg	☼	12/01/14 09:24	12/01/14 15:06	1
2-Hexanone	27	U	27	5.5	ug/Kg	☼	12/01/14 09:24	12/01/14 15:06	1
Isopropylbenzene	5.5	U	5.5	0.75	ug/Kg	☼	12/01/14 09:24	12/01/14 15:06	1
Methyl acetate	5.5	U	5.5	5.0	ug/Kg	☼	12/01/14 09:24	12/01/14 15:06	1
Methylcyclohexane	5.5	U	5.5	1.6	ug/Kg	☼	12/01/14 09:24	12/01/14 15:06	1
Methylene Chloride	16	U	16	11	ug/Kg	☼	12/01/14 09:24	12/01/14 15:06	1
Methyl Ethyl Ketone	27	U	27	6.6	ug/Kg	☼	12/01/14 09:24	12/01/14 15:06	1
methyl isobutyl ketone	27	U	27	5.5	ug/Kg	☼	12/01/14 09:24	12/01/14 15:06	1
Methyl tert-butyl ether	5.5	U	5.5	1.1	ug/Kg	☼	12/01/14 09:24	12/01/14 15:06	1
Naphthalene	5.5	U	5.5	2.2	ug/Kg	☼	12/01/14 09:24	12/01/14 15:06	1
Styrene	5.5	U	5.5	1.1	ug/Kg	☼	12/01/14 09:24	12/01/14 15:06	1
Tert-amyl methyl ether	5.5	U	5.5	1.1	ug/Kg	☼	12/01/14 09:24	12/01/14 15:06	1
tert-Butyl alcohol	11	U	11	8.8	ug/Kg	☼	12/01/14 09:24	12/01/14 15:06	1
1,1,2,2-Tetrachloroethane	5.5	U	5.5	2.7	ug/Kg	☼	12/01/14 09:24	12/01/14 15:06	1
Tetrachloroethene	5.5	U	5.5	2.7	ug/Kg	☼	12/01/14 09:24	12/01/14 15:06	1
Toluene	5.5	U	5.5	1.1	ug/Kg	☼	12/01/14 09:24	12/01/14 15:06	1
trans-1,2-Dichloroethene	5.5	U	5.5	2.7	ug/Kg	☼	12/01/14 09:24	12/01/14 15:06	1
trans-1,3-Dichloropropene	5.5	U	5.5	2.7	ug/Kg	☼	12/01/14 09:24	12/01/14 15:06	1
1,2,4-Trichlorobenzene	5.5	U	5.5	2.2	ug/Kg	☼	12/01/14 09:24	12/01/14 15:06	1
1,1,1-Trichloroethane	5.5	U	5.5	1.2	ug/Kg	☼	12/01/14 09:24	12/01/14 15:06	1
1,1,2-Trichloroethane	5.5	U	5.5	2.7	ug/Kg	☼	12/01/14 09:24	12/01/14 15:06	1
Trichloroethene	5.5	U	5.5	1.1	ug/Kg	☼	12/01/14 09:24	12/01/14 15:06	1

Client Sample ID: GP-81(13-14)(111814)
Date Collected: 11/18/14 11:05
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-3
Matrix: Solid
Percent Solids: 81.7

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichlorofluoromethane	5.5	U	5.5	2.7	ug/Kg	☼	12/01/14 09:24	12/01/14 15:06	1
1,1,2-Trichloro-1,2,2-trifluoroethane	5.5	U	5.5	2.2	ug/Kg	☼	12/01/14 09:24	12/01/14 15:06	1
Vinyl chloride	5.5	U	5.5	2.7	ug/Kg	☼	12/01/14 09:24	12/01/14 15:06	1
Xylenes, Total	5.5	U	5.5	1.1	ug/Kg	☼	12/01/14 09:24	12/01/14 15:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*109*		*72 - 122*	*12/01/14 09:24*	*12/01/14 15:06*	*1*
Dibromofluoromethane	*103*		*79 - 123*	*12/01/14 09:24*	*12/01/14 15:06*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*	*12/01/14 09:24*	*12/01/14 15:06*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzaldehyde	400	U	400	71	ug/Kg	☼	11/20/14 17:27	11/24/14 14:53	1
Phenol	400	U	400	42	ug/Kg	☼	11/20/14 17:27	11/24/14 14:53	1
Bis(2-chloroethyl)ether	400	U	400	55	ug/Kg	☼	11/20/14 17:27	11/24/14 14:53	1
2-Chlorophenol	400	U	400	49	ug/Kg	☼	11/20/14 17:27	11/24/14 14:53	1
2-Methylphenol	400	U	400	33	ug/Kg	☼	11/20/14 17:27	11/24/14 14:53	1
bis (2-chloroisopropyl) ether	400	U	400	37	ug/Kg	☼	11/20/14 17:27	11/24/14 14:53	1
Acetophenone	400	U	400	34	ug/Kg	☼	11/20/14 17:27	11/24/14 14:53	1
3 & 4 Methylphenol	400	U	400	53	ug/Kg	☼	11/20/14 17:27	11/24/14 14:53	1
N-Nitrosodi-n-propylamine	400	U	400	39	ug/Kg	☼	11/20/14 17:27	11/24/14 14:53	1
Hexachloroethane	400	U	400	34	ug/Kg	☼	11/20/14 17:27	11/24/14 14:53	1
Nitrobenzene	400	U	400	32	ug/Kg	☼	11/20/14 17:27	11/24/14 14:53	1
Isophorone	400	U	400	40	ug/Kg	☼	11/20/14 17:27	11/24/14 14:53	1
2-Nitrophenol	400	U	400	50	ug/Kg	☼	11/20/14 17:27	11/24/14 14:53	1
2,4-Dimethylphenol	400	U	400	54	ug/Kg	☼	11/20/14 17:27	11/24/14 14:53	1
Bis(2-chloroethoxy)methane	400	U	400	48	ug/Kg	☼	11/20/14 17:27	11/24/14 14:53	1
2,4-Dichlorophenol	400	U	400	43	ug/Kg	☼	11/20/14 17:27	11/24/14 14:53	1
Naphthalene	400	U	400	37	ug/Kg	☼	11/20/14 17:27	11/24/14 14:53	1
4-Chloroaniline	810	U	810	64	ug/Kg	☼	11/20/14 17:27	11/24/14 14:53	1
Hexachlorobutadiene	400	U	400	44	ug/Kg	☼	11/20/14 17:27	11/24/14 14:53	1
Caprolactam	400	U	400	81	ug/Kg	☼	11/20/14 17:27	11/24/14 14:53	1
4-Chloro-3-methylphenol	400	U	400	43	ug/Kg	☼	11/20/14 17:27	11/24/14 14:53	1
2-Methylnaphthalene	400	U	400	46	ug/Kg	☼	11/20/14 17:27	11/24/14 14:53	1
Hexachlorocyclopentadiene	400	U	400	50	ug/Kg	☼	11/20/14 17:27	11/24/14 14:53	1
2,4,6-Trichlorophenol	400	U	400	35	ug/Kg	☼	11/20/14 17:27	11/24/14 14:53	1
2,4,5-Trichlorophenol	400	U	400	43	ug/Kg	☼	11/20/14 17:27	11/24/14 14:53	1
1,1'-Biphenyl	2100	U	2100	2100	ug/Kg	☼	11/20/14 17:27	11/24/14 14:53	1
2-Chloronaphthalene	400	U	400	43	ug/Kg	☼	11/20/14 17:27	11/24/14 14:53	1
2-Nitroaniline	2100	U	2100	55	ug/Kg	☼	11/20/14 17:27	11/24/14 14:53	1
Dimethyl phthalate	400	U	400	42	ug/Kg	☼	11/20/14 17:27	11/24/14 14:53	1
2,6-Dinitrotoluene	400	U	400	51	ug/Kg	☼	11/20/14 17:27	11/24/14 14:53	1
Acenaphthylene	400	U	400	44	ug/Kg	☼	11/20/14 17:27	11/24/14 14:53	1
3-Nitroaniline	2100	U	2100	56	ug/Kg	☼	11/20/14 17:27	11/24/14 14:53	1
Acenaphthene	400	U	400	50	ug/Kg	☼	11/20/14 17:27	11/24/14 14:53	1
2,4-Dinitrophenol	2100	U	2100	1000	ug/Kg	☼	11/20/14 17:27	11/24/14 14:53	1
4-Nitrophenol	2100	U	2100	400	ug/Kg	☼	11/20/14 17:27	11/24/14 14:53	1
Dibenzofuran	400	U	400	40	ug/Kg	☼	11/20/14 17:27	11/24/14 14:53	1
2,4-Dinitrotoluene	400	U	400	60	ug/Kg	☼	11/20/14 17:27	11/24/14 14:53	1
Diethyl phthalate	400	U	400	45	ug/Kg	☼	11/20/14 17:27	11/24/14 14:53	1

Client Sample ID: GP-81(13-14)(111814)
Date Collected: 11/18/14 11:05
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-3
Matrix: Solid
Percent Solids: 81.7

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluorene	400	U	400	44	ug/Kg	☼	11/20/14 17:27	11/24/14 14:53	1
4-Chlorophenyl phenyl ether	400	U	400	54	ug/Kg	☼	11/20/14 17:27	11/24/14 14:53	1
4-Nitroaniline	2100	U	2100	60	ug/Kg	☼	11/20/14 17:27	11/24/14 14:53	1
4,6-Dinitro-2-methylphenol	2100	U	2100	210	ug/Kg	☼	11/20/14 17:27	11/24/14 14:53	1
N-Nitrosodiphenylamine	400	U	400	40	ug/Kg	☼	11/20/14 17:27	11/24/14 14:53	1
4-Bromophenyl phenyl ether	400	U	400	44	ug/Kg	☼	11/20/14 17:27	11/24/14 14:53	1
Hexachlorobenzene	400	U	400	48	ug/Kg	☼	11/20/14 17:27	11/24/14 14:53	1
Atrazine	400	U	400	28	ug/Kg	☼	11/20/14 17:27	11/24/14 14:53	1
Pentachlorophenol	2100	U	2100	400	ug/Kg	☼	11/20/14 17:27	11/24/14 14:53	1
Phenanthrene	400	U	400	33	ug/Kg	☼	11/20/14 17:27	11/24/14 14:53	1
Anthracene	400	U	400	31	ug/Kg	☼	11/20/14 17:27	11/24/14 14:53	1
Carbazole	400	U	400	37	ug/Kg	☼	11/20/14 17:27	11/24/14 14:53	1
Di-n-butyl phthalate	400	U	400	37	ug/Kg	☼	11/20/14 17:27	11/24/14 14:53	1
Fluoranthene	400	U	400	39	ug/Kg	☼	11/20/14 17:27	11/24/14 14:53	1
Pyrene	400	U	400	33	ug/Kg	☼	11/20/14 17:27	11/24/14 14:53	1
Butyl benzyl phthalate	400	U	400	32	ug/Kg	☼	11/20/14 17:27	11/24/14 14:53	1
3,3'-Dichlorobenzidine	810	U	810	34	ug/Kg	☼	11/20/14 17:27	11/24/14 14:53	1
Benzo[a]anthracene	400	U	400	33	ug/Kg	☼	11/20/14 17:27	11/24/14 14:53	1
Chrysene	400	U	400	26	ug/Kg	☼	11/20/14 17:27	11/24/14 14:53	1
Bis(2-ethylhexyl) phthalate	400	U	400	35	ug/Kg	☼	11/20/14 17:27	11/24/14 14:53	1
Di-n-octyl phthalate	400	U	400	35	ug/Kg	☼	11/20/14 17:27	11/24/14 14:53	1
Benzo[b]fluoranthene	400	U	400	46	ug/Kg	☼	11/20/14 17:27	11/24/14 14:53	1
Benzo[k]fluoranthene	400	U	400	79	ug/Kg	☼	11/20/14 17:27	11/24/14 14:53	1
Benzo[a]pyrene	400	U	400	64	ug/Kg	☼	11/20/14 17:27	11/24/14 14:53	1
Indeno[1,2,3-cd]pyrene	400	U	400	34	ug/Kg	☼	11/20/14 17:27	11/24/14 14:53	1
Dibenz(a,h)anthracene	400	U	400	48	ug/Kg	☼	11/20/14 17:27	11/24/14 14:53	1
Benzo[g,h,i]perylene	400	U	400	27	ug/Kg	☼	11/20/14 17:27	11/24/14 14:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*75*		*37 - 115*	*11/20/14 17:27*	*11/24/14 14:53*	*1*
2-Fluorobiphenyl	*81*		*41 - 116*	*11/20/14 17:27*	*11/24/14 14:53*	*1*
Terphenyl-d14 (Surr)	*84*		*46 - 126*	*11/20/14 17:27*	*11/24/14 14:53*	*1*
Phenol-d5 (Surr)	*73*		*38 - 122*	*11/20/14 17:27*	*11/24/14 14:53*	*1*
2-Fluorophenol (Surr)	*74*		*39 - 114*	*11/20/14 17:27*	*11/24/14 14:53*	*1*
2,4,6-Tribromophenol (Surr)	*89*		*45 - 129*	*11/20/14 17:27*	*11/24/14 14:53*	*1*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Gasoline Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	0.25	U	0.25	0.019	mg/Kg	☼	11/20/14 16:38	11/22/14 17:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*77*		*70 - 131*	*11/20/14 16:38*	*11/22/14 17:38*	*1*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**50**		4.0	2.5	mg/Kg	☼	11/20/14 15:52	11/21/14 18:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*70*		*45 - 130*	*11/20/14 15:52*	*11/21/14 18:58*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: CSX C&O Canal Brunswick, MD

TestAmerica Job ID: 680-107453-1

Client Sample ID: GP-81(14-15)(111814)
Date Collected: 11/18/14 11:10
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-4
Matrix: Solid
Percent Solids: 84.0

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	**23**	**J**	24	7.0	ug/Kg	☼	12/01/14 09:24	12/01/14 15:31	1
Benzene	4.8	U	4.8	1.0	ug/Kg	☼	12/01/14 09:24	12/01/14 15:31	1
Bromodichloromethane	4.8	U	4.8	2.4	ug/Kg	☼	12/01/14 09:24	12/01/14 15:31	1
Bromoform	4.8	U	4.8	2.4	ug/Kg	☼	12/01/14 09:24	12/01/14 15:31	1
Bromomethane	4.8	U	4.8	2.4	ug/Kg	☼	12/01/14 09:24	12/01/14 15:31	1
Carbon disulfide	4.8	U	4.8	2.4	ug/Kg	☼	12/01/14 09:24	12/01/14 15:31	1
Carbon tetrachloride	4.8	U	4.8	1.6	ug/Kg	☼	12/01/14 09:24	12/01/14 15:31	1
Chlorobenzene	4.8	U	4.8	0.50	ug/Kg	☼	12/01/14 09:24	12/01/14 15:31	1
Chloroethane	4.8	U	4.8	2.4	ug/Kg	☼	12/01/14 09:24	12/01/14 15:31	1
Chloroform	4.8	U	4.8	2.4	ug/Kg	☼	12/01/14 09:24	12/01/14 15:31	1
Chloromethane	4.8	U	4.8	0.95	ug/Kg	☼	12/01/14 09:24	12/01/14 15:31	1
cis-1,2-Dichloroethene	4.8	U	4.8	0.72	ug/Kg	☼	12/01/14 09:24	12/01/14 15:31	1
cis-1,3-Dichloropropene	4.8	U	4.8	1.1	ug/Kg	☼	12/01/14 09:24	12/01/14 15:31	1
Cyclohexane	4.8	U	4.8	0.90	ug/Kg	☼	12/01/14 09:24	12/01/14 15:31	1
Dibromochloromethane	4.8	U	4.8	2.4	ug/Kg	☼	12/01/14 09:24	12/01/14 15:31	1
1,2-Dibromo-3-Chloropropane	4.8	U	4.8	3.1	ug/Kg	☼	12/01/14 09:24	12/01/14 15:31	1
1,2-Dichlorobenzene	4.8	U	4.8	0.68	ug/Kg	☼	12/01/14 09:24	12/01/14 15:31	1
1,3-Dichlorobenzene	4.8	U	4.8	0.91	ug/Kg	☼	12/01/14 09:24	12/01/14 15:31	1
1,4-Dichlorobenzene	4.8	U	4.8	2.4	ug/Kg	☼	12/01/14 09:24	12/01/14 15:31	1
Dichlorodifluoromethane	4.8	U	4.8	1.2	ug/Kg	☼	12/01/14 09:24	12/01/14 15:31	1
1,1-Dichloroethane	4.8	U	4.8	0.79	ug/Kg	☼	12/01/14 09:24	12/01/14 15:31	1
1,2-Dichloroethane	4.8	U	4.8	0.78	ug/Kg	☼	12/01/14 09:24	12/01/14 15:31	1
1,1-Dichloroethene	4.8	U	4.8	2.4	ug/Kg	☼	12/01/14 09:24	12/01/14 15:31	1
1,2-Dichloropropane	4.8	U	4.8	2.4	ug/Kg	☼	12/01/14 09:24	12/01/14 15:31	1
Diisopropyl ether	4.8	U	4.8	0.52	ug/Kg	☼	12/01/14 09:24	12/01/14 15:31	1
Ethylbenzene	4.8	U	4.8	0.58	ug/Kg	☼	12/01/14 09:24	12/01/14 15:31	1
Ethylene Dibromide	4.8	U	4.8	0.95	ug/Kg	☼	12/01/14 09:24	12/01/14 15:31	1
Ethyl tert-butyl ether	4.8	U	4.8	2.4	ug/Kg	☼	12/01/14 09:24	12/01/14 15:31	1
2-Hexanone	24	U	24	4.8	ug/Kg	☼	12/01/14 09:24	12/01/14 15:31	1
Isopropylbenzene	**16**		4.8	0.65	ug/Kg	☼	12/01/14 09:24	12/01/14 15:31	1
Methyl acetate	4.8	U	4.8	4.4	ug/Kg	☼	12/01/14 09:24	12/01/14 15:31	1
Methylcyclohexane	4.8	U	4.8	1.4	ug/Kg	☼	12/01/14 09:24	12/01/14 15:31	1
Methylene Chloride	14	U	14	9.5	ug/Kg	☼	12/01/14 09:24	12/01/14 15:31	1
Methyl Ethyl Ketone	24	U	24	5.7	ug/Kg	☼	12/01/14 09:24	12/01/14 15:31	1
methyl isobutyl ketone	24	U	24	4.8	ug/Kg	☼	12/01/14 09:24	12/01/14 15:31	1
Methyl tert-butyl ether	4.8	U	4.8	0.95	ug/Kg	☼	12/01/14 09:24	12/01/14 15:31	1
Naphthalene	4.8	U	4.8	1.9	ug/Kg	☼	12/01/14 09:24	12/01/14 15:31	1
Styrene	4.8	U	4.8	0.95	ug/Kg	☼	12/01/14 09:24	12/01/14 15:31	1
Tert-amyl methyl ether	4.8	U	4.8	0.95	ug/Kg	☼	12/01/14 09:24	12/01/14 15:31	1
tert-Butyl alcohol	9.5	U	9.5	7.6	ug/Kg	☼	12/01/14 09:24	12/01/14 15:31	1
1,1,2,2-Tetrachloroethane	4.8	U	4.8	2.4	ug/Kg	☼	12/01/14 09:24	12/01/14 15:31	1
Tetrachloroethene	4.8	U	4.8	2.4	ug/Kg	☼	12/01/14 09:24	12/01/14 15:31	1
Toluene	4.8	U	4.8	0.95	ug/Kg	☼	12/01/14 09:24	12/01/14 15:31	1
trans-1,2-Dichloroethene	4.8	U	4.8	2.4	ug/Kg	☼	12/01/14 09:24	12/01/14 15:31	1
trans-1,3-Dichloropropene	4.8	U	4.8	2.4	ug/Kg	☼	12/01/14 09:24	12/01/14 15:31	1
1,2,4-Trichlorobenzene	4.8	U	4.8	1.9	ug/Kg	☼	12/01/14 09:24	12/01/14 15:31	1
1,1,1-Trichloroethane	4.8	U	4.8	1.0	ug/Kg	☼	12/01/14 09:24	12/01/14 15:31	1
1,1,2-Trichloroethane	4.8	U	4.8	2.4	ug/Kg	☼	12/01/14 09:24	12/01/14 15:31	1
Trichloroethene	4.8	U	4.8	0.95	ug/Kg	☼	12/01/14 09:24	12/01/14 15:31	1

Client Sample ID: GP-81(14-15)(111814)
Date Collected: 11/18/14 11:10
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-4
Matrix: Solid
Percent Solids: 84.0

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichlorofluoromethane	4.8	U	4.8	2.4	ug/Kg	☼	12/01/14 09:24	12/01/14 15:31	1
1,1,2-Trichloro-1,2,2-trifluoroethane	4.8	U	4.8	1.9	ug/Kg	☼	12/01/14 09:24	12/01/14 15:31	1
Vinyl chloride	4.8	U	4.8	2.4	ug/Kg	☼	12/01/14 09:24	12/01/14 15:31	1
Xylenes, Total	4.8	U	4.8	0.95	ug/Kg	☼	12/01/14 09:24	12/01/14 15:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*83*		*72 - 122*	*12/01/14 09:24*	*12/01/14 15:31*	*1*
Dibromofluoromethane	*97*		*79 - 123*	*12/01/14 09:24*	*12/01/14 15:31*	*1*
Toluene-d8 (Surr)	*113*		*80 - 120*	*12/01/14 09:24*	*12/01/14 15:31*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzaldehyde	390	U	390	69	ug/Kg	☼	11/20/14 17:27	11/24/14 15:19	1
Phenol	390	U	390	40	ug/Kg	☼	11/20/14 17:27	11/24/14 15:19	1
Bis(2-chloroethyl)ether	390	U	390	53	ug/Kg	☼	11/20/14 17:27	11/24/14 15:19	1
2-Chlorophenol	390	U	390	47	ug/Kg	☼	11/20/14 17:27	11/24/14 15:19	1
2-Methylphenol	390	U	390	32	ug/Kg	☼	11/20/14 17:27	11/24/14 15:19	1
bis (2-chloroisopropyl) ether	390	U	390	36	ug/Kg	☼	11/20/14 17:27	11/24/14 15:19	1
Acetophenone	390	U	390	33	ug/Kg	☼	11/20/14 17:27	11/24/14 15:19	1
3 & 4 Methylphenol	390	U	390	51	ug/Kg	☼	11/20/14 17:27	11/24/14 15:19	1
N-Nitrosodi-n-propylamine	390	U	390	38	ug/Kg	☼	11/20/14 17:27	11/24/14 15:19	1
Hexachloroethane	390	U	390	33	ug/Kg	☼	11/20/14 17:27	11/24/14 15:19	1
Nitrobenzene	390	U	390	31	ug/Kg	☼	11/20/14 17:27	11/24/14 15:19	1
Isophorone	390	U	390	39	ug/Kg	☼	11/20/14 17:27	11/24/14 15:19	1
2-Nitrophenol	390	U	390	49	ug/Kg	☼	11/20/14 17:27	11/24/14 15:19	1
2,4-Dimethylphenol	390	U	390	52	ug/Kg	☼	11/20/14 17:27	11/24/14 15:19	1
Bis(2-chloroethoxy)methane	390	U	390	46	ug/Kg	☼	11/20/14 17:27	11/24/14 15:19	1
2,4-Dichlorophenol	390	U	390	41	ug/Kg	☼	11/20/14 17:27	11/24/14 15:19	1
Naphthalene	390	U	390	36	ug/Kg	☼	11/20/14 17:27	11/24/14 15:19	1
4-Chloroaniline	780	U	780	62	ug/Kg	☼	11/20/14 17:27	11/24/14 15:19	1
Hexachlorobutadiene	390	U	390	43	ug/Kg	☼	11/20/14 17:27	11/24/14 15:19	1
Caprolactam	390	U	390	78	ug/Kg	☼	11/20/14 17:27	11/24/14 15:19	1
4-Chloro-3-methylphenol	390	U	390	41	ug/Kg	☼	11/20/14 17:27	11/24/14 15:19	1
2-Methylnaphthalene	390	U	390	45	ug/Kg	☼	11/20/14 17:27	11/24/14 15:19	1
Hexachlorocyclopentadiene	390	U	390	49	ug/Kg	☼	11/20/14 17:27	11/24/14 15:19	1
2,4,6-Trichlorophenol	390	U	390	34	ug/Kg	☼	11/20/14 17:27	11/24/14 15:19	1
2,4,5-Trichlorophenol	390	U	390	41	ug/Kg	☼	11/20/14 17:27	11/24/14 15:19	1
1,1'-Biphenyl	2000	U	2000	2000	ug/Kg	☼	11/20/14 17:27	11/24/14 15:19	1
2-Chloronaphthalene	390	U	390	41	ug/Kg	☼	11/20/14 17:27	11/24/14 15:19	1
2-Nitroaniline	2000	U	2000	53	ug/Kg	☼	11/20/14 17:27	11/24/14 15:19	1
Dimethyl phthalate	390	U	390	40	ug/Kg	☼	11/20/14 17:27	11/24/14 15:19	1
2,6-Dinitrotoluene	390	U	390	50	ug/Kg	☼	11/20/14 17:27	11/24/14 15:19	1
Acenaphthylene	390	U	390	43	ug/Kg	☼	11/20/14 17:27	11/24/14 15:19	1
3-Nitroaniline	2000	U	2000	55	ug/Kg	☼	11/20/14 17:27	11/24/14 15:19	1
Acenaphthene	390	U	390	49	ug/Kg	☼	11/20/14 17:27	11/24/14 15:19	1
2,4-Dinitrophenol	2000	U	2000	980	ug/Kg	☼	11/20/14 17:27	11/24/14 15:19	1
4-Nitrophenol	2000	U	2000	390	ug/Kg	☼	11/20/14 17:27	11/24/14 15:19	1
Dibenzofuran	390	U	390	39	ug/Kg	☼	11/20/14 17:27	11/24/14 15:19	1
2,4-Dinitrotoluene	390	U	390	58	ug/Kg	☼	11/20/14 17:27	11/24/14 15:19	1
Diethyl phthalate	**160**	**J**	390	44	ug/Kg	☼	11/20/14 17:27	11/24/14 15:19	1

Client Sample ID: GP-81(14-15)(111814)
Date Collected: 11/18/14 11:10
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-4
Matrix: Solid
Percent Solids: 84.0

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluorene	390	U	390	43	ug/Kg	☼	11/20/14 17:27	11/24/14 15:19	1
4-Chlorophenyl phenyl ether	390	U	390	52	ug/Kg	☼	11/20/14 17:27	11/24/14 15:19	1
4-Nitroaniline	2000	U	2000	58	ug/Kg	☼	11/20/14 17:27	11/24/14 15:19	1
4,6-Dinitro-2-methylphenol	2000	U	2000	200	ug/Kg	☼	11/20/14 17:27	11/24/14 15:19	1
N-Nitrosodiphenylamine	390	U	390	39	ug/Kg	☼	11/20/14 17:27	11/24/14 15:19	1
4-Bromophenyl phenyl ether	390	U	390	43	ug/Kg	☼	11/20/14 17:27	11/24/14 15:19	1
Hexachlorobenzene	390	U	390	46	ug/Kg	☼	11/20/14 17:27	11/24/14 15:19	1
Atrazine	390	U	390	27	ug/Kg	☼	11/20/14 17:27	11/24/14 15:19	1
Pentachlorophenol	2000	U	2000	390	ug/Kg	☼	11/20/14 17:27	11/24/14 15:19	1
Phenanthrene	390	U	390	32	ug/Kg	☼	11/20/14 17:27	11/24/14 15:19	1
Anthracene	390	U	390	30	ug/Kg	☼	11/20/14 17:27	11/24/14 15:19	1
Carbazole	390	U	390	36	ug/Kg	☼	11/20/14 17:27	11/24/14 15:19	1
Di-n-butyl phthalate	390	U	390	36	ug/Kg	☼	11/20/14 17:27	11/24/14 15:19	1
Fluoranthene	390	U	390	38	ug/Kg	☼	11/20/14 17:27	11/24/14 15:19	1
Pyrene	390	U	390	32	ug/Kg	☼	11/20/14 17:27	11/24/14 15:19	1
Butyl benzyl phthalate	390	U	390	31	ug/Kg	☼	11/20/14 17:27	11/24/14 15:19	1
3,3'-Dichlorobenzidine	780	U	780	33	ug/Kg	☼	11/20/14 17:27	11/24/14 15:19	1
Benzo[a]anthracene	390	U	390	32	ug/Kg	☼	11/20/14 17:27	11/24/14 15:19	1
Chrysene	390	U	390	25	ug/Kg	☼	11/20/14 17:27	11/24/14 15:19	1
Bis(2-ethylhexyl) phthalate	390	U	390	34	ug/Kg	☼	11/20/14 17:27	11/24/14 15:19	1
Di-n-octyl phthalate	390	U	390	34	ug/Kg	☼	11/20/14 17:27	11/24/14 15:19	1
Benzo[b]fluoranthene	390	U	390	45	ug/Kg	☼	11/20/14 17:27	11/24/14 15:19	1
Benzo[k]fluoranthene	390	U	390	77	ug/Kg	☼	11/20/14 17:27	11/24/14 15:19	1
Benzo[a]pyrene	390	U	390	62	ug/Kg	☼	11/20/14 17:27	11/24/14 15:19	1
Indeno[1,2,3-cd]pyrene	390	U	390	33	ug/Kg	☼	11/20/14 17:27	11/24/14 15:19	1
Dibenz(a,h)anthracene	390	U	390	46	ug/Kg	☼	11/20/14 17:27	11/24/14 15:19	1
Benzo[g,h,i]perylene	390	U	390	26	ug/Kg	☼	11/20/14 17:27	11/24/14 15:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*69*		*37 - 115*	*11/20/14 17:27*	*11/24/14 15:19*	*1*
2-Fluorobiphenyl	*77*		*41 - 116*	*11/20/14 17:27*	*11/24/14 15:19*	*1*
Terphenyl-d14 (Surr)	*79*		*46 - 126*	*11/20/14 17:27*	*11/24/14 15:19*	*1*
Phenol-d5 (Surr)	*70*		*38 - 122*	*11/20/14 17:27*	*11/24/14 15:19*	*1*
2-Fluorophenol (Surr)	*70*		*39 - 114*	*11/20/14 17:27*	*11/24/14 15:19*	*1*
2,4,6-Tribromophenol (Surr)	*87*		*45 - 129*	*11/20/14 17:27*	*11/24/14 15:19*	*1*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Gasoline Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**240**	**B**	90	6.8	mg/Kg	☼	11/20/14 16:38	12/01/14 14:22	250

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*0*	*X*	*70 - 131*	*11/20/14 16:38*	*12/01/14 14:22*	*250*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	3.9	U	3.9	2.5	mg/Kg	☼	11/20/14 15:52	11/21/14 19:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*64*		*45 - 130*	*11/20/14 15:52*	*11/21/14 19:13*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: CSX C&O Canal Brunswick, MD

TestAmerica Job ID: 680-107453-1

Client Sample ID: GP-82(14-15)(111814)
Date Collected: 11/18/14 11:50
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-5
Matrix: Solid
Percent Solids: 81.0

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	9.3	J	25	7.2	ug/Kg	☼	12/01/14 09:24	12/01/14 15:55	1
Benzene	4.9	U	4.9	1.1	ug/Kg	☼	12/01/14 09:24	12/01/14 15:55	1
Bromodichloromethane	4.9	U	4.9	2.5	ug/Kg	☼	12/01/14 09:24	12/01/14 15:55	1
Bromoform	4.9	U	4.9	2.5	ug/Kg	☼	12/01/14 09:24	12/01/14 15:55	1
Bromomethane	4.9	U	4.9	2.5	ug/Kg	☼	12/01/14 09:24	12/01/14 15:55	1
Carbon disulfide	4.9	U	4.9	2.5	ug/Kg	☼	12/01/14 09:24	12/01/14 15:55	1
Carbon tetrachloride	4.9	U	4.9	1.7	ug/Kg	☼	12/01/14 09:24	12/01/14 15:55	1
Chlorobenzene	4.9	U	4.9	0.51	ug/Kg	☼	12/01/14 09:24	12/01/14 15:55	1
Chloroethane	4.9	U	4.9	2.5	ug/Kg	☼	12/01/14 09:24	12/01/14 15:55	1
Chloroform	4.9	U	4.9	2.5	ug/Kg	☼	12/01/14 09:24	12/01/14 15:55	1
Chloromethane	4.9	U	4.9	0.99	ug/Kg	☼	12/01/14 09:24	12/01/14 15:55	1
cis-1,2-Dichloroethene	4.9	U	4.9	0.75	ug/Kg	☼	12/01/14 09:24	12/01/14 15:55	1
cis-1,3-Dichloropropene	4.9	U	4.9	1.2	ug/Kg	☼	12/01/14 09:24	12/01/14 15:55	1
Cyclohexane	4.9	U	4.9	0.93	ug/Kg	☼	12/01/14 09:24	12/01/14 15:55	1
Dibromochloromethane	4.9	U	4.9	2.5	ug/Kg	☼	12/01/14 09:24	12/01/14 15:55	1
1,2-Dibromo-3-Chloropropane	4.9	U	4.9	3.3	ug/Kg	☼	12/01/14 09:24	12/01/14 15:55	1
1,2-Dichlorobenzene	4.9	U	4.9	0.70	ug/Kg	☼	12/01/14 09:24	12/01/14 15:55	1
1,3-Dichlorobenzene	4.9	U	4.9	0.94	ug/Kg	☼	12/01/14 09:24	12/01/14 15:55	1
1,4-Dichlorobenzene	4.9	U	4.9	2.5	ug/Kg	☼	12/01/14 09:24	12/01/14 15:55	1
Dichlorodifluoromethane	4.9	U	4.9	1.3	ug/Kg	☼	12/01/14 09:24	12/01/14 15:55	1
1,1-Dichloroethane	4.9	U	4.9	0.82	ug/Kg	☼	12/01/14 09:24	12/01/14 15:55	1
1,2-Dichloroethane	4.9	U	4.9	0.81	ug/Kg	☼	12/01/14 09:24	12/01/14 15:55	1
1,1-Dichloroethene	4.9	U	4.9	2.5	ug/Kg	☼	12/01/14 09:24	12/01/14 15:55	1
1,2-Dichloropropane	4.9	U	4.9	2.5	ug/Kg	☼	12/01/14 09:24	12/01/14 15:55	1
Diisopropyl ether	4.9	U	4.9	0.54	ug/Kg	☼	12/01/14 09:24	12/01/14 15:55	1
Ethylbenzene	4.9	U	4.9	0.60	ug/Kg	☼	12/01/14 09:24	12/01/14 15:55	1
Ethylene Dibromide	4.9	U	4.9	0.99	ug/Kg	☼	12/01/14 09:24	12/01/14 15:55	1
Ethyl tert-butyl ether	4.9	U	4.9	2.5	ug/Kg	☼	12/01/14 09:24	12/01/14 15:55	1
2-Hexanone	25	U	25	4.9	ug/Kg	☼	12/01/14 09:24	12/01/14 15:55	1
Isopropylbenzene	4.9	U	4.9	0.67	ug/Kg	☼	12/01/14 09:24	12/01/14 15:55	1
Methyl acetate	4.9	U	4.9	4.5	ug/Kg	☼	12/01/14 09:24	12/01/14 15:55	1
Methylcyclohexane	4.9	U	4.9	1.5	ug/Kg	☼	12/01/14 09:24	12/01/14 15:55	1
Methylene Chloride	15	U	15	9.9	ug/Kg	☼	12/01/14 09:24	12/01/14 15:55	1
Methyl Ethyl Ketone	25	U	25	5.9	ug/Kg	☼	12/01/14 09:24	12/01/14 15:55	1
methyl isobutyl ketone	25	U	25	4.9	ug/Kg	☼	12/01/14 09:24	12/01/14 15:55	1
Methyl tert-butyl ether	4.9	U	4.9	0.99	ug/Kg	☼	12/01/14 09:24	12/01/14 15:55	1
Naphthalene	4.9	U	4.9	2.0	ug/Kg	☼	12/01/14 09:24	12/01/14 15:55	1
Styrene	4.9	U	4.9	0.99	ug/Kg	☼	12/01/14 09:24	12/01/14 15:55	1
Tert-amyl methyl ether	4.9	U	4.9	0.99	ug/Kg	☼	12/01/14 09:24	12/01/14 15:55	1
tert-Butyl alcohol	9.9	U	9.9	7.9	ug/Kg	☼	12/01/14 09:24	12/01/14 15:55	1
1,1,2,2-Tetrachloroethane	4.9	U	4.9	2.5	ug/Kg	☼	12/01/14 09:24	12/01/14 15:55	1
Tetrachloroethene	4.9	U	4.9	2.5	ug/Kg	☼	12/01/14 09:24	12/01/14 15:55	1
Toluene	4.9	U	4.9	0.99	ug/Kg	☼	12/01/14 09:24	12/01/14 15:55	1
trans-1,2-Dichloroethene	4.9	U	4.9	2.5	ug/Kg	☼	12/01/14 09:24	12/01/14 15:55	1
trans-1,3-Dichloropropene	4.9	U	4.9	2.5	ug/Kg	☼	12/01/14 09:24	12/01/14 15:55	1
1,2,4-Trichlorobenzene	4.9	U	4.9	2.0	ug/Kg	☼	12/01/14 09:24	12/01/14 15:55	1
1,1,1-Trichloroethane	4.9	U	4.9	1.1	ug/Kg	☼	12/01/14 09:24	12/01/14 15:55	1
1,1,2-Trichloroethane	4.9	U	4.9	2.5	ug/Kg	☼	12/01/14 09:24	12/01/14 15:55	1
Trichloroethene	4.9	U	4.9	0.99	ug/Kg	☼	12/01/14 09:24	12/01/14 15:55	1

Client Sample ID: GP-82(14-15)(111814)
Date Collected: 11/18/14 11:50
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-5
Matrix: Solid
Percent Solids: 81.0

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichlorofluoromethane	4.9	U	4.9	2.5	ug/Kg	☼	12/01/14 09:24	12/01/14 15:55	1
1,1,2-Trichloro-1,2,2-trifluoroethane	4.9	U	4.9	2.0	ug/Kg	☼	12/01/14 09:24	12/01/14 15:55	1
Vinyl chloride	4.9	U	4.9	2.5	ug/Kg	☼	12/01/14 09:24	12/01/14 15:55	1
Xylenes, Total	4.9	U	4.9	0.99	ug/Kg	☼	12/01/14 09:24	12/01/14 15:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*108*		*72 - 122*	*12/01/14 09:24*	*12/01/14 15:55*	*1*
Dibromofluoromethane	*95*		*79 - 123*	*12/01/14 09:24*	*12/01/14 15:55*	*1*
Toluene-d8 (Surr)	*96*		*80 - 120*	*12/01/14 09:24*	*12/01/14 15:55*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzaldehyde	400	U	400	71	ug/Kg	☼	11/20/14 17:27	11/24/14 15:44	1
Phenol	400	U	400	42	ug/Kg	☼	11/20/14 17:27	11/24/14 15:44	1
Bis(2-chloroethyl)ether	400	U	400	55	ug/Kg	☼	11/20/14 17:27	11/24/14 15:44	1
2-Chlorophenol	400	U	400	49	ug/Kg	☼	11/20/14 17:27	11/24/14 15:44	1
2-Methylphenol	400	U	400	33	ug/Kg	☼	11/20/14 17:27	11/24/14 15:44	1
bis (2-chloroisopropyl) ether	400	U	400	37	ug/Kg	☼	11/20/14 17:27	11/24/14 15:44	1
Acetophenone	400	U	400	34	ug/Kg	☼	11/20/14 17:27	11/24/14 15:44	1
3 & 4 Methylphenol	400	U	400	53	ug/Kg	☼	11/20/14 17:27	11/24/14 15:44	1
N-Nitrosodi-n-propylamine	400	U	400	39	ug/Kg	☼	11/20/14 17:27	11/24/14 15:44	1
Hexachloroethane	400	U	400	34	ug/Kg	☼	11/20/14 17:27	11/24/14 15:44	1
Nitrobenzene	400	U	400	32	ug/Kg	☼	11/20/14 17:27	11/24/14 15:44	1
Isophorone	400	U	400	40	ug/Kg	☼	11/20/14 17:27	11/24/14 15:44	1
2-Nitrophenol	400	U	400	50	ug/Kg	☼	11/20/14 17:27	11/24/14 15:44	1
2,4-Dimethylphenol	400	U	400	54	ug/Kg	☼	11/20/14 17:27	11/24/14 15:44	1
Bis(2-chloroethoxy)methane	400	U	400	48	ug/Kg	☼	11/20/14 17:27	11/24/14 15:44	1
2,4-Dichlorophenol	400	U	400	43	ug/Kg	☼	11/20/14 17:27	11/24/14 15:44	1
Naphthalene	400	U	400	37	ug/Kg	☼	11/20/14 17:27	11/24/14 15:44	1
4-Chloroaniline	810	U	810	64	ug/Kg	☼	11/20/14 17:27	11/24/14 15:44	1
Hexachlorobutadiene	400	U	400	44	ug/Kg	☼	11/20/14 17:27	11/24/14 15:44	1
Caprolactam	400	U	400	81	ug/Kg	☼	11/20/14 17:27	11/24/14 15:44	1
4-Chloro-3-methylphenol	400	U	400	43	ug/Kg	☼	11/20/14 17:27	11/24/14 15:44	1
2-Methylnaphthalene	400	U	400	46	ug/Kg	☼	11/20/14 17:27	11/24/14 15:44	1
Hexachlorocyclopentadiene	400	U	400	50	ug/Kg	☼	11/20/14 17:27	11/24/14 15:44	1
2,4,6-Trichlorophenol	400	U	400	35	ug/Kg	☼	11/20/14 17:27	11/24/14 15:44	1
2,4,5-Trichlorophenol	400	U	400	43	ug/Kg	☼	11/20/14 17:27	11/24/14 15:44	1
1,1'-Biphenyl	2100	U	2100	2100	ug/Kg	☼	11/20/14 17:27	11/24/14 15:44	1
2-Chloronaphthalene	400	U	400	43	ug/Kg	☼	11/20/14 17:27	11/24/14 15:44	1
2-Nitroaniline	2100	U	2100	55	ug/Kg	☼	11/20/14 17:27	11/24/14 15:44	1
Dimethyl phthalate	400	U	400	42	ug/Kg	☼	11/20/14 17:27	11/24/14 15:44	1
2,6-Dinitrotoluene	400	U	400	51	ug/Kg	☼	11/20/14 17:27	11/24/14 15:44	1
Acenaphthylene	400	U	400	44	ug/Kg	☼	11/20/14 17:27	11/24/14 15:44	1
3-Nitroaniline	2100	U	2100	56	ug/Kg	☼	11/20/14 17:27	11/24/14 15:44	1
Acenaphthene	400	U	400	50	ug/Kg	☼	11/20/14 17:27	11/24/14 15:44	1
2,4-Dinitrophenol	2100	U	2100	1000	ug/Kg	☼	11/20/14 17:27	11/24/14 15:44	1
4-Nitrophenol	2100	U	2100	400	ug/Kg	☼	11/20/14 17:27	11/24/14 15:44	1
Dibenzofuran	400	U	400	40	ug/Kg	☼	11/20/14 17:27	11/24/14 15:44	1
2,4-Dinitrotoluene	400	U	400	60	ug/Kg	☼	11/20/14 17:27	11/24/14 15:44	1
Diethyl phthalate	400	U	400	45	ug/Kg	☼	11/20/14 17:27	11/24/14 15:44	1

Client: ARCADIS U.S., Inc.
Project/Site: CSX C&O Canal Brunswick, MD

TestAmerica Job ID: 680-107453-1

Client Sample ID: GP-82(14-15)(111814)
Date Collected: 11/18/14 11:50
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-5
Matrix: Solid
Percent Solids: 81.0

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluorene	400	U	400	44	ug/Kg	☼	11/20/14 17:27	11/24/14 15:44	1
4-Chlorophenyl phenyl ether	400	U	400	54	ug/Kg	☼	11/20/14 17:27	11/24/14 15:44	1
4-Nitroaniline	2100	U	2100	60	ug/Kg	☼	11/20/14 17:27	11/24/14 15:44	1
4,6-Dinitro-2-methylphenol	2100	U	2100	210	ug/Kg	☼	11/20/14 17:27	11/24/14 15:44	1
N-Nitrosodiphenylamine	400	U	400	40	ug/Kg	☼	11/20/14 17:27	11/24/14 15:44	1
4-Bromophenyl phenyl ether	400	U	400	44	ug/Kg	☼	11/20/14 17:27	11/24/14 15:44	1
Hexachlorobenzene	400	U	400	48	ug/Kg	☼	11/20/14 17:27	11/24/14 15:44	1
Atrazine	400	U	400	28	ug/Kg	☼	11/20/14 17:27	11/24/14 15:44	1
Pentachlorophenol	2100	U	2100	400	ug/Kg	☼	11/20/14 17:27	11/24/14 15:44	1
Phenanthrene	400	U	400	33	ug/Kg	☼	11/20/14 17:27	11/24/14 15:44	1
Anthracene	400	U	400	31	ug/Kg	☼	11/20/14 17:27	11/24/14 15:44	1
Carbazole	400	U	400	37	ug/Kg	☼	11/20/14 17:27	11/24/14 15:44	1
Di-n-butyl phthalate	400	U	400	37	ug/Kg	☼	11/20/14 17:27	11/24/14 15:44	1
Fluoranthene	400	U	400	39	ug/Kg	☼	11/20/14 17:27	11/24/14 15:44	1
Pyrene	400	U	400	33	ug/Kg	☼	11/20/14 17:27	11/24/14 15:44	1
Butyl benzyl phthalate	400	U	400	32	ug/Kg	☼	11/20/14 17:27	11/24/14 15:44	1
3,3'-Dichlorobenzidine	810	U	810	34	ug/Kg	☼	11/20/14 17:27	11/24/14 15:44	1
Benzo[a]anthracene	400	U	400	33	ug/Kg	☼	11/20/14 17:27	11/24/14 15:44	1
Chrysene	400	U	400	26	ug/Kg	☼	11/20/14 17:27	11/24/14 15:44	1
Bis(2-ethylhexyl) phthalate	400	U	400	35	ug/Kg	☼	11/20/14 17:27	11/24/14 15:44	1
Di-n-octyl phthalate	400	U	400	35	ug/Kg	☼	11/20/14 17:27	11/24/14 15:44	1
Benzo[b]fluoranthene	400	U	400	46	ug/Kg	☼	11/20/14 17:27	11/24/14 15:44	1
Benzo[k]fluoranthene	400	U	400	79	ug/Kg	☼	11/20/14 17:27	11/24/14 15:44	1
Benzo[a]pyrene	400	U	400	64	ug/Kg	☼	11/20/14 17:27	11/24/14 15:44	1
Indeno[1,2,3-cd]pyrene	400	U	400	34	ug/Kg	☼	11/20/14 17:27	11/24/14 15:44	1
Dibenz(a,h)anthracene	400	U	400	48	ug/Kg	☼	11/20/14 17:27	11/24/14 15:44	1
Benzo[g,h,i]perylene	400	U	400	27	ug/Kg	☼	11/20/14 17:27	11/24/14 15:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*60*		*37 - 115*	*11/20/14 17:27*	*11/24/14 15:44*	*1*
2-Fluorobiphenyl	*77*		*41 - 116*	*11/20/14 17:27*	*11/24/14 15:44*	*1*
Terphenyl-d14 (Surr)	*84*		*46 - 126*	*11/20/14 17:27*	*11/24/14 15:44*	*1*
Phenol-d5 (Surr)	*73*		*38 - 122*	*11/20/14 17:27*	*11/24/14 15:44*	*1*
2-Fluorophenol (Surr)	*74*		*39 - 114*	*11/20/14 17:27*	*11/24/14 15:44*	*1*
2,4,6-Tribromophenol (Surr)	*79*		*45 - 129*	*11/20/14 17:27*	*11/24/14 15:44*	*1*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Gasoline Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**0.14**	**J B**	0.24	0.018	mg/Kg	☼	11/20/14 16:38	11/24/14 14:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*113*		*70 - 131*	*11/20/14 16:38*	*11/24/14 14:14*	*1*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	4.0	U	4.0	2.6	mg/Kg	☼	11/20/14 15:52	11/21/14 19:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*60*		*45 - 130*	*11/20/14 15:52*	*11/21/14 19:27*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: CSX C&O Canal Brunswick, MD

TestAmerica Job ID: 680-107453-1

Client Sample ID: GP-82(16.5-17.5)(111814)
Date Collected: 11/18/14 11:55
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-6
Matrix: Solid
Percent Solids: 83.7

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	**14**	**J**	22	6.4	ug/Kg	☼	12/01/14 09:24	12/01/14 16:20	1
Benzene	4.4	U	4.4	0.97	ug/Kg	☼	12/01/14 09:24	12/01/14 16:20	1
Bromodichloromethane	4.4	U	4.4	2.2	ug/Kg	☼	12/01/14 09:24	12/01/14 16:20	1
Bromoform	4.4	U	4.4	2.2	ug/Kg	☼	12/01/14 09:24	12/01/14 16:20	1
Bromomethane	4.4	U	4.4	2.2	ug/Kg	☼	12/01/14 09:24	12/01/14 16:20	1
Carbon disulfide	4.4	U	4.4	2.2	ug/Kg	☼	12/01/14 09:24	12/01/14 16:20	1
Carbon tetrachloride	4.4	U	4.4	1.5	ug/Kg	☼	12/01/14 09:24	12/01/14 16:20	1
Chlorobenzene	4.4	U	4.4	0.46	ug/Kg	☼	12/01/14 09:24	12/01/14 16:20	1
Chloroethane	4.4	U	4.4	2.2	ug/Kg	☼	12/01/14 09:24	12/01/14 16:20	1
Chloroform	4.4	U	4.4	2.2	ug/Kg	☼	12/01/14 09:24	12/01/14 16:20	1
Chloromethane	4.4	U	4.4	0.88	ug/Kg	☼	12/01/14 09:24	12/01/14 16:20	1
cis-1,2-Dichloroethene	4.4	U	4.4	0.67	ug/Kg	☼	12/01/14 09:24	12/01/14 16:20	1
cis-1,3-Dichloropropene	4.4	U	4.4	1.1	ug/Kg	☼	12/01/14 09:24	12/01/14 16:20	1
Cyclohexane	4.4	U	4.4	0.83	ug/Kg	☼	12/01/14 09:24	12/01/14 16:20	1
Dibromochloromethane	4.4	U	4.4	2.2	ug/Kg	☼	12/01/14 09:24	12/01/14 16:20	1
1,2-Dibromo-3-Chloropropane	4.4	U	4.4	2.9	ug/Kg	☼	12/01/14 09:24	12/01/14 16:20	1
1,2-Dichlorobenzene	4.4	U	4.4	0.63	ug/Kg	☼	12/01/14 09:24	12/01/14 16:20	1
1,3-Dichlorobenzene	4.4	U	4.4	0.84	ug/Kg	☼	12/01/14 09:24	12/01/14 16:20	1
1,4-Dichlorobenzene	4.4	U	4.4	2.2	ug/Kg	☼	12/01/14 09:24	12/01/14 16:20	1
Dichlorodifluoromethane	4.4	U	4.4	1.1	ug/Kg	☼	12/01/14 09:24	12/01/14 16:20	1
1,1-Dichloroethane	4.4	U	4.4	0.73	ug/Kg	☼	12/01/14 09:24	12/01/14 16:20	1
1,2-Dichloroethane	4.4	U	4.4	0.72	ug/Kg	☼	12/01/14 09:24	12/01/14 16:20	1
1,1-Dichloroethene	4.4	U	4.4	2.2	ug/Kg	☼	12/01/14 09:24	12/01/14 16:20	1
1,2-Dichloropropane	4.4	U	4.4	2.2	ug/Kg	☼	12/01/14 09:24	12/01/14 16:20	1
Diisopropyl ether	4.4	U	4.4	0.48	ug/Kg	☼	12/01/14 09:24	12/01/14 16:20	1
Ethylbenzene	4.4	U	4.4	0.54	ug/Kg	☼	12/01/14 09:24	12/01/14 16:20	1
Ethylene Dibromide	4.4	U	4.4	0.88	ug/Kg	☼	12/01/14 09:24	12/01/14 16:20	1
Ethyl tert-butyl ether	4.4	U	4.4	2.2	ug/Kg	☼	12/01/14 09:24	12/01/14 16:20	1
2-Hexanone	22	U	22	4.4	ug/Kg	☼	12/01/14 09:24	12/01/14 16:20	1
Isopropylbenzene	**6.5**		4.4	0.60	ug/Kg	☼	12/01/14 09:24	12/01/14 16:20	1
Methyl acetate	4.4	U	4.4	4.1	ug/Kg	☼	12/01/14 09:24	12/01/14 16:20	1
Methylcyclohexane	**6.8**		4.4	1.3	ug/Kg	☼	12/01/14 09:24	12/01/14 16:20	1
Methylene Chloride	13	U	13	8.8	ug/Kg	☼	12/01/14 09:24	12/01/14 16:20	1
Methyl Ethyl Ketone	22	U	22	5.3	ug/Kg	☼	12/01/14 09:24	12/01/14 16:20	1
methyl isobutyl ketone	22	U	22	4.4	ug/Kg	☼	12/01/14 09:24	12/01/14 16:20	1
Methyl tert-butyl ether	4.4	U	4.4	0.88	ug/Kg	☼	12/01/14 09:24	12/01/14 16:20	1
Naphthalene	4.4	U	4.4	1.8	ug/Kg	☼	12/01/14 09:24	12/01/14 16:20	1
Styrene	4.4	U	4.4	0.88	ug/Kg	☼	12/01/14 09:24	12/01/14 16:20	1
Tert-amyl methyl ether	4.4	U	4.4	0.88	ug/Kg	☼	12/01/14 09:24	12/01/14 16:20	1
tert-Butyl alcohol	8.8	U	8.8	7.0	ug/Kg	☼	12/01/14 09:24	12/01/14 16:20	1
1,1,2,2-Tetrachloroethane	4.4	U	4.4	2.2	ug/Kg	☼	12/01/14 09:24	12/01/14 16:20	1
Tetrachloroethene	4.4	U	4.4	2.2	ug/Kg	☼	12/01/14 09:24	12/01/14 16:20	1
Toluene	4.4	U	4.4	0.88	ug/Kg	☼	12/01/14 09:24	12/01/14 16:20	1
trans-1,2-Dichloroethene	4.4	U	4.4	2.2	ug/Kg	☼	12/01/14 09:24	12/01/14 16:20	1
trans-1,3-Dichloropropene	4.4	U	4.4	2.2	ug/Kg	☼	12/01/14 09:24	12/01/14 16:20	1
1,2,4-Trichlorobenzene	4.4	U	4.4	1.8	ug/Kg	☼	12/01/14 09:24	12/01/14 16:20	1
1,1,1-Trichloroethane	4.4	U	4.4	0.97	ug/Kg	☼	12/01/14 09:24	12/01/14 16:20	1
1,1,2-Trichloroethane	4.4	U	4.4	2.2	ug/Kg	☼	12/01/14 09:24	12/01/14 16:20	1
Trichloroethene	4.4	U	4.4	0.88	ug/Kg	☼	12/01/14 09:24	12/01/14 16:20	1

Client Sample ID: GP-82(16.5-17.5)(111814)
Date Collected: 11/18/14 11:55
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-6
Matrix: Solid
Percent Solids: 83.7

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichlorofluoromethane	4.4	U	4.4	2.2	ug/Kg	☼	12/01/14 09:24	12/01/14 16:20	1
1,1,2-Trichloro-1,2,2-trifluoroethane	4.4	U	4.4	1.8	ug/Kg	☼	12/01/14 09:24	12/01/14 16:20	1
Vinyl chloride	4.4	U	4.4	2.2	ug/Kg	☼	12/01/14 09:24	12/01/14 16:20	1
Xylenes, Total	4.4	U	4.4	0.88	ug/Kg	☼	12/01/14 09:24	12/01/14 16:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*94*		*72 - 122*	*12/01/14 09:24*	*12/01/14 16:20*	*1*
Dibromofluoromethane	*101*		*79 - 123*	*12/01/14 09:24*	*12/01/14 16:20*	*1*
Toluene-d8 (Surr)	*127*	*X*	*80 - 120*	*12/01/14 09:24*	*12/01/14 16:20*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzaldehyde	390	U	390	69	ug/Kg	☼	11/20/14 17:27	11/24/14 16:09	1
Phenol	390	U	390	40	ug/Kg	☼	11/20/14 17:27	11/24/14 16:09	1
Bis(2-chloroethyl)ether	390	U	390	53	ug/Kg	☼	11/20/14 17:27	11/24/14 16:09	1
2-Chlorophenol	390	U	390	47	ug/Kg	☼	11/20/14 17:27	11/24/14 16:09	1
2-Methylphenol	390	U	390	32	ug/Kg	☼	11/20/14 17:27	11/24/14 16:09	1
bis (2-chloroisopropyl) ether	390	U	390	35	ug/Kg	☼	11/20/14 17:27	11/24/14 16:09	1
Acetophenone	**250**	**J**	390	33	ug/Kg	☼	11/20/14 17:27	11/24/14 16:09	1
3 & 4 Methylphenol	390	U	390	51	ug/Kg	☼	11/20/14 17:27	11/24/14 16:09	1
N-Nitrosodi-n-propylamine	390	U	390	38	ug/Kg	☼	11/20/14 17:27	11/24/14 16:09	1
Hexachloroethane	390	U	390	33	ug/Kg	☼	11/20/14 17:27	11/24/14 16:09	1
Nitrobenzene	390	U	390	31	ug/Kg	☼	11/20/14 17:27	11/24/14 16:09	1
Isophorone	390	U	390	39	ug/Kg	☼	11/20/14 17:27	11/24/14 16:09	1
2-Nitrophenol	390	U	390	48	ug/Kg	☼	11/20/14 17:27	11/24/14 16:09	1
2,4-Dimethylphenol	390	U	390	52	ug/Kg	☼	11/20/14 17:27	11/24/14 16:09	1
Bis(2-chloroethoxy)methane	390	U	390	46	ug/Kg	☼	11/20/14 17:27	11/24/14 16:09	1
2,4-Dichlorophenol	390	U	390	41	ug/Kg	☼	11/20/14 17:27	11/24/14 16:09	1
Naphthalene	390	U	390	35	ug/Kg	☼	11/20/14 17:27	11/24/14 16:09	1
4-Chloroaniline	780	U	780	61	ug/Kg	☼	11/20/14 17:27	11/24/14 16:09	1
Hexachlorobutadiene	390	U	390	43	ug/Kg	☼	11/20/14 17:27	11/24/14 16:09	1
Caprolactam	390	U	390	78	ug/Kg	☼	11/20/14 17:27	11/24/14 16:09	1
4-Chloro-3-methylphenol	390	U	390	41	ug/Kg	☼	11/20/14 17:27	11/24/14 16:09	1
2-Methylnaphthalene	390	U	390	45	ug/Kg	☼	11/20/14 17:27	11/24/14 16:09	1
Hexachlorocyclopentadiene	390	U	390	48	ug/Kg	☼	11/20/14 17:27	11/24/14 16:09	1
2,4,6-Trichlorophenol	390	U	390	34	ug/Kg	☼	11/20/14 17:27	11/24/14 16:09	1
2,4,5-Trichlorophenol	390	U	390	41	ug/Kg	☼	11/20/14 17:27	11/24/14 16:09	1
1,1'-Biphenyl	2000	U	2000	2000	ug/Kg	☼	11/20/14 17:27	11/24/14 16:09	1
2-Chloronaphthalene	390	U	390	41	ug/Kg	☼	11/20/14 17:27	11/24/14 16:09	1
2-Nitroaniline	2000	U	2000	53	ug/Kg	☼	11/20/14 17:27	11/24/14 16:09	1
Dimethyl phthalate	390	U	390	40	ug/Kg	☼	11/20/14 17:27	11/24/14 16:09	1
2,6-Dinitrotoluene	390	U	390	50	ug/Kg	☼	11/20/14 17:27	11/24/14 16:09	1
Acenaphthylene	390	U	390	43	ug/Kg	☼	11/20/14 17:27	11/24/14 16:09	1
3-Nitroaniline	2000	U	2000	54	ug/Kg	☼	11/20/14 17:27	11/24/14 16:09	1
Acenaphthene	390	U	390	48	ug/Kg	☼	11/20/14 17:27	11/24/14 16:09	1
2,4-Dinitrophenol	2000	U	2000	980	ug/Kg	☼	11/20/14 17:27	11/24/14 16:09	1
4-Nitrophenol	2000	U	2000	390	ug/Kg	☼	11/20/14 17:27	11/24/14 16:09	1
Dibenzofuran	390	U	390	39	ug/Kg	☼	11/20/14 17:27	11/24/14 16:09	1
2,4-Dinitrotoluene	390	U	390	58	ug/Kg	☼	11/20/14 17:27	11/24/14 16:09	1
Diethyl phthalate	390	U	390	44	ug/Kg	☼	11/20/14 17:27	11/24/14 16:09	1

Client: ARCADIS U.S., Inc.
Project/Site: CSX C&O Canal Brunswick, MD

TestAmerica Job ID: 680-107453-1

Client Sample ID: GP-82(16.5-17.5)(111814)
Date Collected: 11/18/14 11:55
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-6
Matrix: Solid
Percent Solids: 83.7

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluorene	390	U	390	43	ug/Kg	☼	11/20/14 17:27	11/24/14 16:09	1
4-Chlorophenyl phenyl ether	390	U	390	52	ug/Kg	☼	11/20/14 17:27	11/24/14 16:09	1
4-Nitroaniline	2000	U	2000	58	ug/Kg	☼	11/20/14 17:27	11/24/14 16:09	1
4,6-Dinitro-2-methylphenol	2000	U	2000	200	ug/Kg	☼	11/20/14 17:27	11/24/14 16:09	1
N-Nitrosodiphenylamine	390	U	390	39	ug/Kg	☼	11/20/14 17:27	11/24/14 16:09	1
4-Bromophenyl phenyl ether	390	U	390	43	ug/Kg	☼	11/20/14 17:27	11/24/14 16:09	1
Hexachlorobenzene	390	U	390	46	ug/Kg	☼	11/20/14 17:27	11/24/14 16:09	1
Atrazine	390	U	390	27	ug/Kg	☼	11/20/14 17:27	11/24/14 16:09	1
Pentachlorophenol	2000	U	2000	390	ug/Kg	☼	11/20/14 17:27	11/24/14 16:09	1
Phenanthrene	**40**	**J**	390	32	ug/Kg	☼	11/20/14 17:27	11/24/14 16:09	1
Anthracene	390	U	390	30	ug/Kg	☼	11/20/14 17:27	11/24/14 16:09	1
Carbazole	390	U	390	35	ug/Kg	☼	11/20/14 17:27	11/24/14 16:09	1
Di-n-butyl phthalate	390	U	390	35	ug/Kg	☼	11/20/14 17:27	11/24/14 16:09	1
Fluoranthene	390	U	390	38	ug/Kg	☼	11/20/14 17:27	11/24/14 16:09	1
Pyrene	**42**	**J**	390	32	ug/Kg	☼	11/20/14 17:27	11/24/14 16:09	1
Butyl benzyl phthalate	390	U	390	31	ug/Kg	☼	11/20/14 17:27	11/24/14 16:09	1
3,3'-Dichlorobenzidine	780	U	780	33	ug/Kg	☼	11/20/14 17:27	11/24/14 16:09	1
Benzo[a]anthracene	390	U	390	32	ug/Kg	☼	11/20/14 17:27	11/24/14 16:09	1
Chrysene	390	U	390	25	ug/Kg	☼	11/20/14 17:27	11/24/14 16:09	1
Bis(2-ethylhexyl) phthalate	390	U	390	34	ug/Kg	☼	11/20/14 17:27	11/24/14 16:09	1
Di-n-octyl phthalate	390	U	390	34	ug/Kg	☼	11/20/14 17:27	11/24/14 16:09	1
Benzo[b]fluoranthene	390	U	390	45	ug/Kg	☼	11/20/14 17:27	11/24/14 16:09	1
Benzo[k]fluoranthene	390	U	390	77	ug/Kg	☼	11/20/14 17:27	11/24/14 16:09	1
Benzo[a]pyrene	390	U	390	61	ug/Kg	☼	11/20/14 17:27	11/24/14 16:09	1
Indeno[1,2,3-cd]pyrene	390	U	390	33	ug/Kg	☼	11/20/14 17:27	11/24/14 16:09	1
Dibenz(a,h)anthracene	390	U	390	46	ug/Kg	☼	11/20/14 17:27	11/24/14 16:09	1
Benzo[g,h,i]perylene	390	U	390	26	ug/Kg	☼	11/20/14 17:27	11/24/14 16:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*71*		*37 - 115*	*11/20/14 17:27*	*11/24/14 16:09*	*1*
2-Fluorobiphenyl	*77*		*41 - 116*	*11/20/14 17:27*	*11/24/14 16:09*	*1*
Terphenyl-d14 (Surr)	*80*		*46 - 126*	*11/20/14 17:27*	*11/24/14 16:09*	*1*
Phenol-d5 (Surr)	*73*		*38 - 122*	*11/20/14 17:27*	*11/24/14 16:09*	*1*
2-Fluorophenol (Surr)	*75*		*39 - 114*	*11/20/14 17:27*	*11/24/14 16:09*	*1*
2,4,6-Tribromophenol (Surr)	*85*		*45 - 129*	*11/20/14 17:27*	*11/24/14 16:09*	*1*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Gasoline Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**1.4**	**B**	0.27	0.020	mg/Kg	☼	11/20/14 16:38	11/24/14 14:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*78*		*70 - 131*	*11/20/14 16:38*	*11/24/14 14:36*	*1*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**400**		39	25	mg/Kg	☼	11/20/14 15:52	11/24/14 20:24	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*0*	*D*	*45 - 130*	*11/20/14 15:52*	*11/24/14 20:24*	*10*

Client: ARCADIS U.S., Inc.
Project/Site: CSX C&O Canal Brunswick, MD

TestAmerica Job ID: 680-107453-1

Client Sample ID: GP-83(13-14)(111814)
Date Collected: 11/18/14 13:10
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-7
Matrix: Solid
Percent Solids: 83.4

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	22	U	22	6.4	ug/Kg	☼	12/01/14 09:24	12/01/14 16:44	1
Benzene	4.4	U	4.4	0.96	ug/Kg	☼	12/01/14 09:24	12/01/14 16:44	1
Bromodichloromethane	4.4	U	4.4	2.2	ug/Kg	☼	12/01/14 09:24	12/01/14 16:44	1
Bromoform	4.4	U	4.4	2.2	ug/Kg	☼	12/01/14 09:24	12/01/14 16:44	1
Bromomethane	4.4	U	4.4	2.2	ug/Kg	☼	12/01/14 09:24	12/01/14 16:44	1
Carbon disulfide	4.4	U	4.4	2.2	ug/Kg	☼	12/01/14 09:24	12/01/14 16:44	1
Carbon tetrachloride	4.4	U	4.4	1.5	ug/Kg	☼	12/01/14 09:24	12/01/14 16:44	1
Chlorobenzene	4.4	U	4.4	0.46	ug/Kg	☼	12/01/14 09:24	12/01/14 16:44	1
Chloroethane	4.4	U	4.4	2.2	ug/Kg	☼	12/01/14 09:24	12/01/14 16:44	1
Chloroform	4.4	U	4.4	2.2	ug/Kg	☼	12/01/14 09:24	12/01/14 16:44	1
Chloromethane	4.4	U	4.4	0.88	ug/Kg	☼	12/01/14 09:24	12/01/14 16:44	1
cis-1,2-Dichloroethene	4.4	U	4.4	0.67	ug/Kg	☼	12/01/14 09:24	12/01/14 16:44	1
cis-1,3-Dichloropropene	4.4	U	4.4	1.1	ug/Kg	☼	12/01/14 09:24	12/01/14 16:44	1
Cyclohexane	4.4	U	4.4	0.82	ug/Kg	☼	12/01/14 09:24	12/01/14 16:44	1
Dibromochloromethane	4.4	U	4.4	2.2	ug/Kg	☼	12/01/14 09:24	12/01/14 16:44	1
1,2-Dibromo-3-Chloropropane	4.4	U	4.4	2.9	ug/Kg	☼	12/01/14 09:24	12/01/14 16:44	1
1,2-Dichlorobenzene	4.4	U	4.4	0.62	ug/Kg	☼	12/01/14 09:24	12/01/14 16:44	1
1,3-Dichlorobenzene	4.4	U	4.4	0.83	ug/Kg	☼	12/01/14 09:24	12/01/14 16:44	1
1,4-Dichlorobenzene	4.4	U	4.4	2.2	ug/Kg	☼	12/01/14 09:24	12/01/14 16:44	1
Dichlorodifluoromethane	4.4	U	4.4	1.1	ug/Kg	☼	12/01/14 09:24	12/01/14 16:44	1
1,1-Dichloroethane	4.4	U	4.4	0.73	ug/Kg	☼	12/01/14 09:24	12/01/14 16:44	1
1,2-Dichloroethane	4.4	U	4.4	0.72	ug/Kg	☼	12/01/14 09:24	12/01/14 16:44	1
1,1-Dichloroethene	4.4	U	4.4	2.2	ug/Kg	☼	12/01/14 09:24	12/01/14 16:44	1
1,2-Dichloropropane	4.4	U	4.4	2.2	ug/Kg	☼	12/01/14 09:24	12/01/14 16:44	1
Diisopropyl ether	4.4	U	4.4	0.48	ug/Kg	☼	12/01/14 09:24	12/01/14 16:44	1
Ethylbenzene	4.4	U	4.4	0.53	ug/Kg	☼	12/01/14 09:24	12/01/14 16:44	1
Ethylene Dibromide	4.4	U	4.4	0.88	ug/Kg	☼	12/01/14 09:24	12/01/14 16:44	1
Ethyl tert-butyl ether	4.4	U	4.4	2.2	ug/Kg	☼	12/01/14 09:24	12/01/14 16:44	1
2-Hexanone	22	U	22	4.4	ug/Kg	☼	12/01/14 09:24	12/01/14 16:44	1
Isopropylbenzene	4.4	U	4.4	0.60	ug/Kg	☼	12/01/14 09:24	12/01/14 16:44	1
Methyl acetate	4.4	U	4.4	4.0	ug/Kg	☼	12/01/14 09:24	12/01/14 16:44	1
Methylcyclohexane	4.4	U	4.4	1.3	ug/Kg	☼	12/01/14 09:24	12/01/14 16:44	1
Methylene Chloride	13	U	13	8.8	ug/Kg	☼	12/01/14 09:24	12/01/14 16:44	1
Methyl Ethyl Ketone	22	U	22	5.3	ug/Kg	☼	12/01/14 09:24	12/01/14 16:44	1
methyl isobutyl ketone	22	U	22	4.4	ug/Kg	☼	12/01/14 09:24	12/01/14 16:44	1
Methyl tert-butyl ether	4.4	U	4.4	0.88	ug/Kg	☼	12/01/14 09:24	12/01/14 16:44	1
Naphthalene	4.4	U	4.4	1.8	ug/Kg	☼	12/01/14 09:24	12/01/14 16:44	1
Styrene	4.4	U	4.4	0.88	ug/Kg	☼	12/01/14 09:24	12/01/14 16:44	1
Tert-amyl methyl ether	4.4	U	4.4	0.88	ug/Kg	☼	12/01/14 09:24	12/01/14 16:44	1
tert-Butyl alcohol	8.8	U	8.8	7.0	ug/Kg	☼	12/01/14 09:24	12/01/14 16:44	1
1,1,2,2-Tetrachloroethane	4.4	U	4.4	2.2	ug/Kg	☼	12/01/14 09:24	12/01/14 16:44	1
Tetrachloroethene	4.4	U	4.4	2.2	ug/Kg	☼	12/01/14 09:24	12/01/14 16:44	1
Toluene	4.4	U	4.4	0.88	ug/Kg	☼	12/01/14 09:24	12/01/14 16:44	1
trans-1,2-Dichloroethene	4.4	U	4.4	2.2	ug/Kg	☼	12/01/14 09:24	12/01/14 16:44	1
trans-1,3-Dichloropropene	4.4	U	4.4	2.2	ug/Kg	☼	12/01/14 09:24	12/01/14 16:44	1
1,2,4-Trichlorobenzene	4.4	U	4.4	1.8	ug/Kg	☼	12/01/14 09:24	12/01/14 16:44	1
1,1,1-Trichloroethane	4.4	U	4.4	0.96	ug/Kg	☼	12/01/14 09:24	12/01/14 16:44	1
1,1,2-Trichloroethane	4.4	U	4.4	2.2	ug/Kg	☼	12/01/14 09:24	12/01/14 16:44	1
Trichloroethene	4.4	U	4.4	0.88	ug/Kg	☼	12/01/14 09:24	12/01/14 16:44	1

Client Sample ID: GP-83(13-14)(111814)
Date Collected: 11/18/14 13:10
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-7
Matrix: Solid
Percent Solids: 83.4

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichlorofluoromethane	4.4	U	4.4	2.2	ug/Kg	☼	12/01/14 09:24	12/01/14 16:44	1
1,1,2-Trichloro-1,2,2-trifluoroethane	4.4	U	4.4	1.8	ug/Kg	☼	12/01/14 09:24	12/01/14 16:44	1
Vinyl chloride	4.4	U	4.4	2.2	ug/Kg	☼	12/01/14 09:24	12/01/14 16:44	1
Xylenes, Total	4.4	U	4.4	0.88	ug/Kg	☼	12/01/14 09:24	12/01/14 16:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*109*		*72 - 122*	*12/01/14 09:24*	*12/01/14 16:44*	*1*
Dibromofluoromethane	*103*		*79 - 123*	*12/01/14 09:24*	*12/01/14 16:44*	*1*
Toluene-d8 (Surr)	*80*		*80 - 120*	*12/01/14 09:24*	*12/01/14 16:44*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzaldehyde	390	U	390	69	ug/Kg	☼	11/20/14 17:27	11/24/14 16:34	1
Phenol	390	U	390	40	ug/Kg	☼	11/20/14 17:27	11/24/14 16:34	1
Bis(2-chloroethyl)ether	390	U	390	54	ug/Kg	☼	11/20/14 17:27	11/24/14 16:34	1
2-Chlorophenol	390	U	390	48	ug/Kg	☼	11/20/14 17:27	11/24/14 16:34	1
2-Methylphenol	390	U	390	32	ug/Kg	☼	11/20/14 17:27	11/24/14 16:34	1
bis (2-chloroisopropyl) ether	390	U	390	36	ug/Kg	☼	11/20/14 17:27	11/24/14 16:34	1
Acetophenone	390	U	390	33	ug/Kg	☼	11/20/14 17:27	11/24/14 16:34	1
3 & 4 Methylphenol	390	U	390	51	ug/Kg	☼	11/20/14 17:27	11/24/14 16:34	1
N-Nitrosodi-n-propylamine	390	U	390	38	ug/Kg	☼	11/20/14 17:27	11/24/14 16:34	1
Hexachloroethane	390	U	390	33	ug/Kg	☼	11/20/14 17:27	11/24/14 16:34	1
Nitrobenzene	390	U	390	31	ug/Kg	☼	11/20/14 17:27	11/24/14 16:34	1
Isophorone	390	U	390	39	ug/Kg	☼	11/20/14 17:27	11/24/14 16:34	1
2-Nitrophenol	390	U	390	49	ug/Kg	☼	11/20/14 17:27	11/24/14 16:34	1
2,4-Dimethylphenol	390	U	390	52	ug/Kg	☼	11/20/14 17:27	11/24/14 16:34	1
Bis(2-chloroethoxy)methane	390	U	390	46	ug/Kg	☼	11/20/14 17:27	11/24/14 16:34	1
2,4-Dichlorophenol	390	U	390	42	ug/Kg	☼	11/20/14 17:27	11/24/14 16:34	1
Naphthalene	390	U	390	36	ug/Kg	☼	11/20/14 17:27	11/24/14 16:34	1
4-Chloroaniline	790	U	790	62	ug/Kg	☼	11/20/14 17:27	11/24/14 16:34	1
Hexachlorobutadiene	390	U	390	43	ug/Kg	☼	11/20/14 17:27	11/24/14 16:34	1
Caprolactam	390	U	390	79	ug/Kg	☼	11/20/14 17:27	11/24/14 16:34	1
4-Chloro-3-methylphenol	390	U	390	42	ug/Kg	☼	11/20/14 17:27	11/24/14 16:34	1
2-Methylnaphthalene	390	U	390	45	ug/Kg	☼	11/20/14 17:27	11/24/14 16:34	1
Hexachlorocyclopentadiene	390	U	390	49	ug/Kg	☼	11/20/14 17:27	11/24/14 16:34	1
2,4,6-Trichlorophenol	390	U	390	35	ug/Kg	☼	11/20/14 17:27	11/24/14 16:34	1
2,4,5-Trichlorophenol	390	U	390	42	ug/Kg	☼	11/20/14 17:27	11/24/14 16:34	1
1,1'-Biphenyl	2000	U	2000	2000	ug/Kg	☼	11/20/14 17:27	11/24/14 16:34	1
2-Chloronaphthalene	390	U	390	42	ug/Kg	☼	11/20/14 17:27	11/24/14 16:34	1
2-Nitroaniline	2000	U	2000	54	ug/Kg	☼	11/20/14 17:27	11/24/14 16:34	1
Dimethyl phthalate	390	U	390	40	ug/Kg	☼	11/20/14 17:27	11/24/14 16:34	1
2,6-Dinitrotoluene	390	U	390	50	ug/Kg	☼	11/20/14 17:27	11/24/14 16:34	1
Acenaphthylene	390	U	390	43	ug/Kg	☼	11/20/14 17:27	11/24/14 16:34	1
3-Nitroaniline	2000	U	2000	55	ug/Kg	☼	11/20/14 17:27	11/24/14 16:34	1
Acenaphthene	390	U	390	49	ug/Kg	☼	11/20/14 17:27	11/24/14 16:34	1
2,4-Dinitrophenol	2000	U	2000	990	ug/Kg	☼	11/20/14 17:27	11/24/14 16:34	1
4-Nitrophenol	2000	U	2000	390	ug/Kg	☼	11/20/14 17:27	11/24/14 16:34	1
Dibenzofuran	390	U	390	39	ug/Kg	☼	11/20/14 17:27	11/24/14 16:34	1
2,4-Dinitrotoluene	390	U	390	58	ug/Kg	☼	11/20/14 17:27	11/24/14 16:34	1
Diethyl phthalate	390	U	390	44	ug/Kg	☼	11/20/14 17:27	11/24/14 16:34	1

Client: ARCADIS U.S., Inc.
Project/Site: CSX C&O Canal Brunswick, MD

TestAmerica Job ID: 680-107453-1

Client Sample ID: GP-83(13-14)(111814)
Date Collected: 11/18/14 13:10
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-7
Matrix: Solid
Percent Solids: 83.4

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluorene	390	U	390	43	ug/Kg	☼	11/20/14 17:27	11/24/14 16:34	1
4-Chlorophenyl phenyl ether	390	U	390	52	ug/Kg	☼	11/20/14 17:27	11/24/14 16:34	1
4-Nitroaniline	2000	U	2000	58	ug/Kg	☼	11/20/14 17:27	11/24/14 16:34	1
4,6-Dinitro-2-methylphenol	2000	U	2000	200	ug/Kg	☼	11/20/14 17:27	11/24/14 16:34	1
N-Nitrosodiphenylamine	390	U	390	39	ug/Kg	☼	11/20/14 17:27	11/24/14 16:34	1
4-Bromophenyl phenyl ether	390	U	390	43	ug/Kg	☼	11/20/14 17:27	11/24/14 16:34	1
Hexachlorobenzene	390	U	390	46	ug/Kg	☼	11/20/14 17:27	11/24/14 16:34	1
Atrazine	390	U	390	27	ug/Kg	☼	11/20/14 17:27	11/24/14 16:34	1
Pentachlorophenol	2000	U	2000	390	ug/Kg	☼	11/20/14 17:27	11/24/14 16:34	1
Phenanthrene	390	U	390	32	ug/Kg	☼	11/20/14 17:27	11/24/14 16:34	1
Anthracene	390	U	390	30	ug/Kg	☼	11/20/14 17:27	11/24/14 16:34	1
Carbazole	390	U	390	36	ug/Kg	☼	11/20/14 17:27	11/24/14 16:34	1
Di-n-butyl phthalate	390	U	390	36	ug/Kg	☼	11/20/14 17:27	11/24/14 16:34	1
Fluoranthene	390	U	390	38	ug/Kg	☼	11/20/14 17:27	11/24/14 16:34	1
Pyrene	390	U	390	32	ug/Kg	☼	11/20/14 17:27	11/24/14 16:34	1
Butyl benzyl phthalate	390	U	390	31	ug/Kg	☼	11/20/14 17:27	11/24/14 16:34	1
3,3'-Dichlorobenzidine	790	U	790	33	ug/Kg	☼	11/20/14 17:27	11/24/14 16:34	1
Benzo[a]anthracene	390	U	390	32	ug/Kg	☼	11/20/14 17:27	11/24/14 16:34	1
Chrysene	390	U	390	25	ug/Kg	☼	11/20/14 17:27	11/24/14 16:34	1
Bis(2-ethylhexyl) phthalate	390	U	390	35	ug/Kg	☼	11/20/14 17:27	11/24/14 16:34	1
Di-n-octyl phthalate	390	U	390	35	ug/Kg	☼	11/20/14 17:27	11/24/14 16:34	1
Benzo[b]fluoranthene	390	U	390	45	ug/Kg	☼	11/20/14 17:27	11/24/14 16:34	1
Benzo[k]fluoranthene	390	U	390	77	ug/Kg	☼	11/20/14 17:27	11/24/14 16:34	1
Benzo[a]pyrene	390	U	390	62	ug/Kg	☼	11/20/14 17:27	11/24/14 16:34	1
Indeno[1,2,3-cd]pyrene	390	U	390	33	ug/Kg	☼	11/20/14 17:27	11/24/14 16:34	1
Dibenz(a,h)anthracene	390	U	390	46	ug/Kg	☼	11/20/14 17:27	11/24/14 16:34	1
Benzo[g,h,i]perylene	390	U	390	26	ug/Kg	☼	11/20/14 17:27	11/24/14 16:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*72*		*37 - 115*	*11/20/14 17:27*	*11/24/14 16:34*	*1*
2-Fluorobiphenyl	*74*		*41 - 116*	*11/20/14 17:27*	*11/24/14 16:34*	*1*
Terphenyl-d14 (Surr)	*85*		*46 - 126*	*11/20/14 17:27*	*11/24/14 16:34*	*1*
Phenol-d5 (Surr)	*65*		*38 - 122*	*11/20/14 17:27*	*11/24/14 16:34*	*1*
2-Fluorophenol (Surr)	*61*		*39 - 114*	*11/20/14 17:27*	*11/24/14 16:34*	*1*
2,4,6-Tribromophenol (Surr)	*77*		*45 - 129*	*11/20/14 17:27*	*11/24/14 16:34*	*1*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Gasoline Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**1.3**	**B**	0.23	0.018	mg/Kg	☼	11/20/14 16:38	11/24/14 14:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*94*		*70 - 131*	*11/20/14 16:38*	*11/24/14 14:58*	*1*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	4.0	U	4.0	2.5	mg/Kg	☼	11/20/14 15:52	11/21/14 19:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*63*		*45 - 130*	*11/20/14 15:52*	*11/21/14 19:56*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: CSX C&O Canal Brunswick, MD

TestAmerica Job ID: 680-107453-1

Client Sample ID: GP-83(14-15)(111814)
Date Collected: 11/18/14 13:15
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-8
Matrix: Solid
Percent Solids: 85.5

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	27	U	27	7.9	ug/Kg	☼	12/01/14 09:24	12/01/14 17:09	1
Benzene	5.4	U	5.4	1.2	ug/Kg	☼	12/01/14 09:24	12/01/14 17:09	1
Bromodichloromethane	5.4	U	5.4	2.7	ug/Kg	☼	12/01/14 09:24	12/01/14 17:09	1
Bromoform	5.4	U	5.4	2.7	ug/Kg	☼	12/01/14 09:24	12/01/14 17:09	1
Bromomethane	5.4	U	5.4	2.7	ug/Kg	☼	12/01/14 09:24	12/01/14 17:09	1
Carbon disulfide	5.4	U	5.4	2.7	ug/Kg	☼	12/01/14 09:24	12/01/14 17:09	1
Carbon tetrachloride	5.4	U	5.4	1.8	ug/Kg	☼	12/01/14 09:24	12/01/14 17:09	1
Chlorobenzene	5.4	U	5.4	0.56	ug/Kg	☼	12/01/14 09:24	12/01/14 17:09	1
Chloroethane	5.4	U	5.4	2.7	ug/Kg	☼	12/01/14 09:24	12/01/14 17:09	1
Chloroform	5.4	U	5.4	2.7	ug/Kg	☼	12/01/14 09:24	12/01/14 17:09	1
Chloromethane	5.4	U	5.4	1.1	ug/Kg	☼	12/01/14 09:24	12/01/14 17:09	1
cis-1,2-Dichloroethene	5.4	U	5.4	0.83	ug/Kg	☼	12/01/14 09:24	12/01/14 17:09	1
cis-1,3-Dichloropropene	5.4	U	5.4	1.3	ug/Kg	☼	12/01/14 09:24	12/01/14 17:09	1
Cyclohexane	5.4	U	5.4	1.0	ug/Kg	☼	12/01/14 09:24	12/01/14 17:09	1
Dibromochloromethane	5.4	U	5.4	2.7	ug/Kg	☼	12/01/14 09:24	12/01/14 17:09	1
1,2-Dibromo-3-Chloropropane	5.4	U	5.4	3.6	ug/Kg	☼	12/01/14 09:24	12/01/14 17:09	1
1,2-Dichlorobenzene	5.4	U	5.4	0.77	ug/Kg	☼	12/01/14 09:24	12/01/14 17:09	1
1,3-Dichlorobenzene	5.4	U	5.4	1.0	ug/Kg	☼	12/01/14 09:24	12/01/14 17:09	1
1,4-Dichlorobenzene	5.4	U	5.4	2.7	ug/Kg	☼	12/01/14 09:24	12/01/14 17:09	1
Dichlorodifluoromethane	5.4	U	5.4	1.4	ug/Kg	☼	12/01/14 09:24	12/01/14 17:09	1
1,1-Dichloroethane	5.4	U	5.4	0.90	ug/Kg	☼	12/01/14 09:24	12/01/14 17:09	1
1,2-Dichloroethane	5.4	U	5.4	0.89	ug/Kg	☼	12/01/14 09:24	12/01/14 17:09	1
1,1-Dichloroethene	5.4	U	5.4	2.7	ug/Kg	☼	12/01/14 09:24	12/01/14 17:09	1
1,2-Dichloropropane	5.4	U	5.4	2.7	ug/Kg	☼	12/01/14 09:24	12/01/14 17:09	1
Diisopropyl ether	5.4	U	5.4	0.60	ug/Kg	☼	12/01/14 09:24	12/01/14 17:09	1
Ethylbenzene	5.4	U	5.4	0.66	ug/Kg	☼	12/01/14 09:24	12/01/14 17:09	1
Ethylene Dibromide	5.4	U	5.4	1.1	ug/Kg	☼	12/01/14 09:24	12/01/14 17:09	1
Ethyl tert-butyl ether	5.4	U	5.4	2.7	ug/Kg	☼	12/01/14 09:24	12/01/14 17:09	1
2-Hexanone	27	U	27	5.4	ug/Kg	☼	12/01/14 09:24	12/01/14 17:09	1
Isopropylbenzene	5.4	U	5.4	0.74	ug/Kg	☼	12/01/14 09:24	12/01/14 17:09	1
Methyl acetate	5.4	U	5.4	5.0	ug/Kg	☼	12/01/14 09:24	12/01/14 17:09	1
Methylcyclohexane	5.4	U	5.4	1.6	ug/Kg	☼	12/01/14 09:24	12/01/14 17:09	1
Methylene Chloride	16	U	16	11	ug/Kg	☼	12/01/14 09:24	12/01/14 17:09	1
Methyl Ethyl Ketone	27	U	27	6.5	ug/Kg	☼	12/01/14 09:24	12/01/14 17:09	1
methyl isobutyl ketone	27	U	27	5.4	ug/Kg	☼	12/01/14 09:24	12/01/14 17:09	1
Methyl tert-butyl ether	5.4	U	5.4	1.1	ug/Kg	☼	12/01/14 09:24	12/01/14 17:09	1
Naphthalene	5.4	U	5.4	2.2	ug/Kg	☼	12/01/14 09:24	12/01/14 17:09	1
Styrene	5.4	U	5.4	1.1	ug/Kg	☼	12/01/14 09:24	12/01/14 17:09	1
Tert-amyl methyl ether	5.4	U	5.4	1.1	ug/Kg	☼	12/01/14 09:24	12/01/14 17:09	1
tert-Butyl alcohol	11	U	11	8.7	ug/Kg	☼	12/01/14 09:24	12/01/14 17:09	1
1,1,2,2-Tetrachloroethane	5.4	U	5.4	2.7	ug/Kg	☼	12/01/14 09:24	12/01/14 17:09	1
Tetrachloroethene	5.4	U	5.4	2.7	ug/Kg	☼	12/01/14 09:24	12/01/14 17:09	1
Toluene	5.4	U	5.4	1.1	ug/Kg	☼	12/01/14 09:24	12/01/14 17:09	1
trans-1,2-Dichloroethene	5.4	U	5.4	2.7	ug/Kg	☼	12/01/14 09:24	12/01/14 17:09	1
trans-1,3-Dichloropropene	5.4	U	5.4	2.7	ug/Kg	☼	12/01/14 09:24	12/01/14 17:09	1
1,2,4-Trichlorobenzene	5.4	U	5.4	2.2	ug/Kg	☼	12/01/14 09:24	12/01/14 17:09	1
1,1,1-Trichloroethane	5.4	U	5.4	1.2	ug/Kg	☼	12/01/14 09:24	12/01/14 17:09	1
1,1,2-Trichloroethane	5.4	U	5.4	2.7	ug/Kg	☼	12/01/14 09:24	12/01/14 17:09	1
Trichloroethene	5.4	U	5.4	1.1	ug/Kg	☼	12/01/14 09:24	12/01/14 17:09	1

Client Sample ID: GP-83(14-15)(111814)
Date Collected: 11/18/14 13:15
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-8
Matrix: Solid
Percent Solids: 85.5

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichlorofluoromethane	5.4	U	5.4	2.7	ug/Kg	☼	12/01/14 09:24	12/01/14 17:09	1
1,1,2-Trichloro-1,2,2-trifluoroethane	5.4	U	5.4	2.2	ug/Kg	☼	12/01/14 09:24	12/01/14 17:09	1
Vinyl chloride	5.4	U	5.4	2.7	ug/Kg	☼	12/01/14 09:24	12/01/14 17:09	1
Xylenes, Total	5.4	U	5.4	1.1	ug/Kg	☼	12/01/14 09:24	12/01/14 17:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*94*		*72 - 122*	*12/01/14 09:24*	*12/01/14 17:09*	*1*
Dibromofluoromethane	*99*		*79 - 123*	*12/01/14 09:24*	*12/01/14 17:09*	*1*
Toluene-d8 (Surr)	*105*		*80 - 120*	*12/01/14 09:24*	*12/01/14 17:09*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzaldehyde	380	U	380	67	ug/Kg	☼	11/20/14 17:27	11/24/14 16:59	1
Phenol	380	U	380	40	ug/Kg	☼	11/20/14 17:27	11/24/14 16:59	1
Bis(2-chloroethyl)ether	380	U	380	52	ug/Kg	☼	11/20/14 17:27	11/24/14 16:59	1
2-Chlorophenol	380	U	380	47	ug/Kg	☼	11/20/14 17:27	11/24/14 16:59	1
2-Methylphenol	380	U	380	31	ug/Kg	☼	11/20/14 17:27	11/24/14 16:59	1
bis (2-chloroisopropyl) ether	380	U	380	35	ug/Kg	☼	11/20/14 17:27	11/24/14 16:59	1
Acetophenone	380	U	380	33	ug/Kg	☼	11/20/14 17:27	11/24/14 16:59	1
3 & 4 Methylphenol	380	U	380	50	ug/Kg	☼	11/20/14 17:27	11/24/14 16:59	1
N-Nitrosodi-n-propylamine	380	U	380	37	ug/Kg	☼	11/20/14 17:27	11/24/14 16:59	1
Hexachloroethane	380	U	380	33	ug/Kg	☼	11/20/14 17:27	11/24/14 16:59	1
Nitrobenzene	380	U	380	30	ug/Kg	☼	11/20/14 17:27	11/24/14 16:59	1
Isophorone	380	U	380	38	ug/Kg	☼	11/20/14 17:27	11/24/14 16:59	1
2-Nitrophenol	380	U	380	48	ug/Kg	☼	11/20/14 17:27	11/24/14 16:59	1
2,4-Dimethylphenol	380	U	380	51	ug/Kg	☼	11/20/14 17:27	11/24/14 16:59	1
Bis(2-chloroethoxy)methane	380	U	380	45	ug/Kg	☼	11/20/14 17:27	11/24/14 16:59	1
2,4-Dichlorophenol	380	U	380	41	ug/Kg	☼	11/20/14 17:27	11/24/14 16:59	1
Naphthalene	380	U	380	35	ug/Kg	☼	11/20/14 17:27	11/24/14 16:59	1
4-Chloroaniline	770	U	770	60	ug/Kg	☼	11/20/14 17:27	11/24/14 16:59	1
Hexachlorobutadiene	380	U	380	42	ug/Kg	☼	11/20/14 17:27	11/24/14 16:59	1
Caprolactam	380	U	380	77	ug/Kg	☼	11/20/14 17:27	11/24/14 16:59	1
4-Chloro-3-methylphenol	380	U	380	41	ug/Kg	☼	11/20/14 17:27	11/24/14 16:59	1
2-Methylnaphthalene	380	U	380	44	ug/Kg	☼	11/20/14 17:27	11/24/14 16:59	1
Hexachlorocyclopentadiene	380	U	380	48	ug/Kg	☼	11/20/14 17:27	11/24/14 16:59	1
2,4,6-Trichlorophenol	380	U	380	34	ug/Kg	☼	11/20/14 17:27	11/24/14 16:59	1
2,4,5-Trichlorophenol	380	U	380	41	ug/Kg	☼	11/20/14 17:27	11/24/14 16:59	1
1,1'-Biphenyl	2000	U	2000	2000	ug/Kg	☼	11/20/14 17:27	11/24/14 16:59	1
2-Chloronaphthalene	380	U	380	41	ug/Kg	☼	11/20/14 17:27	11/24/14 16:59	1
2-Nitroaniline	2000	U	2000	52	ug/Kg	☼	11/20/14 17:27	11/24/14 16:59	1
Dimethyl phthalate	380	U	380	40	ug/Kg	☼	11/20/14 17:27	11/24/14 16:59	1
2,6-Dinitrotoluene	380	U	380	49	ug/Kg	☼	11/20/14 17:27	11/24/14 16:59	1
Acenaphthylene	380	U	380	42	ug/Kg	☼	11/20/14 17:27	11/24/14 16:59	1
3-Nitroaniline	2000	U	2000	53	ug/Kg	☼	11/20/14 17:27	11/24/14 16:59	1
Acenaphthene	380	U	380	48	ug/Kg	☼	11/20/14 17:27	11/24/14 16:59	1
2,4-Dinitrophenol	2000	U	2000	970	ug/Kg	☼	11/20/14 17:27	11/24/14 16:59	1
4-Nitrophenol	2000	U	2000	380	ug/Kg	☼	11/20/14 17:27	11/24/14 16:59	1
Dibenzofuran	380	U	380	38	ug/Kg	☼	11/20/14 17:27	11/24/14 16:59	1
2,4-Dinitrotoluene	380	U	380	57	ug/Kg	☼	11/20/14 17:27	11/24/14 16:59	1
Diethyl phthalate	380	U	380	43	ug/Kg	☼	11/20/14 17:27	11/24/14 16:59	1

Client: ARCADIS U.S., Inc.
Project/Site: CSX C&O Canal Brunswick, MD

TestAmerica Job ID: 680-107453-1

Client Sample ID: GP-83(14-15)(111814)
Date Collected: 11/18/14 13:15
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-8
Matrix: Solid
Percent Solids: 85.5

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluorene	380	U	380	42	ug/Kg	☼	11/20/14 17:27	11/24/14 16:59	1
4-Chlorophenyl phenyl ether	380	U	380	51	ug/Kg	☼	11/20/14 17:27	11/24/14 16:59	1
4-Nitroaniline	2000	U	2000	57	ug/Kg	☼	11/20/14 17:27	11/24/14 16:59	1
4,6-Dinitro-2-methylphenol	2000	U	2000	200	ug/Kg	☼	11/20/14 17:27	11/24/14 16:59	1
N-Nitrosodiphenylamine	380	U	380	38	ug/Kg	☼	11/20/14 17:27	11/24/14 16:59	1
4-Bromophenyl phenyl ether	380	U	380	42	ug/Kg	☼	11/20/14 17:27	11/24/14 16:59	1
Hexachlorobenzene	380	U	380	45	ug/Kg	☼	11/20/14 17:27	11/24/14 16:59	1
Atrazine	380	U	380	27	ug/Kg	☼	11/20/14 17:27	11/24/14 16:59	1
Pentachlorophenol	2000	U	2000	380	ug/Kg	☼	11/20/14 17:27	11/24/14 16:59	1
Phenanthrene	380	U	380	31	ug/Kg	☼	11/20/14 17:27	11/24/14 16:59	1
Anthracene	380	U	380	29	ug/Kg	☼	11/20/14 17:27	11/24/14 16:59	1
Carbazole	380	U	380	35	ug/Kg	☼	11/20/14 17:27	11/24/14 16:59	1
Di-n-butyl phthalate	380	U	380	35	ug/Kg	☼	11/20/14 17:27	11/24/14 16:59	1
Fluoranthene	380	U	380	37	ug/Kg	☼	11/20/14 17:27	11/24/14 16:59	1
Pyrene	380	U	380	31	ug/Kg	☼	11/20/14 17:27	11/24/14 16:59	1
Butyl benzyl phthalate	380	U	380	30	ug/Kg	☼	11/20/14 17:27	11/24/14 16:59	1
3,3'-Dichlorobenzidine	770	U	770	33	ug/Kg	☼	11/20/14 17:27	11/24/14 16:59	1
Benzo[a]anthracene	380	U	380	31	ug/Kg	☼	11/20/14 17:27	11/24/14 16:59	1
Chrysene	380	U	380	24	ug/Kg	☼	11/20/14 17:27	11/24/14 16:59	1
Bis(2-ethylhexyl) phthalate	380	U	380	34	ug/Kg	☼	11/20/14 17:27	11/24/14 16:59	1
Di-n-octyl phthalate	380	U	380	34	ug/Kg	☼	11/20/14 17:27	11/24/14 16:59	1
Benzo[b]fluoranthene	380	U	380	44	ug/Kg	☼	11/20/14 17:27	11/24/14 16:59	1
Benzo[k]fluoranthene	380	U	380	76	ug/Kg	☼	11/20/14 17:27	11/24/14 16:59	1
Benzo[a]pyrene	380	U	380	60	ug/Kg	☼	11/20/14 17:27	11/24/14 16:59	1
Indeno[1,2,3-cd]pyrene	380	U	380	33	ug/Kg	☼	11/20/14 17:27	11/24/14 16:59	1
Dibenz(a,h)anthracene	380	U	380	45	ug/Kg	☼	11/20/14 17:27	11/24/14 16:59	1
Benzo[g,h,i]perylene	380	U	380	26	ug/Kg	☼	11/20/14 17:27	11/24/14 16:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*75*		*37 - 115*	*11/20/14 17:27*	*11/24/14 16:59*	*1*
2-Fluorobiphenyl	*81*		*41 - 116*	*11/20/14 17:27*	*11/24/14 16:59*	*1*
Terphenyl-d14 (Surr)	*88*		*46 - 126*	*11/20/14 17:27*	*11/24/14 16:59*	*1*
Phenol-d5 (Surr)	*70*		*38 - 122*	*11/20/14 17:27*	*11/24/14 16:59*	*1*
2-Fluorophenol (Surr)	*65*		*39 - 114*	*11/20/14 17:27*	*11/24/14 16:59*	*1*
2,4,6-Tribromophenol (Surr)	*74*		*45 - 129*	*11/20/14 17:27*	*11/24/14 16:59*	*1*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Gasoline Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**0.23**	**J**	0.26	0.020	mg/Kg	☼	11/20/14 16:38	11/22/14 19:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*75*		*70 - 131*	*11/20/14 16:38*	*11/22/14 19:29*	*1*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	3.8	U	3.8	2.4	mg/Kg	☼	11/20/14 15:52	11/21/14 20:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*63*		*45 - 130*	*11/20/14 15:52*	*11/21/14 20:10*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: CSX C&O Canal Brunswick, MD

TestAmerica Job ID: 680-107453-1

Client Sample ID: GP-84(14-15)(111814)
Date Collected: 11/18/14 14:00
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-9
Matrix: Solid
Percent Solids: 85.7

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	7.7	J	23	6.7	ug/Kg	☼	11/22/14 10:00	11/23/14 12:09	1
Benzene	4.6	U	4.6	1.0	ug/Kg	☼	11/22/14 10:00	11/23/14 12:09	1
Bromodichloromethane	4.6	U	4.6	2.3	ug/Kg	☼	11/22/14 10:00	11/23/14 12:09	1
Bromoform	4.6	U	4.6	2.3	ug/Kg	☼	11/22/14 10:00	11/23/14 12:09	1
Bromomethane	4.6	U	4.6	2.3	ug/Kg	☼	11/22/14 10:00	11/23/14 12:09	1
Carbon disulfide	4.6	U	4.6	2.3	ug/Kg	☼	11/22/14 10:00	11/23/14 12:09	1
Carbon tetrachloride	4.6	U	4.6	1.6	ug/Kg	☼	11/22/14 10:00	11/23/14 12:09	1
Chlorobenzene	4.6	U	4.6	0.47	ug/Kg	☼	11/22/14 10:00	11/23/14 12:09	1
Chloroethane	4.6	U	4.6	2.3	ug/Kg	☼	11/22/14 10:00	11/23/14 12:09	1
Chloroform	4.6	U	4.6	2.3	ug/Kg	☼	11/22/14 10:00	11/23/14 12:09	1
Chloromethane	4.6	U	4.6	0.91	ug/Kg	☼	11/22/14 10:00	11/23/14 12:09	1
cis-1,2-Dichloroethene	4.6	U	4.6	0.69	ug/Kg	☼	11/22/14 10:00	11/23/14 12:09	1
cis-1,3-Dichloropropene	4.6	U	4.6	1.1	ug/Kg	☼	11/22/14 10:00	11/23/14 12:09	1
Cyclohexane	4.6	U	4.6	0.86	ug/Kg	☼	11/22/14 10:00	11/23/14 12:09	1
Dibromochloromethane	4.6	U	4.6	2.3	ug/Kg	☼	11/22/14 10:00	11/23/14 12:09	1
1,2-Dibromo-3-Chloropropane	4.6	U	4.6	3.0	ug/Kg	☼	11/22/14 10:00	11/23/14 12:09	1
1,2-Dichlorobenzene	4.6	U	4.6	0.65	ug/Kg	☼	11/22/14 10:00	11/23/14 12:09	1
1,3-Dichlorobenzene	4.6	U	4.6	0.87	ug/Kg	☼	11/22/14 10:00	11/23/14 12:09	1
1,4-Dichlorobenzene	4.6	U	4.6	2.3	ug/Kg	☼	11/22/14 10:00	11/23/14 12:09	1
Dichlorodifluoromethane	4.6	U	4.6	1.2	ug/Kg	☼	11/22/14 10:00	11/23/14 12:09	1
1,1-Dichloroethane	4.6	U	4.6	0.76	ug/Kg	☼	11/22/14 10:00	11/23/14 12:09	1
1,2-Dichloroethane	4.6	U	4.6	0.75	ug/Kg	☼	11/22/14 10:00	11/23/14 12:09	1
1,1-Dichloroethene	4.6	U	4.6	2.3	ug/Kg	☼	11/22/14 10:00	11/23/14 12:09	1
1,2-Dichloropropane	4.6	U	4.6	2.3	ug/Kg	☼	11/22/14 10:00	11/23/14 12:09	1
Diisopropyl ether	4.6	U	4.6	0.50	ug/Kg	☼	11/22/14 10:00	11/23/14 12:09	1
Ethylbenzene	4.6	U	4.6	0.56	ug/Kg	☼	11/22/14 10:00	11/23/14 12:09	1
Ethylene Dibromide	4.6	U	4.6	0.91	ug/Kg	☼	11/22/14 10:00	11/23/14 12:09	1
Ethyl tert-butyl ether	4.6	U	4.6	2.3	ug/Kg	☼	11/22/14 10:00	11/23/14 12:09	1
2-Hexanone	23	U	23	4.6	ug/Kg	☼	11/22/14 10:00	11/23/14 12:09	1
Isopropylbenzene	4.6	U	4.6	0.62	ug/Kg	☼	11/22/14 10:00	11/23/14 12:09	1
Methyl acetate	4.6	U	4.6	4.2	ug/Kg	☼	11/22/14 10:00	11/23/14 12:09	1
Methylcyclohexane	4.6	U	4.6	1.4	ug/Kg	☼	11/22/14 10:00	11/23/14 12:09	1
Methylene Chloride	14	U	14	9.1	ug/Kg	☼	11/22/14 10:00	11/23/14 12:09	1
Methyl Ethyl Ketone	23	U	23	5.5	ug/Kg	☼	11/22/14 10:00	11/23/14 12:09	1
methyl isobutyl ketone	23	U	23	4.6	ug/Kg	☼	11/22/14 10:00	11/23/14 12:09	1
Methyl tert-butyl ether	4.6	U	4.6	0.91	ug/Kg	☼	11/22/14 10:00	11/23/14 12:09	1
Naphthalene	4.6	U	4.6	1.8	ug/Kg	☼	11/22/14 10:00	11/23/14 12:09	1
Styrene	4.6	U	4.6	0.91	ug/Kg	☼	11/22/14 10:00	11/23/14 12:09	1
Tert-amyl methyl ether	4.6	U	4.6	0.91	ug/Kg	☼	11/22/14 10:00	11/23/14 12:09	1
tert-Butyl alcohol	9.1	U	9.1	7.3	ug/Kg	☼	11/22/14 10:00	11/23/14 12:09	1
1,1,2,2-Tetrachloroethane	4.6	U	4.6	2.3	ug/Kg	☼	11/22/14 10:00	11/23/14 12:09	1
Tetrachloroethene	4.6	U	4.6	2.3	ug/Kg	☼	11/22/14 10:00	11/23/14 12:09	1
Toluene	4.6	U	4.6	0.91	ug/Kg	☼	11/22/14 10:00	11/23/14 12:09	1
trans-1,2-Dichloroethene	4.6	U	4.6	2.3	ug/Kg	☼	11/22/14 10:00	11/23/14 12:09	1
trans-1,3-Dichloropropene	4.6	U	4.6	2.3	ug/Kg	☼	11/22/14 10:00	11/23/14 12:09	1
1,2,4-Trichlorobenzene	4.6	U	4.6	1.8	ug/Kg	☼	11/22/14 10:00	11/23/14 12:09	1
1,1,1-Trichloroethane	4.6	U	4.6	1.0	ug/Kg	☼	11/22/14 10:00	11/23/14 12:09	1
1,1,2-Trichloroethane	4.6	U	4.6	2.3	ug/Kg	☼	11/22/14 10:00	11/23/14 12:09	1
Trichloroethene	4.6	U	4.6	0.91	ug/Kg	☼	11/22/14 10:00	11/23/14 12:09	1

Client Sample ID: GP-84(14-15)(111814)
Date Collected: 11/18/14 14:00
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-9
Matrix: Solid
Percent Solids: 85.7

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichlorofluoromethane	4.6	U	4.6	2.3	ug/Kg	☼	11/22/14 10:00	11/23/14 12:09	1
1,1,2-Trichloro-1,2,2-trifluoroethane	4.6	U	4.6	1.8	ug/Kg	☼	11/22/14 10:00	11/23/14 12:09	1
Vinyl chloride	4.6	U	4.6	2.3	ug/Kg	☼	11/22/14 10:00	11/23/14 12:09	1
Xylenes, Total	4.6	U	4.6	0.91	ug/Kg	☼	11/22/14 10:00	11/23/14 12:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*91*		*72 - 122*	*11/22/14 10:00*	*11/23/14 12:09*	*1*
Dibromofluoromethane	*103*		*79 - 123*	*11/22/14 10:00*	*11/23/14 12:09*	*1*
Toluene-d8 (Surr)	*97*		*80 - 120*	*11/22/14 10:00*	*11/23/14 12:09*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzaldehyde	380	U	380	67	ug/Kg	☼	11/20/14 17:27	11/24/14 17:24	1
Phenol	380	U	380	39	ug/Kg	☼	11/20/14 17:27	11/24/14 17:24	1
Bis(2-chloroethyl)ether	380	U	380	52	ug/Kg	☼	11/20/14 17:27	11/24/14 17:24	1
2-Chlorophenol	380	U	380	46	ug/Kg	☼	11/20/14 17:27	11/24/14 17:24	1
2-Methylphenol	380	U	380	31	ug/Kg	☼	11/20/14 17:27	11/24/14 17:24	1
bis (2-chloroisopropyl) ether	380	U	380	35	ug/Kg	☼	11/20/14 17:27	11/24/14 17:24	1
Acetophenone	380	U	380	32	ug/Kg	☼	11/20/14 17:27	11/24/14 17:24	1
3 & 4 Methylphenol	380	U	380	50	ug/Kg	☼	11/20/14 17:27	11/24/14 17:24	1
N-Nitrosodi-n-propylamine	380	U	380	37	ug/Kg	☼	11/20/14 17:27	11/24/14 17:24	1
Hexachloroethane	380	U	380	32	ug/Kg	☼	11/20/14 17:27	11/24/14 17:24	1
Nitrobenzene	380	U	380	30	ug/Kg	☼	11/20/14 17:27	11/24/14 17:24	1
Isophorone	380	U	380	38	ug/Kg	☼	11/20/14 17:27	11/24/14 17:24	1
2-Nitrophenol	380	U	380	47	ug/Kg	☼	11/20/14 17:27	11/24/14 17:24	1
2,4-Dimethylphenol	380	U	380	51	ug/Kg	☼	11/20/14 17:27	11/24/14 17:24	1
Bis(2-chloroethoxy)methane	380	U	380	45	ug/Kg	☼	11/20/14 17:27	11/24/14 17:24	1
2,4-Dichlorophenol	380	U	380	40	ug/Kg	☼	11/20/14 17:27	11/24/14 17:24	1
Naphthalene	380	U	380	35	ug/Kg	☼	11/20/14 17:27	11/24/14 17:24	1
4-Chloroaniline	760	U	760	60	ug/Kg	☼	11/20/14 17:27	11/24/14 17:24	1
Hexachlorobutadiene	380	U	380	42	ug/Kg	☼	11/20/14 17:27	11/24/14 17:24	1
Caprolactam	380	U	380	76	ug/Kg	☼	11/20/14 17:27	11/24/14 17:24	1
4-Chloro-3-methylphenol	380	U	380	40	ug/Kg	☼	11/20/14 17:27	11/24/14 17:24	1
2-Methylnaphthalene	380	U	380	44	ug/Kg	☼	11/20/14 17:27	11/24/14 17:24	1
Hexachlorocyclopentadiene	380	U	380	47	ug/Kg	☼	11/20/14 17:27	11/24/14 17:24	1
2,4,6-Trichlorophenol	380	U	380	34	ug/Kg	☼	11/20/14 17:27	11/24/14 17:24	1
2,4,5-Trichlorophenol	380	U	380	40	ug/Kg	☼	11/20/14 17:27	11/24/14 17:24	1
1,1'-Biphenyl	2000	U	2000	2000	ug/Kg	☼	11/20/14 17:27	11/24/14 17:24	1
2-Chloronaphthalene	380	U	380	40	ug/Kg	☼	11/20/14 17:27	11/24/14 17:24	1
2-Nitroaniline	2000	U	2000	52	ug/Kg	☼	11/20/14 17:27	11/24/14 17:24	1
Dimethyl phthalate	380	U	380	39	ug/Kg	☼	11/20/14 17:27	11/24/14 17:24	1
2,6-Dinitrotoluene	380	U	380	49	ug/Kg	☼	11/20/14 17:27	11/24/14 17:24	1
Acenaphthylene	380	U	380	42	ug/Kg	☼	11/20/14 17:27	11/24/14 17:24	1
3-Nitroaniline	2000	U	2000	53	ug/Kg	☼	11/20/14 17:27	11/24/14 17:24	1
Acenaphthene	380	U	380	47	ug/Kg	☼	11/20/14 17:27	11/24/14 17:24	1
2,4-Dinitrophenol	2000	U	2000	960	ug/Kg	☼	11/20/14 17:27	11/24/14 17:24	1
4-Nitrophenol	2000	U	2000	380	ug/Kg	☼	11/20/14 17:27	11/24/14 17:24	1
Dibenzofuran	380	U	380	38	ug/Kg	☼	11/20/14 17:27	11/24/14 17:24	1
2,4-Dinitrotoluene	380	U	380	57	ug/Kg	☼	11/20/14 17:27	11/24/14 17:24	1
Diethyl phthalate	380	U	380	43	ug/Kg	☼	11/20/14 17:27	11/24/14 17:24	1

Client: ARCADIS U.S., Inc.
Project/Site: CSX C&O Canal Brunswick, MD

TestAmerica Job ID: 680-107453-1

Client Sample ID: GP-84(14-15)(111814)
Date Collected: 11/18/14 14:00
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-9
Matrix: Solid
Percent Solids: 85.7

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluorene	380	U	380	42	ug/Kg	☼	11/20/14 17:27	11/24/14 17:24	1
4-Chlorophenyl phenyl ether	380	U	380	51	ug/Kg	☼	11/20/14 17:27	11/24/14 17:24	1
4-Nitroaniline	2000	U	2000	57	ug/Kg	☼	11/20/14 17:27	11/24/14 17:24	1
4,6-Dinitro-2-methylphenol	2000	U	2000	200	ug/Kg	☼	11/20/14 17:27	11/24/14 17:24	1
N-Nitrosodiphenylamine	380	U	380	38	ug/Kg	☼	11/20/14 17:27	11/24/14 17:24	1
4-Bromophenyl phenyl ether	380	U	380	42	ug/Kg	☼	11/20/14 17:27	11/24/14 17:24	1
Hexachlorobenzene	380	U	380	45	ug/Kg	☼	11/20/14 17:27	11/24/14 17:24	1
Atrazine	380	U	380	27	ug/Kg	☼	11/20/14 17:27	11/24/14 17:24	1
Pentachlorophenol	2000	U	2000	380	ug/Kg	☼	11/20/14 17:27	11/24/14 17:24	1
Phenanthrene	380	U	380	31	ug/Kg	☼	11/20/14 17:27	11/24/14 17:24	1
Anthracene	380	U	380	29	ug/Kg	☼	11/20/14 17:27	11/24/14 17:24	1
Carbazole	380	U	380	35	ug/Kg	☼	11/20/14 17:27	11/24/14 17:24	1
Di-n-butyl phthalate	380	U	380	35	ug/Kg	☼	11/20/14 17:27	11/24/14 17:24	1
Fluoranthene	380	U	380	37	ug/Kg	☼	11/20/14 17:27	11/24/14 17:24	1
Pyrene	**41**	**J**	380	31	ug/Kg	☼	11/20/14 17:27	11/24/14 17:24	1
Butyl benzyl phthalate	380	U	380	30	ug/Kg	☼	11/20/14 17:27	11/24/14 17:24	1
3,3'-Dichlorobenzidine	760	U	760	32	ug/Kg	☼	11/20/14 17:27	11/24/14 17:24	1
Benzo[a]anthracene	380	U	380	31	ug/Kg	☼	11/20/14 17:27	11/24/14 17:24	1
Chrysene	380	U	380	24	ug/Kg	☼	11/20/14 17:27	11/24/14 17:24	1
Bis(2-ethylhexyl) phthalate	380	U	380	34	ug/Kg	☼	11/20/14 17:27	11/24/14 17:24	1
Di-n-octyl phthalate	380	U	380	34	ug/Kg	☼	11/20/14 17:27	11/24/14 17:24	1
Benzo[b]fluoranthene	380	U	380	44	ug/Kg	☼	11/20/14 17:27	11/24/14 17:24	1
Benzo[k]fluoranthene	380	U	380	75	ug/Kg	☼	11/20/14 17:27	11/24/14 17:24	1
Benzo[a]pyrene	380	U	380	60	ug/Kg	☼	11/20/14 17:27	11/24/14 17:24	1
Indeno[1,2,3-cd]pyrene	380	U	380	32	ug/Kg	☼	11/20/14 17:27	11/24/14 17:24	1
Dibenz(a,h)anthracene	380	U	380	45	ug/Kg	☼	11/20/14 17:27	11/24/14 17:24	1
Benzo[g,h,i]perylene	380	U	380	25	ug/Kg	☼	11/20/14 17:27	11/24/14 17:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*62*		*37 - 115*	*11/20/14 17:27*	*11/24/14 17:24*	*1*
2-Fluorobiphenyl	*75*		*41 - 116*	*11/20/14 17:27*	*11/24/14 17:24*	*1*
Terphenyl-d14 (Surr)	*79*		*46 - 126*	*11/20/14 17:27*	*11/24/14 17:24*	*1*
Phenol-d5 (Surr)	*74*		*38 - 122*	*11/20/14 17:27*	*11/24/14 17:24*	*1*
2-Fluorophenol (Surr)	*76*		*39 - 114*	*11/20/14 17:27*	*11/24/14 17:24*	*1*
2,4,6-Tribromophenol (Surr)	*85*		*45 - 129*	*11/20/14 17:27*	*11/24/14 17:24*	*1*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Gasoline Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**0.10**	**J**	0.23	0.017	mg/Kg	☼	11/20/14 16:38	11/22/14 19:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*85*		*70 - 131*	*11/20/14 16:38*	*11/22/14 19:51*	*1*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**25**		3.8	2.4	mg/Kg	☼	11/20/14 15:52	11/21/14 20:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*71*		*45 - 130*	*11/20/14 15:52*	*11/21/14 20:25*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: CSX C&O Canal Brunswick, MD

TestAmerica Job ID: 680-107453-1

Client Sample ID: GP-84(15.5-16.5)(111814)
Date Collected: 11/18/14 14:05
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-10
Matrix: Solid
Percent Solids: 84.1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	15	J	21	6.2	ug/Kg	☼	11/22/14 10:00	11/23/14 12:34	1
Benzene	4.3	U	4.3	0.94	ug/Kg	☼	11/22/14 10:00	11/23/14 12:34	1
Bromodichloromethane	4.3	U	4.3	2.1	ug/Kg	☼	11/22/14 10:00	11/23/14 12:34	1
Bromoform	4.3	U	4.3	2.1	ug/Kg	☼	11/22/14 10:00	11/23/14 12:34	1
Bromomethane	4.3	U	4.3	2.1	ug/Kg	☼	11/22/14 10:00	11/23/14 12:34	1
Carbon disulfide	4.3	U	4.3	2.1	ug/Kg	☼	11/22/14 10:00	11/23/14 12:34	1
Carbon tetrachloride	4.3	U	4.3	1.5	ug/Kg	☼	11/22/14 10:00	11/23/14 12:34	1
Chlorobenzene	4.3	U	4.3	0.44	ug/Kg	☼	11/22/14 10:00	11/23/14 12:34	1
Chloroethane	4.3	U	4.3	2.1	ug/Kg	☼	11/22/14 10:00	11/23/14 12:34	1
Chloroform	4.3	U	4.3	2.1	ug/Kg	☼	11/22/14 10:00	11/23/14 12:34	1
Chloromethane	4.3	U	4.3	0.85	ug/Kg	☼	11/22/14 10:00	11/23/14 12:34	1
cis-1,2-Dichloroethene	4.3	U	4.3	0.65	ug/Kg	☼	11/22/14 10:00	11/23/14 12:34	1
cis-1,3-Dichloropropene	4.3	U	4.3	1.0	ug/Kg	☼	11/22/14 10:00	11/23/14 12:34	1
Cyclohexane	4.3	U	4.3	0.80	ug/Kg	☼	11/22/14 10:00	11/23/14 12:34	1
Dibromochloromethane	4.3	U	4.3	2.1	ug/Kg	☼	11/22/14 10:00	11/23/14 12:34	1
1,2-Dibromo-3-Chloropropane	4.3	U	4.3	2.8	ug/Kg	☼	11/22/14 10:00	11/23/14 12:34	1
1,2-Dichlorobenzene	4.3	U	4.3	0.61	ug/Kg	☼	11/22/14 10:00	11/23/14 12:34	1
1,3-Dichlorobenzene	4.3	U	4.3	0.81	ug/Kg	☼	11/22/14 10:00	11/23/14 12:34	1
1,4-Dichlorobenzene	4.3	U	4.3	2.1	ug/Kg	☼	11/22/14 10:00	11/23/14 12:34	1
Dichlorodifluoromethane	4.3	U	4.3	1.1	ug/Kg	☼	11/22/14 10:00	11/23/14 12:34	1
1,1-Dichloroethane	4.3	U	4.3	0.71	ug/Kg	☼	11/22/14 10:00	11/23/14 12:34	1
1,2-Dichloroethane	4.3	U	4.3	0.70	ug/Kg	☼	11/22/14 10:00	11/23/14 12:34	1
1,1-Dichloroethene	4.3	U	4.3	2.1	ug/Kg	☼	11/22/14 10:00	11/23/14 12:34	1
1,2-Dichloropropane	4.3	U	4.3	2.1	ug/Kg	☼	11/22/14 10:00	11/23/14 12:34	1
Diisopropyl ether	4.3	U	4.3	0.47	ug/Kg	☼	11/22/14 10:00	11/23/14 12:34	1
Ethylbenzene	4.3	U	4.3	0.52	ug/Kg	☼	11/22/14 10:00	11/23/14 12:34	1
Ethylene Dibromide	4.3	U	4.3	0.85	ug/Kg	☼	11/22/14 10:00	11/23/14 12:34	1
Ethyl tert-butyl ether	4.3	U	4.3	2.1	ug/Kg	☼	11/22/14 10:00	11/23/14 12:34	1
2-Hexanone	21	U	21	4.3	ug/Kg	☼	11/22/14 10:00	11/23/14 12:34	1
Isopropylbenzene	4.3	U	4.3	0.58	ug/Kg	☼	11/22/14 10:00	11/23/14 12:34	1
Methyl acetate	4.3	U	4.3	3.9	ug/Kg	☼	11/22/14 10:00	11/23/14 12:34	1
Methylcyclohexane	4.3	U	4.3	1.3	ug/Kg	☼	11/22/14 10:00	11/23/14 12:34	1
Methylene Chloride	13	U	13	8.5	ug/Kg	☼	11/22/14 10:00	11/23/14 12:34	1
Methyl Ethyl Ketone	21	U	21	5.1	ug/Kg	☼	11/22/14 10:00	11/23/14 12:34	1
methyl isobutyl ketone	21	U	21	4.3	ug/Kg	☼	11/22/14 10:00	11/23/14 12:34	1
Methyl tert-butyl ether	4.3	U	4.3	0.85	ug/Kg	☼	11/22/14 10:00	11/23/14 12:34	1
Naphthalene	4.3	U	4.3	1.7	ug/Kg	☼	11/22/14 10:00	11/23/14 12:34	1
Styrene	4.3	U	4.3	0.85	ug/Kg	☼	11/22/14 10:00	11/23/14 12:34	1
Tert-amyl methyl ether	4.3	U	4.3	0.85	ug/Kg	☼	11/22/14 10:00	11/23/14 12:34	1
tert-Butyl alcohol	8.5	U	8.5	6.8	ug/Kg	☼	11/22/14 10:00	11/23/14 12:34	1
1,1,2,2-Tetrachloroethane	4.3	U	4.3	2.1	ug/Kg	☼	11/22/14 10:00	11/23/14 12:34	1
Tetrachloroethene	4.3	U	4.3	2.1	ug/Kg	☼	11/22/14 10:00	11/23/14 12:34	1
Toluene	4.3	U	4.3	0.85	ug/Kg	☼	11/22/14 10:00	11/23/14 12:34	1
trans-1,2-Dichloroethene	4.3	U	4.3	2.1	ug/Kg	☼	11/22/14 10:00	11/23/14 12:34	1
trans-1,3-Dichloropropene	4.3	U	4.3	2.1	ug/Kg	☼	11/22/14 10:00	11/23/14 12:34	1
1,2,4-Trichlorobenzene	4.3	U	4.3	1.7	ug/Kg	☼	11/22/14 10:00	11/23/14 12:34	1
1,1,1-Trichloroethane	4.3	U	4.3	0.94	ug/Kg	☼	11/22/14 10:00	11/23/14 12:34	1
1,1,2-Trichloroethane	4.3	U	4.3	2.1	ug/Kg	☼	11/22/14 10:00	11/23/14 12:34	1
Trichloroethene	4.3	U	4.3	0.85	ug/Kg	☼	11/22/14 10:00	11/23/14 12:34	1

Client Sample ID: GP-84(15.5-16.5)(111814)
Date Collected: 11/18/14 14:05
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-10
Matrix: Solid
Percent Solids: 84.1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichlorofluoromethane	4.3	U	4.3	2.1	ug/Kg	☼	11/22/14 10:00	11/23/14 12:34	1
1,1,2-Trichloro-1,2,2-trifluoroethane	4.3	U	4.3	1.7	ug/Kg	☼	11/22/14 10:00	11/23/14 12:34	1
Vinyl chloride	4.3	U	4.3	2.1	ug/Kg	☼	11/22/14 10:00	11/23/14 12:34	1
Xylenes, Total	4.3	U	4.3	0.85	ug/Kg	☼	11/22/14 10:00	11/23/14 12:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*93*		*72 - 122*	*11/22/14 10:00*	*11/23/14 12:34*	*1*
Dibromofluoromethane	*99*		*79 - 123*	*11/22/14 10:00*	*11/23/14 12:34*	*1*
Toluene-d8 (Surr)	*93*		*80 - 120*	*11/22/14 10:00*	*11/23/14 12:34*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzaldehyde	390	U	390	68	ug/Kg	☼	11/20/14 17:27	11/24/14 17:50	1
Phenol	390	U	390	40	ug/Kg	☼	11/20/14 17:27	11/24/14 17:50	1
Bis(2-chloroethyl)ether	390	U	390	53	ug/Kg	☼	11/20/14 17:27	11/24/14 17:50	1
2-Chlorophenol	390	U	390	47	ug/Kg	☼	11/20/14 17:27	11/24/14 17:50	1
2-Methylphenol	390	U	390	32	ug/Kg	☼	11/20/14 17:27	11/24/14 17:50	1
bis (2-chloroisopropyl) ether	390	U	390	35	ug/Kg	☼	11/20/14 17:27	11/24/14 17:50	1
Acetophenone	390	U	390	33	ug/Kg	☼	11/20/14 17:27	11/24/14 17:50	1
3 & 4 Methylphenol	390	U	390	51	ug/Kg	☼	11/20/14 17:27	11/24/14 17:50	1
N-Nitrosodi-n-propylamine	390	U	390	38	ug/Kg	☼	11/20/14 17:27	11/24/14 17:50	1
Hexachloroethane	390	U	390	33	ug/Kg	☼	11/20/14 17:27	11/24/14 17:50	1
Nitrobenzene	390	U	390	31	ug/Kg	☼	11/20/14 17:27	11/24/14 17:50	1
Isophorone	390	U	390	39	ug/Kg	☼	11/20/14 17:27	11/24/14 17:50	1
2-Nitrophenol	390	U	390	48	ug/Kg	☼	11/20/14 17:27	11/24/14 17:50	1
2,4-Dimethylphenol	390	U	390	52	ug/Kg	☼	11/20/14 17:27	11/24/14 17:50	1
Bis(2-chloroethoxy)methane	390	U	390	46	ug/Kg	☼	11/20/14 17:27	11/24/14 17:50	1
2,4-Dichlorophenol	390	U	390	41	ug/Kg	☼	11/20/14 17:27	11/24/14 17:50	1
Naphthalene	390	U	390	35	ug/Kg	☼	11/20/14 17:27	11/24/14 17:50	1
4-Chloroaniline	780	U	780	61	ug/Kg	☼	11/20/14 17:27	11/24/14 17:50	1
Hexachlorobutadiene	390	U	390	42	ug/Kg	☼	11/20/14 17:27	11/24/14 17:50	1
Caprolactam	390	U	390	78	ug/Kg	☼	11/20/14 17:27	11/24/14 17:50	1
4-Chloro-3-methylphenol	390	U	390	41	ug/Kg	☼	11/20/14 17:27	11/24/14 17:50	1
2-Methylnaphthalene	390	U	390	45	ug/Kg	☼	11/20/14 17:27	11/24/14 17:50	1
Hexachlorocyclopentadiene	390	U	390	48	ug/Kg	☼	11/20/14 17:27	11/24/14 17:50	1
2,4,6-Trichlorophenol	390	U	390	34	ug/Kg	☼	11/20/14 17:27	11/24/14 17:50	1
2,4,5-Trichlorophenol	390	U	390	41	ug/Kg	☼	11/20/14 17:27	11/24/14 17:50	1
1,1'-Biphenyl	2000	U	2000	2000	ug/Kg	☼	11/20/14 17:27	11/24/14 17:50	1
2-Chloronaphthalene	390	U	390	41	ug/Kg	☼	11/20/14 17:27	11/24/14 17:50	1
2-Nitroaniline	2000	U	2000	53	ug/Kg	☼	11/20/14 17:27	11/24/14 17:50	1
Dimethyl phthalate	390	U	390	40	ug/Kg	☼	11/20/14 17:27	11/24/14 17:50	1
2,6-Dinitrotoluene	390	U	390	49	ug/Kg	☼	11/20/14 17:27	11/24/14 17:50	1
Acenaphthylene	390	U	390	42	ug/Kg	☼	11/20/14 17:27	11/24/14 17:50	1
3-Nitroaniline	2000	U	2000	54	ug/Kg	☼	11/20/14 17:27	11/24/14 17:50	1
Acenaphthene	390	U	390	48	ug/Kg	☼	11/20/14 17:27	11/24/14 17:50	1
2,4-Dinitrophenol	2000	U	2000	980	ug/Kg	☼	11/20/14 17:27	11/24/14 17:50	1
4-Nitrophenol	2000	U	2000	390	ug/Kg	☼	11/20/14 17:27	11/24/14 17:50	1
Dibenzofuran	390	U	390	39	ug/Kg	☼	11/20/14 17:27	11/24/14 17:50	1
2,4-Dinitrotoluene	390	U	390	58	ug/Kg	☼	11/20/14 17:27	11/24/14 17:50	1
Diethyl phthalate	390	U	390	44	ug/Kg	☼	11/20/14 17:27	11/24/14 17:50	1

Client Sample ID: GP-84(15.5-16.5)(111814)
Date Collected: 11/18/14 14:05
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-10
Matrix: Solid
Percent Solids: 84.1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluorene	390	U	390	42	ug/Kg	☼	11/20/14 17:27	11/24/14 17:50	1
4-Chlorophenyl phenyl ether	390	U	390	52	ug/Kg	☼	11/20/14 17:27	11/24/14 17:50	1
4-Nitroaniline	2000	U	2000	58	ug/Kg	☼	11/20/14 17:27	11/24/14 17:50	1
4,6-Dinitro-2-methylphenol	2000	U	2000	200	ug/Kg	☼	11/20/14 17:27	11/24/14 17:50	1
N-Nitrosodiphenylamine	390	U	390	39	ug/Kg	☼	11/20/14 17:27	11/24/14 17:50	1
4-Bromophenyl phenyl ether	390	U	390	42	ug/Kg	☼	11/20/14 17:27	11/24/14 17:50	1
Hexachlorobenzene	390	U	390	46	ug/Kg	☼	11/20/14 17:27	11/24/14 17:50	1
Atrazine	390	U	390	27	ug/Kg	☼	11/20/14 17:27	11/24/14 17:50	1
Pentachlorophenol	2000	U	2000	390	ug/Kg	☼	11/20/14 17:27	11/24/14 17:50	1
Phenanthrene	**39**	**J**	390	32	ug/Kg	☼	11/20/14 17:27	11/24/14 17:50	1
Anthracene	390	U	390	29	ug/Kg	☼	11/20/14 17:27	11/24/14 17:50	1
Carbazole	390	U	390	35	ug/Kg	☼	11/20/14 17:27	11/24/14 17:50	1
Di-n-butyl phthalate	390	U	390	35	ug/Kg	☼	11/20/14 17:27	11/24/14 17:50	1
Fluoranthene	390	U	390	38	ug/Kg	☼	11/20/14 17:27	11/24/14 17:50	1
Pyrene	**32**	**J**	390	32	ug/Kg	☼	11/20/14 17:27	11/24/14 17:50	1
Butyl benzyl phthalate	390	U	390	31	ug/Kg	☼	11/20/14 17:27	11/24/14 17:50	1
3,3'-Dichlorobenzidine	780	U	780	33	ug/Kg	☼	11/20/14 17:27	11/24/14 17:50	1
Benzo[a]anthracene	390	U	390	32	ug/Kg	☼	11/20/14 17:27	11/24/14 17:50	1
Chrysene	**26**	**J**	390	25	ug/Kg	☼	11/20/14 17:27	11/24/14 17:50	1
Bis(2-ethylhexyl) phthalate	390	U	390	34	ug/Kg	☼	11/20/14 17:27	11/24/14 17:50	1
Di-n-octyl phthalate	390	U	390	34	ug/Kg	☼	11/20/14 17:27	11/24/14 17:50	1
Benzo[b]fluoranthene	390	U	390	45	ug/Kg	☼	11/20/14 17:27	11/24/14 17:50	1
Benzo[k]fluoranthene	390	U	390	77	ug/Kg	☼	11/20/14 17:27	11/24/14 17:50	1
Benzo[a]pyrene	390	U	390	61	ug/Kg	☼	11/20/14 17:27	11/24/14 17:50	1
Indeno[1,2,3-cd]pyrene	390	U	390	33	ug/Kg	☼	11/20/14 17:27	11/24/14 17:50	1
Dibenz(a,h)anthracene	390	U	390	46	ug/Kg	☼	11/20/14 17:27	11/24/14 17:50	1
Benzo[g,h,i]perylene	390	U	390	26	ug/Kg	☼	11/20/14 17:27	11/24/14 17:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*55*		*37 - 115*	*11/20/14 17:27*	*11/24/14 17:50*	*1*
2-Fluorobiphenyl	*69*		*41 - 116*	*11/20/14 17:27*	*11/24/14 17:50*	*1*
Terphenyl-d14 (Surr)	*79*		*46 - 126*	*11/20/14 17:27*	*11/24/14 17:50*	*1*
Phenol-d5 (Surr)	*69*		*38 - 122*	*11/20/14 17:27*	*11/24/14 17:50*	*1*
2-Fluorophenol (Surr)	*70*		*39 - 114*	*11/20/14 17:27*	*11/24/14 17:50*	*1*
2,4,6-Tribromophenol (Surr)	*80*		*45 - 129*	*11/20/14 17:27*	*11/24/14 17:50*	*1*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Gasoline Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**0.38**	**J**	0.39	0.030	mg/Kg	☼	11/20/14 16:38	11/22/14 20:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*92*		*70 - 131*	*11/20/14 16:38*	*11/22/14 20:13*	*1*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**18**		3.9	2.5	mg/Kg	☼	11/20/14 15:52	11/21/14 20:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*55*		*45 - 130*	*11/20/14 15:52*	*11/21/14 20:39*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: CSX C&O Canal Brunswick, MD

TestAmerica Job ID: 680-107453-1

Client Sample ID: GP-85(6-7)(111814)
Date Collected: 11/18/14 14:50
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-11
Matrix: Solid
Percent Solids: 84.3

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	37		22	6.5	ug/Kg	☼	11/22/14 10:00	11/23/14 12:58	1
Benzene	4.5	U	4.5	0.99	ug/Kg	☼	11/22/14 10:00	11/23/14 12:58	1
Bromodichloromethane	4.5	U	4.5	2.2	ug/Kg	☼	11/22/14 10:00	11/23/14 12:58	1
Bromoform	4.5	U	4.5	2.2	ug/Kg	☼	11/22/14 10:00	11/23/14 12:58	1
Bromomethane	4.5	U	4.5	2.2	ug/Kg	☼	11/22/14 10:00	11/23/14 12:58	1
Carbon disulfide	4.5	U	4.5	2.2	ug/Kg	☼	11/22/14 10:00	11/23/14 12:58	1
Carbon tetrachloride	4.5	U	4.5	1.5	ug/Kg	☼	11/22/14 10:00	11/23/14 12:58	1
Chlorobenzene	4.5	U	4.5	0.47	ug/Kg	☼	11/22/14 10:00	11/23/14 12:58	1
Chloroethane	4.5	U	4.5	2.2	ug/Kg	☼	11/22/14 10:00	11/23/14 12:58	1
Chloroform	4.5	U	4.5	2.2	ug/Kg	☼	11/22/14 10:00	11/23/14 12:58	1
Chloromethane	4.5	U	4.5	0.90	ug/Kg	☼	11/22/14 10:00	11/23/14 12:58	1
cis-1,2-Dichloroethene	4.5	U	4.5	0.68	ug/Kg	☼	11/22/14 10:00	11/23/14 12:58	1
cis-1,3-Dichloropropene	4.5	U	4.5	1.1	ug/Kg	☼	11/22/14 10:00	11/23/14 12:58	1
Cyclohexane	4.5	U	4.5	0.84	ug/Kg	☼	11/22/14 10:00	11/23/14 12:58	1
Dibromochloromethane	4.5	U	4.5	2.2	ug/Kg	☼	11/22/14 10:00	11/23/14 12:58	1
1,2-Dibromo-3-Chloropropane	4.5	U	4.5	3.0	ug/Kg	☼	11/22/14 10:00	11/23/14 12:58	1
1,2-Dichlorobenzene	4.5	U	4.5	0.64	ug/Kg	☼	11/22/14 10:00	11/23/14 12:58	1
1,3-Dichlorobenzene	4.5	U	4.5	0.85	ug/Kg	☼	11/22/14 10:00	11/23/14 12:58	1
1,4-Dichlorobenzene	4.5	U	4.5	2.2	ug/Kg	☼	11/22/14 10:00	11/23/14 12:58	1
Dichlorodifluoromethane	4.5	U	4.5	1.2	ug/Kg	☼	11/22/14 10:00	11/23/14 12:58	1
1,1-Dichloroethane	4.5	U	4.5	0.74	ug/Kg	☼	11/22/14 10:00	11/23/14 12:58	1
1,2-Dichloroethane	4.5	U	4.5	0.73	ug/Kg	☼	11/22/14 10:00	11/23/14 12:58	1
1,1-Dichloroethene	4.5	U	4.5	2.2	ug/Kg	☼	11/22/14 10:00	11/23/14 12:58	1
1,2-Dichloropropane	4.5	U	4.5	2.2	ug/Kg	☼	11/22/14 10:00	11/23/14 12:58	1
Diisopropyl ether	4.5	U	4.5	0.49	ug/Kg	☼	11/22/14 10:00	11/23/14 12:58	1
Ethylbenzene	4.5	U	4.5	0.55	ug/Kg	☼	11/22/14 10:00	11/23/14 12:58	1
Ethylene Dibromide	4.5	U	4.5	0.90	ug/Kg	☼	11/22/14 10:00	11/23/14 12:58	1
Ethyl tert-butyl ether	4.5	U	4.5	2.2	ug/Kg	☼	11/22/14 10:00	11/23/14 12:58	1
2-Hexanone	22	U	22	4.5	ug/Kg	☼	11/22/14 10:00	11/23/14 12:58	1
Isopropylbenzene	4.5	U	4.5	0.61	ug/Kg	☼	11/22/14 10:00	11/23/14 12:58	1
Methyl acetate	4.5	U	4.5	4.1	ug/Kg	☼	11/22/14 10:00	11/23/14 12:58	1
Methylcyclohexane	4.5	U	4.5	1.3	ug/Kg	☼	11/22/14 10:00	11/23/14 12:58	1
Methylene Chloride	13	U	13	9.0	ug/Kg	☼	11/22/14 10:00	11/23/14 12:58	1
Methyl Ethyl Ketone	22	U	22	5.4	ug/Kg	☼	11/22/14 10:00	11/23/14 12:58	1
methyl isobutyl ketone	22	U	22	4.5	ug/Kg	☼	11/22/14 10:00	11/23/14 12:58	1
Methyl tert-butyl ether	4.5	U	4.5	0.90	ug/Kg	☼	11/22/14 10:00	11/23/14 12:58	1
Naphthalene	4.5	U	4.5	1.8	ug/Kg	☼	11/22/14 10:00	11/23/14 12:58	1
Styrene	4.5	U	4.5	0.90	ug/Kg	☼	11/22/14 10:00	11/23/14 12:58	1
Tert-amyl methyl ether	4.5	U	4.5	0.90	ug/Kg	☼	11/22/14 10:00	11/23/14 12:58	1
tert-Butyl alcohol	9.0	U	9.0	7.2	ug/Kg	☼	11/22/14 10:00	11/23/14 12:58	1
1,1,2,2-Tetrachloroethane	4.5	U	4.5	2.2	ug/Kg	☼	11/22/14 10:00	11/23/14 12:58	1
Tetrachloroethene	4.5	U	4.5	2.2	ug/Kg	☼	11/22/14 10:00	11/23/14 12:58	1
Toluene	4.5	U	4.5	0.90	ug/Kg	☼	11/22/14 10:00	11/23/14 12:58	1
trans-1,2-Dichloroethene	4.5	U	4.5	2.2	ug/Kg	☼	11/22/14 10:00	11/23/14 12:58	1
trans-1,3-Dichloropropene	4.5	U	4.5	2.2	ug/Kg	☼	11/22/14 10:00	11/23/14 12:58	1
1,2,4-Trichlorobenzene	4.5	U	4.5	1.8	ug/Kg	☼	11/22/14 10:00	11/23/14 12:58	1
1,1,1-Trichloroethane	4.5	U	4.5	0.99	ug/Kg	☼	11/22/14 10:00	11/23/14 12:58	1
1,1,2-Trichloroethane	4.5	U	4.5	2.2	ug/Kg	☼	11/22/14 10:00	11/23/14 12:58	1
Trichloroethene	4.5	U	4.5	0.90	ug/Kg	☼	11/22/14 10:00	11/23/14 12:58	1

Client Sample ID: GP-85(6-7)(111814)
Date Collected: 11/18/14 14:50
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-11
Matrix: Solid
Percent Solids: 84.3

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichlorofluoromethane	4.5	U	4.5	2.2	ug/Kg	☼	11/22/14 10:00	11/23/14 12:58	1
1,1,2-Trichloro-1,2,2-trifluoroethane	4.5	U	4.5	1.8	ug/Kg	☼	11/22/14 10:00	11/23/14 12:58	1
Vinyl chloride	4.5	U	4.5	2.2	ug/Kg	☼	11/22/14 10:00	11/23/14 12:58	1
Xylenes, Total	4.5	U	4.5	0.90	ug/Kg	☼	11/22/14 10:00	11/23/14 12:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*92*		*72 - 122*	*11/22/14 10:00*	*11/23/14 12:58*	*1*
Dibromofluoromethane	*99*		*79 - 123*	*11/22/14 10:00*	*11/23/14 12:58*	*1*
Toluene-d8 (Surr)	*95*		*80 - 120*	*11/22/14 10:00*	*11/23/14 12:58*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzaldehyde	390	U	390	68	ug/Kg	☼	11/20/14 17:27	11/24/14 18:15	1
Phenol	390	U	390	40	ug/Kg	☼	11/20/14 17:27	11/24/14 18:15	1
Bis(2-chloroethyl)ether	390	U	390	53	ug/Kg	☼	11/20/14 17:27	11/24/14 18:15	1
2-Chlorophenol	390	U	390	47	ug/Kg	☼	11/20/14 17:27	11/24/14 18:15	1
2-Methylphenol	390	U	390	32	ug/Kg	☼	11/20/14 17:27	11/24/14 18:15	1
bis (2-chloroisopropyl) ether	390	U	390	35	ug/Kg	☼	11/20/14 17:27	11/24/14 18:15	1
Acetophenone	390	U	390	33	ug/Kg	☼	11/20/14 17:27	11/24/14 18:15	1
3 & 4 Methylphenol	390	U	390	51	ug/Kg	☼	11/20/14 17:27	11/24/14 18:15	1
N-Nitrosodi-n-propylamine	390	U	390	38	ug/Kg	☼	11/20/14 17:27	11/24/14 18:15	1
Hexachloroethane	390	U	390	33	ug/Kg	☼	11/20/14 17:27	11/24/14 18:15	1
Nitrobenzene	390	U	390	31	ug/Kg	☼	11/20/14 17:27	11/24/14 18:15	1
Isophorone	390	U	390	39	ug/Kg	☼	11/20/14 17:27	11/24/14 18:15	1
2-Nitrophenol	390	U	390	48	ug/Kg	☼	11/20/14 17:27	11/24/14 18:15	1
2,4-Dimethylphenol	390	U	390	52	ug/Kg	☼	11/20/14 17:27	11/24/14 18:15	1
Bis(2-chloroethoxy)methane	390	U	390	46	ug/Kg	☼	11/20/14 17:27	11/24/14 18:15	1
2,4-Dichlorophenol	390	U	390	41	ug/Kg	☼	11/20/14 17:27	11/24/14 18:15	1
Naphthalene	390	U	390	35	ug/Kg	☼	11/20/14 17:27	11/24/14 18:15	1
4-Chloroaniline	780	U	780	61	ug/Kg	☼	11/20/14 17:27	11/24/14 18:15	1
Hexachlorobutadiene	390	U	390	42	ug/Kg	☼	11/20/14 17:27	11/24/14 18:15	1
Caprolactam	390	U	390	78	ug/Kg	☼	11/20/14 17:27	11/24/14 18:15	1
4-Chloro-3-methylphenol	390	U	390	41	ug/Kg	☼	11/20/14 17:27	11/24/14 18:15	1
2-Methylnaphthalene	390	U	390	45	ug/Kg	☼	11/20/14 17:27	11/24/14 18:15	1
Hexachlorocyclopentadiene	390	U	390	48	ug/Kg	☼	11/20/14 17:27	11/24/14 18:15	1
2,4,6-Trichlorophenol	390	U	390	34	ug/Kg	☼	11/20/14 17:27	11/24/14 18:15	1
2,4,5-Trichlorophenol	390	U	390	41	ug/Kg	☼	11/20/14 17:27	11/24/14 18:15	1
1,1'-Biphenyl	2000	U	2000	2000	ug/Kg	☼	11/20/14 17:27	11/24/14 18:15	1
2-Chloronaphthalene	390	U	390	41	ug/Kg	☼	11/20/14 17:27	11/24/14 18:15	1
2-Nitroaniline	2000	U	2000	53	ug/Kg	☼	11/20/14 17:27	11/24/14 18:15	1
Dimethyl phthalate	390	U	390	40	ug/Kg	☼	11/20/14 17:27	11/24/14 18:15	1
2,6-Dinitrotoluene	390	U	390	49	ug/Kg	☼	11/20/14 17:27	11/24/14 18:15	1
Acenaphthylene	390	U	390	42	ug/Kg	☼	11/20/14 17:27	11/24/14 18:15	1
3-Nitroaniline	2000	U	2000	54	ug/Kg	☼	11/20/14 17:27	11/24/14 18:15	1
Acenaphthene	390	U	390	48	ug/Kg	☼	11/20/14 17:27	11/24/14 18:15	1
2,4-Dinitrophenol	2000	U	2000	980	ug/Kg	☼	11/20/14 17:27	11/24/14 18:15	1
4-Nitrophenol	2000	U	2000	390	ug/Kg	☼	11/20/14 17:27	11/24/14 18:15	1
Dibenzofuran	390	U	390	39	ug/Kg	☼	11/20/14 17:27	11/24/14 18:15	1
2,4-Dinitrotoluene	390	U	390	58	ug/Kg	☼	11/20/14 17:27	11/24/14 18:15	1
Diethyl phthalate	390	U	390	44	ug/Kg	☼	11/20/14 17:27	11/24/14 18:15	1

Client: ARCADIS U.S., Inc.
Project/Site: CSX C&O Canal Brunswick, MD

TestAmerica Job ID: 680-107453-1

Client Sample ID: GP-85(6-7)(111814)
Date Collected: 11/18/14 14:50
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-11
Matrix: Solid
Percent Solids: 84.3

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluorene	390	U	390	42	ug/Kg	☼	11/20/14 17:27	11/24/14 18:15	1
4-Chlorophenyl phenyl ether	390	U	390	52	ug/Kg	☼	11/20/14 17:27	11/24/14 18:15	1
4-Nitroaniline	2000	U	2000	58	ug/Kg	☼	11/20/14 17:27	11/24/14 18:15	1
4,6-Dinitro-2-methylphenol	2000	U	2000	200	ug/Kg	☼	11/20/14 17:27	11/24/14 18:15	1
N-Nitrosodiphenylamine	390	U	390	39	ug/Kg	☼	11/20/14 17:27	11/24/14 18:15	1
4-Bromophenyl phenyl ether	390	U	390	42	ug/Kg	☼	11/20/14 17:27	11/24/14 18:15	1
Hexachlorobenzene	390	U	390	46	ug/Kg	☼	11/20/14 17:27	11/24/14 18:15	1
Atrazine	390	U	390	27	ug/Kg	☼	11/20/14 17:27	11/24/14 18:15	1
Pentachlorophenol	2000	U	2000	390	ug/Kg	☼	11/20/14 17:27	11/24/14 18:15	1
Phenanthrene	390	U	390	32	ug/Kg	☼	11/20/14 17:27	11/24/14 18:15	1
Anthracene	390	U	390	29	ug/Kg	☼	11/20/14 17:27	11/24/14 18:15	1
Carbazole	390	U	390	35	ug/Kg	☼	11/20/14 17:27	11/24/14 18:15	1
Di-n-butyl phthalate	390	U	390	35	ug/Kg	☼	11/20/14 17:27	11/24/14 18:15	1
Fluoranthene	390	U	390	38	ug/Kg	☼	11/20/14 17:27	11/24/14 18:15	1
Pyrene	390	U	390	32	ug/Kg	☼	11/20/14 17:27	11/24/14 18:15	1
Butyl benzyl phthalate	390	U	390	31	ug/Kg	☼	11/20/14 17:27	11/24/14 18:15	1
3,3'-Dichlorobenzidine	780	U	780	33	ug/Kg	☼	11/20/14 17:27	11/24/14 18:15	1
Benzo[a]anthracene	390	U	390	32	ug/Kg	☼	11/20/14 17:27	11/24/14 18:15	1
Chrysene	390	U	390	25	ug/Kg	☼	11/20/14 17:27	11/24/14 18:15	1
Bis(2-ethylhexyl) phthalate	390	U	390	34	ug/Kg	☼	11/20/14 17:27	11/24/14 18:15	1
Di-n-octyl phthalate	390	U	390	34	ug/Kg	☼	11/20/14 17:27	11/24/14 18:15	1
Benzo[b]fluoranthene	390	U	390	45	ug/Kg	☼	11/20/14 17:27	11/24/14 18:15	1
Benzo[k]fluoranthene	390	U	390	76	ug/Kg	☼	11/20/14 17:27	11/24/14 18:15	1
Benzo[a]pyrene	390	U	390	61	ug/Kg	☼	11/20/14 17:27	11/24/14 18:15	1
Indeno[1,2,3-cd]pyrene	390	U	390	33	ug/Kg	☼	11/20/14 17:27	11/24/14 18:15	1
Dibenz(a,h)anthracene	390	U	390	46	ug/Kg	☼	11/20/14 17:27	11/24/14 18:15	1
Benzo[g,h,i]perylene	390	U	390	26	ug/Kg	☼	11/20/14 17:27	11/24/14 18:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*64*		*37 - 115*	*11/20/14 17:27*	*11/24/14 18:15*	*1*
2-Fluorobiphenyl	*76*		*41 - 116*	*11/20/14 17:27*	*11/24/14 18:15*	*1*
Terphenyl-d14 (Surr)	*86*		*46 - 126*	*11/20/14 17:27*	*11/24/14 18:15*	*1*
Phenol-d5 (Surr)	*72*		*38 - 122*	*11/20/14 17:27*	*11/24/14 18:15*	*1*
2-Fluorophenol (Surr)	*75*		*39 - 114*	*11/20/14 17:27*	*11/24/14 18:15*	*1*
2,4,6-Tribromophenol (Surr)	*87*		*45 - 129*	*11/20/14 17:27*	*11/24/14 18:15*	*1*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Gasoline Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**0.22**	**J**	0.25	0.019	mg/Kg	☼	11/20/14 16:38	11/22/14 20:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*85*		*70 - 131*	*11/20/14 16:38*	*11/22/14 20:35*	*1*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	3.9	U	3.9	2.5	mg/Kg	☼	11/20/14 15:52	11/21/14 20:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*64*		*45 - 130*	*11/20/14 15:52*	*11/21/14 20:54*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: CSX C&O Canal Brunswick, MD

TestAmerica Job ID: 680-107453-1

Client Sample ID: GP-85(15.5-16.5)(111814)
Date Collected: 11/18/14 15:00
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-12
Matrix: Solid
Percent Solids: 84.0

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	**30**		26	7.6	ug/Kg	☼	11/22/14 10:00	11/23/14 13:23	1
Benzene	5.2	U	5.2	1.1	ug/Kg	☼	11/22/14 10:00	11/23/14 13:23	1
Bromodichloromethane	5.2	U	5.2	2.6	ug/Kg	☼	11/22/14 10:00	11/23/14 13:23	1
Bromoform	5.2	U	5.2	2.6	ug/Kg	☼	11/22/14 10:00	11/23/14 13:23	1
Bromomethane	5.2	U	5.2	2.6	ug/Kg	☼	11/22/14 10:00	11/23/14 13:23	1
Carbon disulfide	5.2	U	5.2	2.6	ug/Kg	☼	11/22/14 10:00	11/23/14 13:23	1
Carbon tetrachloride	5.2	U	5.2	1.8	ug/Kg	☼	11/22/14 10:00	11/23/14 13:23	1
Chlorobenzene	5.2	U	5.2	0.54	ug/Kg	☼	11/22/14 10:00	11/23/14 13:23	1
Chloroethane	5.2	U	5.2	2.6	ug/Kg	☼	11/22/14 10:00	11/23/14 13:23	1
Chloroform	5.2	U	5.2	2.6	ug/Kg	☼	11/22/14 10:00	11/23/14 13:23	1
Chloromethane	5.2	U	5.2	1.0	ug/Kg	☼	11/22/14 10:00	11/23/14 13:23	1
cis-1,2-Dichloroethene	5.2	U	5.2	0.79	ug/Kg	☼	11/22/14 10:00	11/23/14 13:23	1
cis-1,3-Dichloropropene	5.2	U	5.2	1.3	ug/Kg	☼	11/22/14 10:00	11/23/14 13:23	1
Cyclohexane	5.2	U	5.2	0.98	ug/Kg	☼	11/22/14 10:00	11/23/14 13:23	1
Dibromochloromethane	5.2	U	5.2	2.6	ug/Kg	☼	11/22/14 10:00	11/23/14 13:23	1
1,2-Dibromo-3-Chloropropane	5.2	U	5.2	3.4	ug/Kg	☼	11/22/14 10:00	11/23/14 13:23	1
1,2-Dichlorobenzene	5.2	U	5.2	0.74	ug/Kg	☼	11/22/14 10:00	11/23/14 13:23	1
1,3-Dichlorobenzene	5.2	U	5.2	0.99	ug/Kg	☼	11/22/14 10:00	11/23/14 13:23	1
1,4-Dichlorobenzene	5.2	U	5.2	2.6	ug/Kg	☼	11/22/14 10:00	11/23/14 13:23	1
Dichlorodifluoromethane	5.2	U	5.2	1.4	ug/Kg	☼	11/22/14 10:00	11/23/14 13:23	1
1,1-Dichloroethane	5.2	U	5.2	0.87	ug/Kg	☼	11/22/14 10:00	11/23/14 13:23	1
1,2-Dichloroethane	5.2	U	5.2	0.86	ug/Kg	☼	11/22/14 10:00	11/23/14 13:23	1
1,1-Dichloroethene	5.2	U	5.2	2.6	ug/Kg	☼	11/22/14 10:00	11/23/14 13:23	1
1,2-Dichloropropane	5.2	U	5.2	2.6	ug/Kg	☼	11/22/14 10:00	11/23/14 13:23	1
Diisopropyl ether	5.2	U	5.2	0.57	ug/Kg	☼	11/22/14 10:00	11/23/14 13:23	1
Ethylbenzene	5.2	U	5.2	0.64	ug/Kg	☼	11/22/14 10:00	11/23/14 13:23	1
Ethylene Dibromide	5.2	U	5.2	1.0	ug/Kg	☼	11/22/14 10:00	11/23/14 13:23	1
Ethyl tert-butyl ether	5.2	U	5.2	2.6	ug/Kg	☼	11/22/14 10:00	11/23/14 13:23	1
2-Hexanone	26	U	26	5.2	ug/Kg	☼	11/22/14 10:00	11/23/14 13:23	1
Isopropylbenzene	5.2	U	5.2	0.71	ug/Kg	☼	11/22/14 10:00	11/23/14 13:23	1
Methyl acetate	5.2	U	5.2	4.8	ug/Kg	☼	11/22/14 10:00	11/23/14 13:23	1
Methylcyclohexane	5.2	U	5.2	1.6	ug/Kg	☼	11/22/14 10:00	11/23/14 13:23	1
Methylene Chloride	16	U	16	10	ug/Kg	☼	11/22/14 10:00	11/23/14 13:23	1
Methyl Ethyl Ketone	26	U	26	6.3	ug/Kg	☼	11/22/14 10:00	11/23/14 13:23	1
methyl isobutyl ketone	26	U	26	5.2	ug/Kg	☼	11/22/14 10:00	11/23/14 13:23	1
Methyl tert-butyl ether	5.2	U	5.2	1.0	ug/Kg	☼	11/22/14 10:00	11/23/14 13:23	1
Naphthalene	5.2	U	5.2	2.1	ug/Kg	☼	11/22/14 10:00	11/23/14 13:23	1
Styrene	5.2	U	5.2	1.0	ug/Kg	☼	11/22/14 10:00	11/23/14 13:23	1
Tert-amyl methyl ether	5.2	U	5.2	1.0	ug/Kg	☼	11/22/14 10:00	11/23/14 13:23	1
tert-Butyl alcohol	**11**		10	8.3	ug/Kg	☼	11/22/14 10:00	11/23/14 13:23	1
1,1,2,2-Tetrachloroethane	5.2	U	5.2	2.6	ug/Kg	☼	11/22/14 10:00	11/23/14 13:23	1
Tetrachloroethene	5.2	U	5.2	2.6	ug/Kg	☼	11/22/14 10:00	11/23/14 13:23	1
Toluene	5.2	U	5.2	1.0	ug/Kg	☼	11/22/14 10:00	11/23/14 13:23	1
trans-1,2-Dichloroethene	5.2	U	5.2	2.6	ug/Kg	☼	11/22/14 10:00	11/23/14 13:23	1
trans-1,3-Dichloropropene	5.2	U	5.2	2.6	ug/Kg	☼	11/22/14 10:00	11/23/14 13:23	1
1,2,4-Trichlorobenzene	5.2	U	5.2	2.1	ug/Kg	☼	11/22/14 10:00	11/23/14 13:23	1
1,1,1-Trichloroethane	5.2	U	5.2	1.1	ug/Kg	☼	11/22/14 10:00	11/23/14 13:23	1
1,1,2-Trichloroethane	5.2	U	5.2	2.6	ug/Kg	☼	11/22/14 10:00	11/23/14 13:23	1
Trichloroethene	5.2	U	5.2	1.0	ug/Kg	☼	11/22/14 10:00	11/23/14 13:23	1

Client Sample ID: GP-85(15.5-16.5)(111814)
Date Collected: 11/18/14 15:00
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-12
Matrix: Solid
Percent Solids: 84.0

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichlorofluoromethane	5.2	U	5.2	2.6	ug/Kg	☼	11/22/14 10:00	11/23/14 13:23	1
1,1,2-Trichloro-1,2,2-trifluoroethane	5.2	U	5.2	2.1	ug/Kg	☼	11/22/14 10:00	11/23/14 13:23	1
Vinyl chloride	5.2	U	5.2	2.6	ug/Kg	☼	11/22/14 10:00	11/23/14 13:23	1
Xylenes, Total	5.2	U	5.2	1.0	ug/Kg	☼	11/22/14 10:00	11/23/14 13:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*87*		*72 - 122*	*11/22/14 10:00*	*11/23/14 13:23*	*1*
Dibromofluoromethane	*101*		*79 - 123*	*11/22/14 10:00*	*11/23/14 13:23*	*1*
Toluene-d8 (Surr)	*92*		*80 - 120*	*11/22/14 10:00*	*11/23/14 13:23*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzaldehyde	390	U	390	69	ug/Kg	☼	11/20/14 17:27	11/24/14 18:40	1
Phenol	390	U	390	40	ug/Kg	☼	11/20/14 17:27	11/24/14 18:40	1
Bis(2-chloroethyl)ether	390	U	390	53	ug/Kg	☼	11/20/14 17:27	11/24/14 18:40	1
2-Chlorophenol	390	U	390	47	ug/Kg	☼	11/20/14 17:27	11/24/14 18:40	1
2-Methylphenol	390	U	390	32	ug/Kg	☼	11/20/14 17:27	11/24/14 18:40	1
bis (2-chloroisopropyl) ether	390	U	390	35	ug/Kg	☼	11/20/14 17:27	11/24/14 18:40	1
Acetophenone	390	U	390	33	ug/Kg	☼	11/20/14 17:27	11/24/14 18:40	1
3 & 4 Methylphenol	390	U	390	51	ug/Kg	☼	11/20/14 17:27	11/24/14 18:40	1
N-Nitrosodi-n-propylamine	390	U	390	38	ug/Kg	☼	11/20/14 17:27	11/24/14 18:40	1
Hexachloroethane	390	U	390	33	ug/Kg	☼	11/20/14 17:27	11/24/14 18:40	1
Nitrobenzene	390	U	390	31	ug/Kg	☼	11/20/14 17:27	11/24/14 18:40	1
Isophorone	390	U	390	39	ug/Kg	☼	11/20/14 17:27	11/24/14 18:40	1
2-Nitrophenol	390	U	390	49	ug/Kg	☼	11/20/14 17:27	11/24/14 18:40	1
2,4-Dimethylphenol	390	U	390	52	ug/Kg	☼	11/20/14 17:27	11/24/14 18:40	1
Bis(2-chloroethoxy)methane	390	U	390	46	ug/Kg	☼	11/20/14 17:27	11/24/14 18:40	1
2,4-Dichlorophenol	390	U	390	41	ug/Kg	☼	11/20/14 17:27	11/24/14 18:40	1
Naphthalene	390	U	390	35	ug/Kg	☼	11/20/14 17:27	11/24/14 18:40	1
4-Chloroaniline	780	U	780	62	ug/Kg	☼	11/20/14 17:27	11/24/14 18:40	1
Hexachlorobutadiene	390	U	390	43	ug/Kg	☼	11/20/14 17:27	11/24/14 18:40	1
Caprolactam	390	U	390	78	ug/Kg	☼	11/20/14 17:27	11/24/14 18:40	1
4-Chloro-3-methylphenol	390	U	390	41	ug/Kg	☼	11/20/14 17:27	11/24/14 18:40	1
2-Methylnaphthalene	390	U	390	45	ug/Kg	☼	11/20/14 17:27	11/24/14 18:40	1
Hexachlorocyclopentadiene	390	U	390	49	ug/Kg	☼	11/20/14 17:27	11/24/14 18:40	1
2,4,6-Trichlorophenol	390	U	390	34	ug/Kg	☼	11/20/14 17:27	11/24/14 18:40	1
2,4,5-Trichlorophenol	390	U	390	41	ug/Kg	☼	11/20/14 17:27	11/24/14 18:40	1
1,1'-Biphenyl	2000	U	2000	2000	ug/Kg	☼	11/20/14 17:27	11/24/14 18:40	1
2-Chloronaphthalene	390	U	390	41	ug/Kg	☼	11/20/14 17:27	11/24/14 18:40	1
2-Nitroaniline	2000	U	2000	53	ug/Kg	☼	11/20/14 17:27	11/24/14 18:40	1
Dimethyl phthalate	390	U	390	40	ug/Kg	☼	11/20/14 17:27	11/24/14 18:40	1
2,6-Dinitrotoluene	390	U	390	50	ug/Kg	☼	11/20/14 17:27	11/24/14 18:40	1
Acenaphthylene	390	U	390	43	ug/Kg	☼	11/20/14 17:27	11/24/14 18:40	1
3-Nitroaniline	2000	U	2000	54	ug/Kg	☼	11/20/14 17:27	11/24/14 18:40	1
Acenaphthene	390	U	390	49	ug/Kg	☼	11/20/14 17:27	11/24/14 18:40	1
2,4-Dinitrophenol	2000	U	2000	980	ug/Kg	☼	11/20/14 17:27	11/24/14 18:40	1
4-Nitrophenol	2000	U	2000	390	ug/Kg	☼	11/20/14 17:27	11/24/14 18:40	1
Dibenzofuran	390	U	390	39	ug/Kg	☼	11/20/14 17:27	11/24/14 18:40	1
2,4-Dinitrotoluene	390	U	390	58	ug/Kg	☼	11/20/14 17:27	11/24/14 18:40	1
Diethyl phthalate	390	U	390	44	ug/Kg	☼	11/20/14 17:27	11/24/14 18:40	1

Client Sample ID: GP-85(15.5-16.5)(111814)
Date Collected: 11/18/14 15:00
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-12
Matrix: Solid
Percent Solids: 84.0

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluorene	390	U	390	43	ug/Kg	☼	11/20/14 17:27	11/24/14 18:40	1
4-Chlorophenyl phenyl ether	390	U	390	52	ug/Kg	☼	11/20/14 17:27	11/24/14 18:40	1
4-Nitroaniline	2000	U	2000	58	ug/Kg	☼	11/20/14 17:27	11/24/14 18:40	1
4,6-Dinitro-2-methylphenol	2000	U	2000	200	ug/Kg	☼	11/20/14 17:27	11/24/14 18:40	1
N-Nitrosodiphenylamine	390	U	390	39	ug/Kg	☼	11/20/14 17:27	11/24/14 18:40	1
4-Bromophenyl phenyl ether	390	U	390	43	ug/Kg	☼	11/20/14 17:27	11/24/14 18:40	1
Hexachlorobenzene	390	U	390	46	ug/Kg	☼	11/20/14 17:27	11/24/14 18:40	1
Atrazine	390	U	390	27	ug/Kg	☼	11/20/14 17:27	11/24/14 18:40	1
Pentachlorophenol	2000	U	2000	390	ug/Kg	☼	11/20/14 17:27	11/24/14 18:40	1
Phenanthrene	390	U	390	32	ug/Kg	☼	11/20/14 17:27	11/24/14 18:40	1
Anthracene	390	U	390	30	ug/Kg	☼	11/20/14 17:27	11/24/14 18:40	1
Carbazole	390	U	390	35	ug/Kg	☼	11/20/14 17:27	11/24/14 18:40	1
Di-n-butyl phthalate	390	U	390	35	ug/Kg	☼	11/20/14 17:27	11/24/14 18:40	1
Fluoranthene	390	U	390	38	ug/Kg	☼	11/20/14 17:27	11/24/14 18:40	1
Pyrene	390	U	390	32	ug/Kg	☼	11/20/14 17:27	11/24/14 18:40	1
Butyl benzyl phthalate	390	U	390	31	ug/Kg	☼	11/20/14 17:27	11/24/14 18:40	1
3,3'-Dichlorobenzidine	780	U	780	33	ug/Kg	☼	11/20/14 17:27	11/24/14 18:40	1
Benzo[a]anthracene	390	U	390	32	ug/Kg	☼	11/20/14 17:27	11/24/14 18:40	1
Chrysene	390	U	390	25	ug/Kg	☼	11/20/14 17:27	11/24/14 18:40	1
Bis(2-ethylhexyl) phthalate	390	U	390	34	ug/Kg	☼	11/20/14 17:27	11/24/14 18:40	1
Di-n-octyl phthalate	390	U	390	34	ug/Kg	☼	11/20/14 17:27	11/24/14 18:40	1
Benzo[b]fluoranthene	390	U	390	45	ug/Kg	☼	11/20/14 17:27	11/24/14 18:40	1
Benzo[k]fluoranthene	390	U	390	77	ug/Kg	☼	11/20/14 17:27	11/24/14 18:40	1
Benzo[a]pyrene	390	U	390	62	ug/Kg	☼	11/20/14 17:27	11/24/14 18:40	1
Indeno[1,2,3-cd]pyrene	390	U	390	33	ug/Kg	☼	11/20/14 17:27	11/24/14 18:40	1
Dibenz(a,h)anthracene	390	U	390	46	ug/Kg	☼	11/20/14 17:27	11/24/14 18:40	1
Benzo[g,h,i]perylene	390	U	390	26	ug/Kg	☼	11/20/14 17:27	11/24/14 18:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*67*		*37 - 115*	*11/20/14 17:27*	*11/24/14 18:40*	*1*
2-Fluorobiphenyl	*75*		*41 - 116*	*11/20/14 17:27*	*11/24/14 18:40*	*1*
Terphenyl-d14 (Surr)	*81*		*46 - 126*	*11/20/14 17:27*	*11/24/14 18:40*	*1*
Phenol-d5 (Surr)	*68*		*38 - 122*	*11/20/14 17:27*	*11/24/14 18:40*	*1*
2-Fluorophenol (Surr)	*69*		*39 - 114*	*11/20/14 17:27*	*11/24/14 18:40*	*1*
2,4,6-Tribromophenol (Surr)	*85*		*45 - 129*	*11/20/14 17:27*	*11/24/14 18:40*	*1*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Gasoline Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**0.091**	**J**	0.23	0.017	mg/Kg	☼	11/20/14 16:38	11/22/14 20:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*97*		*70 - 131*	*11/20/14 16:38*	*11/22/14 20:57*	*1*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**4.1**		3.9	2.5	mg/Kg	☼	11/20/14 15:52	11/21/14 21:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*55*		*45 - 130*	*11/20/14 15:52*	*11/21/14 21:08*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: CSX C&O Canal Brunswick, MD

TestAmerica Job ID: 680-107453-1

Client Sample ID: GP-86(14-15)(111814)
Date Collected: 11/18/14 15:55
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-13
Matrix: Solid
Percent Solids: 88.4

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	16	J	22	6.5	ug/Kg	☼	11/22/14 10:00	11/23/14 13:47	1
Benzene	4.5	U	4.5	0.98	ug/Kg	☼	11/22/14 10:00	11/23/14 13:47	1
Bromodichloromethane	4.5	U	4.5	2.2	ug/Kg	☼	11/22/14 10:00	11/23/14 13:47	1
Bromoform	4.5	U	4.5	2.2	ug/Kg	☼	11/22/14 10:00	11/23/14 13:47	1
Bromomethane	4.5	U	4.5	2.2	ug/Kg	☼	11/22/14 10:00	11/23/14 13:47	1
Carbon disulfide	4.5	U	4.5	2.2	ug/Kg	☼	11/22/14 10:00	11/23/14 13:47	1
Carbon tetrachloride	4.5	U	4.5	1.5	ug/Kg	☼	11/22/14 10:00	11/23/14 13:47	1
Chlorobenzene	4.5	U	4.5	0.46	ug/Kg	☼	11/22/14 10:00	11/23/14 13:47	1
Chloroethane	4.5	U	4.5	2.2	ug/Kg	☼	11/22/14 10:00	11/23/14 13:47	1
Chloroform	4.5	U	4.5	2.2	ug/Kg	☼	11/22/14 10:00	11/23/14 13:47	1
Chloromethane	4.5	U	4.5	0.89	ug/Kg	☼	11/22/14 10:00	11/23/14 13:47	1
cis-1,2-Dichloroethene	4.5	U	4.5	0.68	ug/Kg	☼	11/22/14 10:00	11/23/14 13:47	1
cis-1,3-Dichloropropene	4.5	U	4.5	1.1	ug/Kg	☼	11/22/14 10:00	11/23/14 13:47	1
Cyclohexane	4.5	U	4.5	0.84	ug/Kg	☼	11/22/14 10:00	11/23/14 13:47	1
Dibromochloromethane	4.5	U	4.5	2.2	ug/Kg	☼	11/22/14 10:00	11/23/14 13:47	1
1,2-Dibromo-3-Chloropropane	4.5	U	4.5	2.9	ug/Kg	☼	11/22/14 10:00	11/23/14 13:47	1
1,2-Dichlorobenzene	4.5	U	4.5	0.63	ug/Kg	☼	11/22/14 10:00	11/23/14 13:47	1
1,3-Dichlorobenzene	4.5	U	4.5	0.85	ug/Kg	☼	11/22/14 10:00	11/23/14 13:47	1
1,4-Dichlorobenzene	4.5	U	4.5	2.2	ug/Kg	☼	11/22/14 10:00	11/23/14 13:47	1
Dichlorodifluoromethane	4.5	U	4.5	1.2	ug/Kg	☼	11/22/14 10:00	11/23/14 13:47	1
1,1-Dichloroethane	4.5	U	4.5	0.74	ug/Kg	☼	11/22/14 10:00	11/23/14 13:47	1
1,2-Dichloroethane	4.5	U	4.5	0.73	ug/Kg	☼	11/22/14 10:00	11/23/14 13:47	1
1,1-Dichloroethene	4.5	U	4.5	2.2	ug/Kg	☼	11/22/14 10:00	11/23/14 13:47	1
1,2-Dichloropropane	4.5	U	4.5	2.2	ug/Kg	☼	11/22/14 10:00	11/23/14 13:47	1
Diisopropyl ether	4.5	U	4.5	0.49	ug/Kg	☼	11/22/14 10:00	11/23/14 13:47	1
Ethylbenzene	4.5	U	4.5	0.54	ug/Kg	☼	11/22/14 10:00	11/23/14 13:47	1
Ethylene Dibromide	4.5	U	4.5	0.89	ug/Kg	☼	11/22/14 10:00	11/23/14 13:47	1
Ethyl tert-butyl ether	4.5	U	4.5	2.2	ug/Kg	☼	11/22/14 10:00	11/23/14 13:47	1
2-Hexanone	22	U	22	4.5	ug/Kg	☼	11/22/14 10:00	11/23/14 13:47	1
Isopropylbenzene	4.5	U	4.5	0.61	ug/Kg	☼	11/22/14 10:00	11/23/14 13:47	1
Methyl acetate	4.5	U	4.5	4.1	ug/Kg	☼	11/22/14 10:00	11/23/14 13:47	1
Methylcyclohexane	4.5	U	4.5	1.3	ug/Kg	☼	11/22/14 10:00	11/23/14 13:47	1
Methylene Chloride	13	U	13	8.9	ug/Kg	☼	11/22/14 10:00	11/23/14 13:47	1
Methyl Ethyl Ketone	22	U	22	5.3	ug/Kg	☼	11/22/14 10:00	11/23/14 13:47	1
methyl isobutyl ketone	22	U	22	4.5	ug/Kg	☼	11/22/14 10:00	11/23/14 13:47	1
Methyl tert-butyl ether	4.5	U	4.5	0.89	ug/Kg	☼	11/22/14 10:00	11/23/14 13:47	1
Naphthalene	4.5	U	4.5	1.8	ug/Kg	☼	11/22/14 10:00	11/23/14 13:47	1
Styrene	4.5	U	4.5	0.89	ug/Kg	☼	11/22/14 10:00	11/23/14 13:47	1
Tert-amyl methyl ether	4.5	U	4.5	0.89	ug/Kg	☼	11/22/14 10:00	11/23/14 13:47	1
tert-Butyl alcohol	8.9	U	8.9	7.1	ug/Kg	☼	11/22/14 10:00	11/23/14 13:47	1
1,1,2,2-Tetrachloroethane	4.5	U	4.5	2.2	ug/Kg	☼	11/22/14 10:00	11/23/14 13:47	1
Tetrachloroethene	4.5	U	4.5	2.2	ug/Kg	☼	11/22/14 10:00	11/23/14 13:47	1
Toluene	4.5	U	4.5	0.89	ug/Kg	☼	11/22/14 10:00	11/23/14 13:47	1
trans-1,2-Dichloroethene	4.5	U	4.5	2.2	ug/Kg	☼	11/22/14 10:00	11/23/14 13:47	1
trans-1,3-Dichloropropene	4.5	U	4.5	2.2	ug/Kg	☼	11/22/14 10:00	11/23/14 13:47	1
1,2,4-Trichlorobenzene	4.5	U	4.5	1.8	ug/Kg	☼	11/22/14 10:00	11/23/14 13:47	1
1,1,1-Trichloroethane	4.5	U	4.5	0.98	ug/Kg	☼	11/22/14 10:00	11/23/14 13:47	1
1,1,2-Trichloroethane	4.5	U	4.5	2.2	ug/Kg	☼	11/22/14 10:00	11/23/14 13:47	1
Trichloroethene	4.5	U	4.5	0.89	ug/Kg	☼	11/22/14 10:00	11/23/14 13:47	1

Client Sample ID: GP-86(14-15)(111814)
Date Collected: 11/18/14 15:55
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-13
Matrix: Solid
Percent Solids: 88.4

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichlorofluoromethane	4.5	U	4.5	2.2	ug/Kg	☼	11/22/14 10:00	11/23/14 13:47	1
1,1,2-Trichloro-1,2,2-trifluoroethane	4.5	U	4.5	1.8	ug/Kg	☼	11/22/14 10:00	11/23/14 13:47	1
Vinyl chloride	4.5	U	4.5	2.2	ug/Kg	☼	11/22/14 10:00	11/23/14 13:47	1
Xylenes, Total	4.5	U	4.5	0.89	ug/Kg	☼	11/22/14 10:00	11/23/14 13:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*93*		*72 - 122*	*11/22/14 10:00*	*11/23/14 13:47*	*1*
Dibromofluoromethane	*99*		*79 - 123*	*11/22/14 10:00*	*11/23/14 13:47*	*1*
Toluene-d8 (Surr)	*96*		*80 - 120*	*11/22/14 10:00*	*11/23/14 13:47*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzaldehyde	370	U	370	65	ug/Kg	☼	11/20/14 17:27	11/24/14 19:05	1
Phenol	370	U	370	38	ug/Kg	☼	11/20/14 17:27	11/24/14 19:05	1
Bis(2-chloroethyl)ether	370	U	370	51	ug/Kg	☼	11/20/14 17:27	11/24/14 19:05	1
2-Chlorophenol	370	U	370	45	ug/Kg	☼	11/20/14 17:27	11/24/14 19:05	1
2-Methylphenol	370	U	370	30	ug/Kg	☼	11/20/14 17:27	11/24/14 19:05	1
bis (2-chloroisopropyl) ether	370	U	370	34	ug/Kg	☼	11/20/14 17:27	11/24/14 19:05	1
Acetophenone	370	U	370	31	ug/Kg	☼	11/20/14 17:27	11/24/14 19:05	1
3 & 4 Methylphenol	370	U	370	48	ug/Kg	☼	11/20/14 17:27	11/24/14 19:05	1
N-Nitrosodi-n-propylamine	370	U	370	36	ug/Kg	☼	11/20/14 17:27	11/24/14 19:05	1
Hexachloroethane	370	U	370	31	ug/Kg	☼	11/20/14 17:27	11/24/14 19:05	1
Nitrobenzene	370	U	370	29	ug/Kg	☼	11/20/14 17:27	11/24/14 19:05	1
Isophorone	370	U	370	37	ug/Kg	☼	11/20/14 17:27	11/24/14 19:05	1
2-Nitrophenol	370	U	370	46	ug/Kg	☼	11/20/14 17:27	11/24/14 19:05	1
2,4-Dimethylphenol	370	U	370	49	ug/Kg	☼	11/20/14 17:27	11/24/14 19:05	1
Bis(2-chloroethoxy)methane	370	U	370	44	ug/Kg	☼	11/20/14 17:27	11/24/14 19:05	1
2,4-Dichlorophenol	370	U	370	39	ug/Kg	☼	11/20/14 17:27	11/24/14 19:05	1
Naphthalene	370	U	370	34	ug/Kg	☼	11/20/14 17:27	11/24/14 19:05	1
4-Chloroaniline	740	U	740	58	ug/Kg	☼	11/20/14 17:27	11/24/14 19:05	1
Hexachlorobutadiene	370	U	370	40	ug/Kg	☼	11/20/14 17:27	11/24/14 19:05	1
Caprolactam	370	U	370	74	ug/Kg	☼	11/20/14 17:27	11/24/14 19:05	1
4-Chloro-3-methylphenol	370	U	370	39	ug/Kg	☼	11/20/14 17:27	11/24/14 19:05	1
2-Methylnaphthalene	370	U	370	43	ug/Kg	☼	11/20/14 17:27	11/24/14 19:05	1
Hexachlorocyclopentadiene	370	U	370	46	ug/Kg	☼	11/20/14 17:27	11/24/14 19:05	1
2,4,6-Trichlorophenol	370	U	370	33	ug/Kg	☼	11/20/14 17:27	11/24/14 19:05	1
2,4,5-Trichlorophenol	370	U	370	39	ug/Kg	☼	11/20/14 17:27	11/24/14 19:05	1
1,1'-Biphenyl	1900	U	1900	1900	ug/Kg	☼	11/20/14 17:27	11/24/14 19:05	1
2-Chloronaphthalene	370	U	370	39	ug/Kg	☼	11/20/14 17:27	11/24/14 19:05	1
2-Nitroaniline	1900	U	1900	51	ug/Kg	☼	11/20/14 17:27	11/24/14 19:05	1
Dimethyl phthalate	370	U	370	38	ug/Kg	☼	11/20/14 17:27	11/24/14 19:05	1
2,6-Dinitrotoluene	370	U	370	47	ug/Kg	☼	11/20/14 17:27	11/24/14 19:05	1
Acenaphthylene	370	U	370	40	ug/Kg	☼	11/20/14 17:27	11/24/14 19:05	1
3-Nitroaniline	1900	U	1900	52	ug/Kg	☼	11/20/14 17:27	11/24/14 19:05	1
Acenaphthene	370	U	370	46	ug/Kg	☼	11/20/14 17:27	11/24/14 19:05	1
2,4-Dinitrophenol	1900	U	1900	930	ug/Kg	☼	11/20/14 17:27	11/24/14 19:05	1
4-Nitrophenol	1900	U	1900	370	ug/Kg	☼	11/20/14 17:27	11/24/14 19:05	1
Dibenzofuran	370	U	370	37	ug/Kg	☼	11/20/14 17:27	11/24/14 19:05	1
2,4-Dinitrotoluene	370	U	370	55	ug/Kg	☼	11/20/14 17:27	11/24/14 19:05	1
Diethyl phthalate	370	U	370	42	ug/Kg	☼	11/20/14 17:27	11/24/14 19:05	1

Client Sample ID: GP-86(14-15)(111814)
Date Collected: 11/18/14 15:55
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-13
Matrix: Solid
Percent Solids: 88.4

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluorene	370	U	370	40	ug/Kg	☼	11/20/14 17:27	11/24/14 19:05	1
4-Chlorophenyl phenyl ether	370	U	370	49	ug/Kg	☼	11/20/14 17:27	11/24/14 19:05	1
4-Nitroaniline	1900	U	1900	55	ug/Kg	☼	11/20/14 17:27	11/24/14 19:05	1
4,6-Dinitro-2-methylphenol	1900	U	1900	190	ug/Kg	☼	11/20/14 17:27	11/24/14 19:05	1
N-Nitrosodiphenylamine	370	U	370	37	ug/Kg	☼	11/20/14 17:27	11/24/14 19:05	1
4-Bromophenyl phenyl ether	370	U	370	40	ug/Kg	☼	11/20/14 17:27	11/24/14 19:05	1
Hexachlorobenzene	370	U	370	44	ug/Kg	☼	11/20/14 17:27	11/24/14 19:05	1
Atrazine	370	U	370	26	ug/Kg	☼	11/20/14 17:27	11/24/14 19:05	1
Pentachlorophenol	1900	U	1900	370	ug/Kg	☼	11/20/14 17:27	11/24/14 19:05	1
Phenanthrene	370	U	370	30	ug/Kg	☼	11/20/14 17:27	11/24/14 19:05	1
Anthracene	370	U	370	28	ug/Kg	☼	11/20/14 17:27	11/24/14 19:05	1
Carbazole	370	U	370	34	ug/Kg	☼	11/20/14 17:27	11/24/14 19:05	1
Di-n-butyl phthalate	370	U	370	34	ug/Kg	☼	11/20/14 17:27	11/24/14 19:05	1
Fluoranthene	370	U	370	36	ug/Kg	☼	11/20/14 17:27	11/24/14 19:05	1
Pyrene	370	U	370	30	ug/Kg	☼	11/20/14 17:27	11/24/14 19:05	1
Butyl benzyl phthalate	370	U	370	29	ug/Kg	☼	11/20/14 17:27	11/24/14 19:05	1
3,3'-Dichlorobenzidine	740	U	740	31	ug/Kg	☼	11/20/14 17:27	11/24/14 19:05	1
Benzo[a]anthracene	370	U	370	30	ug/Kg	☼	11/20/14 17:27	11/24/14 19:05	1
Chrysene	370	U	370	24	ug/Kg	☼	11/20/14 17:27	11/24/14 19:05	1
Bis(2-ethylhexyl) phthalate	370	U	370	33	ug/Kg	☼	11/20/14 17:27	11/24/14 19:05	1
Di-n-octyl phthalate	370	U	370	33	ug/Kg	☼	11/20/14 17:27	11/24/14 19:05	1
Benzo[b]fluoranthene	370	U	370	43	ug/Kg	☼	11/20/14 17:27	11/24/14 19:05	1
Benzo[k]fluoranthene	370	U	370	73	ug/Kg	☼	11/20/14 17:27	11/24/14 19:05	1
Benzo[a]pyrene	370	U	370	58	ug/Kg	☼	11/20/14 17:27	11/24/14 19:05	1
Indeno[1,2,3-cd]pyrene	370	U	370	31	ug/Kg	☼	11/20/14 17:27	11/24/14 19:05	1
Dibenz(a,h)anthracene	370	U	370	44	ug/Kg	☼	11/20/14 17:27	11/24/14 19:05	1
Benzo[g,h,i]perylene	370	U	370	25	ug/Kg	☼	11/20/14 17:27	11/24/14 19:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*38*		*37 - 115*	*11/20/14 17:27*	*11/24/14 19:05*	*1*
2-Fluorobiphenyl	*79*		*41 - 116*	*11/20/14 17:27*	*11/24/14 19:05*	*1*
Terphenyl-d14 (Surr)	*86*		*46 - 126*	*11/20/14 17:27*	*11/24/14 19:05*	*1*
Phenol-d5 (Surr)	*71*		*38 - 122*	*11/20/14 17:27*	*11/24/14 19:05*	*1*
2-Fluorophenol (Surr)	*73*		*39 - 114*	*11/20/14 17:27*	*11/24/14 19:05*	*1*
2,4,6-Tribromophenol (Surr)	*90*		*45 - 129*	*11/20/14 17:27*	*11/24/14 19:05*	*1*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Gasoline Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**0.15**	**J**	0.25	0.019	mg/Kg	☼	11/20/14 16:38	11/22/14 21:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*114*		*70 - 131*	*11/20/14 16:38*	*11/22/14 21:19*	*1*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	3.7	U	3.7	2.4	mg/Kg	☼	11/20/14 15:52	11/21/14 21:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*61*		*45 - 130*	*11/20/14 15:52*	*11/21/14 21:23*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: CSX C&O Canal Brunswick, MD

TestAmerica Job ID: 680-107453-1

Client Sample ID: GP-86(16-17)(111814)
Date Collected: 11/18/14 16:00
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-14
Matrix: Solid
Percent Solids: 83.6

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	19	J	24	6.9	ug/Kg	☼	11/22/14 10:00	11/23/14 14:12	1
Benzene	4.7	U	4.7	1.0	ug/Kg	☼	11/22/14 10:00	11/23/14 14:12	1
Bromodichloromethane	4.7	U	4.7	2.4	ug/Kg	☼	11/22/14 10:00	11/23/14 14:12	1
Bromoform	4.7	U	4.7	2.4	ug/Kg	☼	11/22/14 10:00	11/23/14 14:12	1
Bromomethane	4.7	U	4.7	2.4	ug/Kg	☼	11/22/14 10:00	11/23/14 14:12	1
Carbon disulfide	4.7	U	4.7	2.4	ug/Kg	☼	11/22/14 10:00	11/23/14 14:12	1
Carbon tetrachloride	4.7	U	4.7	1.6	ug/Kg	☼	11/22/14 10:00	11/23/14 14:12	1
Chlorobenzene	4.7	U	4.7	0.49	ug/Kg	☼	11/22/14 10:00	11/23/14 14:12	1
Chloroethane	4.7	U	4.7	2.4	ug/Kg	☼	11/22/14 10:00	11/23/14 14:12	1
Chloroform	4.7	U	4.7	2.4	ug/Kg	☼	11/22/14 10:00	11/23/14 14:12	1
Chloromethane	4.7	U	4.7	0.95	ug/Kg	☼	11/22/14 10:00	11/23/14 14:12	1
cis-1,2-Dichloroethene	4.7	U	4.7	0.72	ug/Kg	☼	11/22/14 10:00	11/23/14 14:12	1
cis-1,3-Dichloropropene	4.7	U	4.7	1.1	ug/Kg	☼	11/22/14 10:00	11/23/14 14:12	1
Cyclohexane	4.7	U	4.7	0.89	ug/Kg	☼	11/22/14 10:00	11/23/14 14:12	1
Dibromochloromethane	4.7	U	4.7	2.4	ug/Kg	☼	11/22/14 10:00	11/23/14 14:12	1
1,2-Dibromo-3-Chloropropane	4.7	U	4.7	3.1	ug/Kg	☼	11/22/14 10:00	11/23/14 14:12	1
1,2-Dichlorobenzene	4.7	U	4.7	0.67	ug/Kg	☼	11/22/14 10:00	11/23/14 14:12	1
1,3-Dichlorobenzene	4.7	U	4.7	0.90	ug/Kg	☼	11/22/14 10:00	11/23/14 14:12	1
1,4-Dichlorobenzene	4.7	U	4.7	2.4	ug/Kg	☼	11/22/14 10:00	11/23/14 14:12	1
Dichlorodifluoromethane	4.7	U	4.7	1.2	ug/Kg	☼	11/22/14 10:00	11/23/14 14:12	1
1,1-Dichloroethane	4.7	U	4.7	0.79	ug/Kg	☼	11/22/14 10:00	11/23/14 14:12	1
1,2-Dichloroethane	4.7	U	4.7	0.78	ug/Kg	☼	11/22/14 10:00	11/23/14 14:12	1
1,1-Dichloroethene	4.7	U	4.7	2.4	ug/Kg	☼	11/22/14 10:00	11/23/14 14:12	1
1,2-Dichloropropane	4.7	U	4.7	2.4	ug/Kg	☼	11/22/14 10:00	11/23/14 14:12	1
Diisopropyl ether	4.7	U	4.7	0.52	ug/Kg	☼	11/22/14 10:00	11/23/14 14:12	1
Ethylbenzene	4.7	U	4.7	0.58	ug/Kg	☼	11/22/14 10:00	11/23/14 14:12	1
Ethylene Dibromide	4.7	U	4.7	0.95	ug/Kg	☼	11/22/14 10:00	11/23/14 14:12	1
Ethyl tert-butyl ether	4.7	U	4.7	2.4	ug/Kg	☼	11/22/14 10:00	11/23/14 14:12	1
2-Hexanone	24	U	24	4.7	ug/Kg	☼	11/22/14 10:00	11/23/14 14:12	1
Isopropylbenzene	4.7	U	4.7	0.64	ug/Kg	☼	11/22/14 10:00	11/23/14 14:12	1
Methyl acetate	4.7	U	4.7	4.4	ug/Kg	☼	11/22/14 10:00	11/23/14 14:12	1
Methylcyclohexane	4.7	U	4.7	1.4	ug/Kg	☼	11/22/14 10:00	11/23/14 14:12	1
Methylene Chloride	14	U	14	9.5	ug/Kg	☼	11/22/14 10:00	11/23/14 14:12	1
Methyl Ethyl Ketone	24	U	24	5.7	ug/Kg	☼	11/22/14 10:00	11/23/14 14:12	1
methyl isobutyl ketone	24	U	24	4.7	ug/Kg	☼	11/22/14 10:00	11/23/14 14:12	1
Methyl tert-butyl ether	4.7	U	4.7	0.95	ug/Kg	☼	11/22/14 10:00	11/23/14 14:12	1
Naphthalene	4.7	U	4.7	1.9	ug/Kg	☼	11/22/14 10:00	11/23/14 14:12	1
Styrene	4.7	U	4.7	0.95	ug/Kg	☼	11/22/14 10:00	11/23/14 14:12	1
Tert-amyl methyl ether	4.7	U	4.7	0.95	ug/Kg	☼	11/22/14 10:00	11/23/14 14:12	1
tert-Butyl alcohol	9.5	U	9.5	7.6	ug/Kg	☼	11/22/14 10:00	11/23/14 14:12	1
1,1,2,2-Tetrachloroethane	4.7	U	4.7	2.4	ug/Kg	☼	11/22/14 10:00	11/23/14 14:12	1
Tetrachloroethene	4.7	U	4.7	2.4	ug/Kg	☼	11/22/14 10:00	11/23/14 14:12	1
Toluene	4.7	U	4.7	0.95	ug/Kg	☼	11/22/14 10:00	11/23/14 14:12	1
trans-1,2-Dichloroethene	4.7	U	4.7	2.4	ug/Kg	☼	11/22/14 10:00	11/23/14 14:12	1
trans-1,3-Dichloropropene	4.7	U	4.7	2.4	ug/Kg	☼	11/22/14 10:00	11/23/14 14:12	1
1,2,4-Trichlorobenzene	4.7	U	4.7	1.9	ug/Kg	☼	11/22/14 10:00	11/23/14 14:12	1
1,1,1-Trichloroethane	4.7	U	4.7	1.0	ug/Kg	☼	11/22/14 10:00	11/23/14 14:12	1
1,1,2-Trichloroethane	4.7	U	4.7	2.4	ug/Kg	☼	11/22/14 10:00	11/23/14 14:12	1
Trichloroethene	4.7	U	4.7	0.95	ug/Kg	☼	11/22/14 10:00	11/23/14 14:12	1

Client Sample ID: GP-86(16-17)(111814)
Date Collected: 11/18/14 16:00
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-14
Matrix: Solid
Percent Solids: 83.6

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichlorofluoromethane	4.7	U	4.7	2.4	ug/Kg	☼	11/22/14 10:00	11/23/14 14:12	1
1,1,2-Trichloro-1,2,2-trifluoroethane	4.7	U	4.7	1.9	ug/Kg	☼	11/22/14 10:00	11/23/14 14:12	1
Vinyl chloride	4.7	U	4.7	2.4	ug/Kg	☼	11/22/14 10:00	11/23/14 14:12	1
Xylenes, Total	4.7	U	4.7	0.95	ug/Kg	☼	11/22/14 10:00	11/23/14 14:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*91*		*72 - 122*	*11/22/14 10:00*	*11/23/14 14:12*	*1*
Dibromofluoromethane	*101*		*79 - 123*	*11/22/14 10:00*	*11/23/14 14:12*	*1*
Toluene-d8 (Surr)	*95*		*80 - 120*	*11/22/14 10:00*	*11/23/14 14:12*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzaldehyde	390	U	390	69	ug/Kg	☼	11/20/14 17:27	11/24/14 19:30	1
Phenol	390	U	390	41	ug/Kg	☼	11/20/14 17:27	11/24/14 19:30	1
Bis(2-chloroethyl)ether	390	U	390	54	ug/Kg	☼	11/20/14 17:27	11/24/14 19:30	1
2-Chlorophenol	390	U	390	48	ug/Kg	☼	11/20/14 17:27	11/24/14 19:30	1
2-Methylphenol	390	U	390	32	ug/Kg	☼	11/20/14 17:27	11/24/14 19:30	1
bis (2-chloroisopropyl) ether	390	U	390	36	ug/Kg	☼	11/20/14 17:27	11/24/14 19:30	1
Acetophenone	390	U	390	33	ug/Kg	☼	11/20/14 17:27	11/24/14 19:30	1
3 & 4 Methylphenol	390	U	390	51	ug/Kg	☼	11/20/14 17:27	11/24/14 19:30	1
N-Nitrosodi-n-propylamine	390	U	390	38	ug/Kg	☼	11/20/14 17:27	11/24/14 19:30	1
Hexachloroethane	390	U	390	33	ug/Kg	☼	11/20/14 17:27	11/24/14 19:30	1
Nitrobenzene	390	U	390	31	ug/Kg	☼	11/20/14 17:27	11/24/14 19:30	1
Isophorone	390	U	390	39	ug/Kg	☼	11/20/14 17:27	11/24/14 19:30	1
2-Nitrophenol	390	U	390	49	ug/Kg	☼	11/20/14 17:27	11/24/14 19:30	1
2,4-Dimethylphenol	390	U	390	53	ug/Kg	☼	11/20/14 17:27	11/24/14 19:30	1
Bis(2-chloroethoxy)methane	390	U	390	47	ug/Kg	☼	11/20/14 17:27	11/24/14 19:30	1
2,4-Dichlorophenol	390	U	390	42	ug/Kg	☼	11/20/14 17:27	11/24/14 19:30	1
Naphthalene	390	U	390	36	ug/Kg	☼	11/20/14 17:27	11/24/14 19:30	1
4-Chloroaniline	790	U	790	62	ug/Kg	☼	11/20/14 17:27	11/24/14 19:30	1
Hexachlorobutadiene	390	U	390	43	ug/Kg	☼	11/20/14 17:27	11/24/14 19:30	1
Caprolactam	390	U	390	79	ug/Kg	☼	11/20/14 17:27	11/24/14 19:30	1
4-Chloro-3-methylphenol	390	U	390	42	ug/Kg	☼	11/20/14 17:27	11/24/14 19:30	1
2-Methylnaphthalene	390	U	390	45	ug/Kg	☼	11/20/14 17:27	11/24/14 19:30	1
Hexachlorocyclopentadiene	390	U	390	49	ug/Kg	☼	11/20/14 17:27	11/24/14 19:30	1
2,4,6-Trichlorophenol	390	U	390	35	ug/Kg	☼	11/20/14 17:27	11/24/14 19:30	1
2,4,5-Trichlorophenol	390	U	390	42	ug/Kg	☼	11/20/14 17:27	11/24/14 19:30	1
1,1'-Biphenyl	2000	U	2000	2000	ug/Kg	☼	11/20/14 17:27	11/24/14 19:30	1
2-Chloronaphthalene	390	U	390	42	ug/Kg	☼	11/20/14 17:27	11/24/14 19:30	1
2-Nitroaniline	2000	U	2000	54	ug/Kg	☼	11/20/14 17:27	11/24/14 19:30	1
Dimethyl phthalate	390	U	390	41	ug/Kg	☼	11/20/14 17:27	11/24/14 19:30	1
2,6-Dinitrotoluene	390	U	390	50	ug/Kg	☼	11/20/14 17:27	11/24/14 19:30	1
Acenaphthylene	390	U	390	43	ug/Kg	☼	11/20/14 17:27	11/24/14 19:30	1
3-Nitroaniline	2000	U	2000	55	ug/Kg	☼	11/20/14 17:27	11/24/14 19:30	1
Acenaphthene	390	U	390	49	ug/Kg	☼	11/20/14 17:27	11/24/14 19:30	1
2,4-Dinitrophenol	2000	U	2000	990	ug/Kg	☼	11/20/14 17:27	11/24/14 19:30	1
4-Nitrophenol	2000	U	2000	390	ug/Kg	☼	11/20/14 17:27	11/24/14 19:30	1
Dibenzofuran	390	U	390	39	ug/Kg	☼	11/20/14 17:27	11/24/14 19:30	1
2,4-Dinitrotoluene	390	U	390	59	ug/Kg	☼	11/20/14 17:27	11/24/14 19:30	1
Diethyl phthalate	390	U	390	44	ug/Kg	☼	11/20/14 17:27	11/24/14 19:30	1

Client Sample ID: GP-86(16-17)(111814)
Date Collected: 11/18/14 16:00
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-14
Matrix: Solid
Percent Solids: 83.6

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluorene	390	U	390	43	ug/Kg	☼	11/20/14 17:27	11/24/14 19:30	1
4-Chlorophenyl phenyl ether	390	U	390	53	ug/Kg	☼	11/20/14 17:27	11/24/14 19:30	1
4-Nitroaniline	2000	U	2000	59	ug/Kg	☼	11/20/14 17:27	11/24/14 19:30	1
4,6-Dinitro-2-methylphenol	2000	U	2000	200	ug/Kg	☼	11/20/14 17:27	11/24/14 19:30	1
N-Nitrosodiphenylamine	390	U	390	39	ug/Kg	☼	11/20/14 17:27	11/24/14 19:30	1
4-Bromophenyl phenyl ether	390	U	390	43	ug/Kg	☼	11/20/14 17:27	11/24/14 19:30	1
Hexachlorobenzene	390	U	390	47	ug/Kg	☼	11/20/14 17:27	11/24/14 19:30	1
Atrazine	390	U	390	28	ug/Kg	☼	11/20/14 17:27	11/24/14 19:30	1
Pentachlorophenol	2000	U	2000	390	ug/Kg	☼	11/20/14 17:27	11/24/14 19:30	1
Phenanthrene	390	U	390	32	ug/Kg	☼	11/20/14 17:27	11/24/14 19:30	1
Anthracene	390	U	390	30	ug/Kg	☼	11/20/14 17:27	11/24/14 19:30	1
Carbazole	390	U	390	36	ug/Kg	☼	11/20/14 17:27	11/24/14 19:30	1
Di-n-butyl phthalate	390	U	390	36	ug/Kg	☼	11/20/14 17:27	11/24/14 19:30	1
Fluoranthene	390	U	390	38	ug/Kg	☼	11/20/14 17:27	11/24/14 19:30	1
Pyrene	390	U	390	32	ug/Kg	☼	11/20/14 17:27	11/24/14 19:30	1
Butyl benzyl phthalate	390	U	390	31	ug/Kg	☼	11/20/14 17:27	11/24/14 19:30	1
3,3'-Dichlorobenzidine	790	U	790	33	ug/Kg	☼	11/20/14 17:27	11/24/14 19:30	1
Benzo[a]anthracene	390	U	390	32	ug/Kg	☼	11/20/14 17:27	11/24/14 19:30	1
Chrysene	390	U	390	25	ug/Kg	☼	11/20/14 17:27	11/24/14 19:30	1
Bis(2-ethylhexyl) phthalate	390	U	390	35	ug/Kg	☼	11/20/14 17:27	11/24/14 19:30	1
Di-n-octyl phthalate	390	U	390	35	ug/Kg	☼	11/20/14 17:27	11/24/14 19:30	1
Benzo[b]fluoranthene	390	U	390	45	ug/Kg	☼	11/20/14 17:27	11/24/14 19:30	1
Benzo[k]fluoranthene	390	U	390	78	ug/Kg	☼	11/20/14 17:27	11/24/14 19:30	1
Benzo[a]pyrene	390	U	390	62	ug/Kg	☼	11/20/14 17:27	11/24/14 19:30	1
Indeno[1,2,3-cd]pyrene	390	U	390	33	ug/Kg	☼	11/20/14 17:27	11/24/14 19:30	1
Dibenz(a,h)anthracene	390	U	390	47	ug/Kg	☼	11/20/14 17:27	11/24/14 19:30	1
Benzo[g,h,i]perylene	390	U	390	26	ug/Kg	☼	11/20/14 17:27	11/24/14 19:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*61*		*37 - 115*	*11/20/14 17:27*	*11/24/14 19:30*	*1*
2-Fluorobiphenyl	*71*		*41 - 116*	*11/20/14 17:27*	*11/24/14 19:30*	*1*
Terphenyl-d14 (Surr)	*77*		*46 - 126*	*11/20/14 17:27*	*11/24/14 19:30*	*1*
Phenol-d5 (Surr)	*67*		*38 - 122*	*11/20/14 17:27*	*11/24/14 19:30*	*1*
2-Fluorophenol (Surr)	*67*		*39 - 114*	*11/20/14 17:27*	*11/24/14 19:30*	*1*
2,4,6-Tribromophenol (Surr)	*82*		*45 - 129*	*11/20/14 17:27*	*11/24/14 19:30*	*1*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Gasoline Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**0.096**	**J**	0.25	0.019	mg/Kg	☼	11/20/14 16:38	11/22/14 21:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*118*		*70 - 131*	*11/20/14 16:38*	*11/22/14 21:41*	*1*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	3.9	U	3.9	2.5	mg/Kg	☼	11/20/14 15:52	11/21/14 21:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*61*		*45 - 130*	*11/20/14 15:52*	*11/21/14 21:37*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: CSX C&O Canal Brunswick, MD

TestAmerica Job ID: 680-107453-1

Client Sample ID: GP-87(14-15)(111914)
Date Collected: 11/19/14 08:25
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-15
Matrix: Solid
Percent Solids: 82.3

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	43		28	8.3	ug/Kg	☼	11/23/14 10:00	11/23/14 14:36	1
Benzene	5.7	U	5.7	1.2	ug/Kg	☼	11/23/14 10:00	11/23/14 14:36	1
Bromodichloromethane	5.7	U	5.7	2.8	ug/Kg	☼	11/23/14 10:00	11/23/14 14:36	1
Bromoform	5.7	U	5.7	2.8	ug/Kg	☼	11/23/14 10:00	11/23/14 14:36	1
Bromomethane	5.7	U	5.7	2.8	ug/Kg	☼	11/23/14 10:00	11/23/14 14:36	1
Carbon disulfide	5.7	U	5.7	2.8	ug/Kg	☼	11/23/14 10:00	11/23/14 14:36	1
Carbon tetrachloride	5.7	U	5.7	1.9	ug/Kg	☼	11/23/14 10:00	11/23/14 14:36	1
Chlorobenzene	5.7	U	5.7	0.59	ug/Kg	☼	11/23/14 10:00	11/23/14 14:36	1
Chloroethane	5.7	U	5.7	2.8	ug/Kg	☼	11/23/14 10:00	11/23/14 14:36	1
Chloroform	5.7	U	5.7	2.8	ug/Kg	☼	11/23/14 10:00	11/23/14 14:36	1
Chloromethane	5.7	U	5.7	1.1	ug/Kg	☼	11/23/14 10:00	11/23/14 14:36	1
cis-1,2-Dichloroethene	5.7	U	5.7	0.86	ug/Kg	☼	11/23/14 10:00	11/23/14 14:36	1
cis-1,3-Dichloropropene	5.7	U	5.7	1.4	ug/Kg	☼	11/23/14 10:00	11/23/14 14:36	1
Cyclohexane	5.7	U	5.7	1.1	ug/Kg	☼	11/23/14 10:00	11/23/14 14:36	1
Dibromochloromethane	5.7	U	5.7	2.8	ug/Kg	☼	11/23/14 10:00	11/23/14 14:36	1
1,2-Dibromo-3-Chloropropane	5.7	U	5.7	3.7	ug/Kg	☼	11/23/14 10:00	11/23/14 14:36	1
1,2-Dichlorobenzene	5.7	U	5.7	0.80	ug/Kg	☼	11/23/14 10:00	11/23/14 14:36	1
1,3-Dichlorobenzene	5.7	U	5.7	1.1	ug/Kg	☼	11/23/14 10:00	11/23/14 14:36	1
1,4-Dichlorobenzene	5.7	U	5.7	2.8	ug/Kg	☼	11/23/14 10:00	11/23/14 14:36	1
Dichlorodifluoromethane	5.7	U	5.7	1.5	ug/Kg	☼	11/23/14 10:00	11/23/14 14:36	1
1,1-Dichloroethane	5.7	U	5.7	0.94	ug/Kg	☼	11/23/14 10:00	11/23/14 14:36	1
1,2-Dichloroethane	5.7	U	5.7	0.93	ug/Kg	☼	11/23/14 10:00	11/23/14 14:36	1
1,1-Dichloroethene	5.7	U	5.7	2.8	ug/Kg	☼	11/23/14 10:00	11/23/14 14:36	1
1,2-Dichloropropane	5.7	U	5.7	2.8	ug/Kg	☼	11/23/14 10:00	11/23/14 14:36	1
Diisopropyl ether	5.7	U	5.7	0.62	ug/Kg	☼	11/23/14 10:00	11/23/14 14:36	1
Ethylbenzene	5.7	U	5.7	0.69	ug/Kg	☼	11/23/14 10:00	11/23/14 14:36	1
Ethylene Dibromide	5.7	U	5.7	1.1	ug/Kg	☼	11/23/14 10:00	11/23/14 14:36	1
Ethyl tert-butyl ether	5.7	U	5.7	2.8	ug/Kg	☼	11/23/14 10:00	11/23/14 14:36	1
2-Hexanone	28	U	28	5.7	ug/Kg	☼	11/23/14 10:00	11/23/14 14:36	1
Isopropylbenzene	5.7	U	5.7	0.77	ug/Kg	☼	11/23/14 10:00	11/23/14 14:36	1
Methyl acetate	5.7	U	5.7	5.2	ug/Kg	☼	11/23/14 10:00	11/23/14 14:36	1
Methylcyclohexane	5.7	U	5.7	1.7	ug/Kg	☼	11/23/14 10:00	11/23/14 14:36	1
Methylene Chloride	17	U	17	11	ug/Kg	☼	11/23/14 10:00	11/23/14 14:36	1
Methyl Ethyl Ketone	28	U	28	6.8	ug/Kg	☼	11/23/14 10:00	11/23/14 14:36	1
methyl isobutyl ketone	28	U	28	5.7	ug/Kg	☼	11/23/14 10:00	11/23/14 14:36	1
Methyl tert-butyl ether	5.7	U	5.7	1.1	ug/Kg	☼	11/23/14 10:00	11/23/14 14:36	1
Naphthalene	5.7	U	5.7	2.3	ug/Kg	☼	11/23/14 10:00	11/23/14 14:36	1
Styrene	5.7	U	5.7	1.1	ug/Kg	☼	11/23/14 10:00	11/23/14 14:36	1
Tert-amyl methyl ether	5.7	U	5.7	1.1	ug/Kg	☼	11/23/14 10:00	11/23/14 14:36	1
tert-Butyl alcohol	11	U	11	9.1	ug/Kg	☼	11/23/14 10:00	11/23/14 14:36	1
1,1,2,2-Tetrachloroethane	5.7	U	5.7	2.8	ug/Kg	☼	11/23/14 10:00	11/23/14 14:36	1
Tetrachloroethene	5.7	U	5.7	2.8	ug/Kg	☼	11/23/14 10:00	11/23/14 14:36	1
Toluene	5.7	U	5.7	1.1	ug/Kg	☼	11/23/14 10:00	11/23/14 14:36	1
trans-1,2-Dichloroethene	5.7	U	5.7	2.8	ug/Kg	☼	11/23/14 10:00	11/23/14 14:36	1
trans-1,3-Dichloropropene	5.7	U	5.7	2.8	ug/Kg	☼	11/23/14 10:00	11/23/14 14:36	1
1,2,4-Trichlorobenzene	5.7	U	5.7	2.3	ug/Kg	☼	11/23/14 10:00	11/23/14 14:36	1
1,1,1-Trichloroethane	5.7	U	5.7	1.2	ug/Kg	☼	11/23/14 10:00	11/23/14 14:36	1
1,1,2-Trichloroethane	5.7	U	5.7	2.8	ug/Kg	☼	11/23/14 10:00	11/23/14 14:36	1
Trichloroethene	5.7	U	5.7	1.1	ug/Kg	☼	11/23/14 10:00	11/23/14 14:36	1

Client Sample ID: GP-87(14-15)(111914)
Date Collected: 11/19/14 08:25
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-15
Matrix: Solid
Percent Solids: 82.3

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichlorofluoromethane	5.7	U	5.7	2.8	ug/Kg	☼	11/23/14 10:00	11/23/14 14:36	1
1,1,2-Trichloro-1,2,2-trifluoroethane	5.7	U	5.7	2.3	ug/Kg	☼	11/23/14 10:00	11/23/14 14:36	1
Vinyl chloride	5.7	U	5.7	2.8	ug/Kg	☼	11/23/14 10:00	11/23/14 14:36	1
Xylenes, Total	5.7	U	5.7	1.1	ug/Kg	☼	11/23/14 10:00	11/23/14 14:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*92*		*72 - 122*	*11/23/14 10:00*	*11/23/14 14:36*	*1*
Dibromofluoromethane	*101*		*79 - 123*	*11/23/14 10:00*	*11/23/14 14:36*	*1*
Toluene-d8 (Surr)	*95*		*80 - 120*	*11/23/14 10:00*	*11/23/14 14:36*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzaldehyde	400	U	400	70	ug/Kg	☼	11/20/14 17:27	11/24/14 19:55	1
Phenol	400	U	400	41	ug/Kg	☼	11/20/14 17:27	11/24/14 19:55	1
Bis(2-chloroethyl)ether	400	U	400	54	ug/Kg	☼	11/20/14 17:27	11/24/14 19:55	1
2-Chlorophenol	400	U	400	48	ug/Kg	☼	11/20/14 17:27	11/24/14 19:55	1
2-Methylphenol	400	U	400	33	ug/Kg	☼	11/20/14 17:27	11/24/14 19:55	1
bis (2-chloroisopropyl) ether	400	U	400	36	ug/Kg	☼	11/20/14 17:27	11/24/14 19:55	1
Acetophenone	400	U	400	34	ug/Kg	☼	11/20/14 17:27	11/24/14 19:55	1
3 & 4 Methylphenol	400	U	400	52	ug/Kg	☼	11/20/14 17:27	11/24/14 19:55	1
N-Nitrosodi-n-propylamine	400	U	400	39	ug/Kg	☼	11/20/14 17:27	11/24/14 19:55	1
Hexachloroethane	400	U	400	34	ug/Kg	☼	11/20/14 17:27	11/24/14 19:55	1
Nitrobenzene	400	U	400	31	ug/Kg	☼	11/20/14 17:27	11/24/14 19:55	1
Isophorone	400	U	400	40	ug/Kg	☼	11/20/14 17:27	11/24/14 19:55	1
2-Nitrophenol	400	U	400	50	ug/Kg	☼	11/20/14 17:27	11/24/14 19:55	1
2,4-Dimethylphenol	400	U	400	53	ug/Kg	☼	11/20/14 17:27	11/24/14 19:55	1
Bis(2-chloroethoxy)methane	400	U	400	47	ug/Kg	☼	11/20/14 17:27	11/24/14 19:55	1
2,4-Dichlorophenol	400	U	400	42	ug/Kg	☼	11/20/14 17:27	11/24/14 19:55	1
Naphthalene	400	U	400	36	ug/Kg	☼	11/20/14 17:27	11/24/14 19:55	1
4-Chloroaniline	800	U	800	63	ug/Kg	☼	11/20/14 17:27	11/24/14 19:55	1
Hexachlorobutadiene	400	U	400	44	ug/Kg	☼	11/20/14 17:27	11/24/14 19:55	1
Caprolactam	400	U	400	80	ug/Kg	☼	11/20/14 17:27	11/24/14 19:55	1
4-Chloro-3-methylphenol	400	U	400	42	ug/Kg	☼	11/20/14 17:27	11/24/14 19:55	1
2-Methylnaphthalene	400	U	400	46	ug/Kg	☼	11/20/14 17:27	11/24/14 19:55	1
Hexachlorocyclopentadiene	400	U	400	50	ug/Kg	☼	11/20/14 17:27	11/24/14 19:55	1
2,4,6-Trichlorophenol	400	U	400	35	ug/Kg	☼	11/20/14 17:27	11/24/14 19:55	1
2,4,5-Trichlorophenol	400	U	400	42	ug/Kg	☼	11/20/14 17:27	11/24/14 19:55	1
1,1'-Biphenyl	2100	U	2100	2100	ug/Kg	☼	11/20/14 17:27	11/24/14 19:55	1
2-Chloronaphthalene	400	U	400	42	ug/Kg	☼	11/20/14 17:27	11/24/14 19:55	1
2-Nitroaniline	2100	U	2100	54	ug/Kg	☼	11/20/14 17:27	11/24/14 19:55	1
Dimethyl phthalate	400	U	400	41	ug/Kg	☼	11/20/14 17:27	11/24/14 19:55	1
2,6-Dinitrotoluene	400	U	400	51	ug/Kg	☼	11/20/14 17:27	11/24/14 19:55	1
Acenaphthylene	400	U	400	44	ug/Kg	☼	11/20/14 17:27	11/24/14 19:55	1
3-Nitroaniline	2100	U	2100	56	ug/Kg	☼	11/20/14 17:27	11/24/14 19:55	1
Acenaphthene	400	U	400	50	ug/Kg	☼	11/20/14 17:27	11/24/14 19:55	1
2,4-Dinitrophenol	2100	U	2100	1000	ug/Kg	☼	11/20/14 17:27	11/24/14 19:55	1
4-Nitrophenol	2100	U	2100	400	ug/Kg	☼	11/20/14 17:27	11/24/14 19:55	1
Dibenzofuran	400	U	400	40	ug/Kg	☼	11/20/14 17:27	11/24/14 19:55	1
2,4-Dinitrotoluene	400	U	400	59	ug/Kg	☼	11/20/14 17:27	11/24/14 19:55	1
Diethyl phthalate	400	U	400	45	ug/Kg	☼	11/20/14 17:27	11/24/14 19:55	1

Client Sample ID: GP-87(14-15)(111914)
Date Collected: 11/19/14 08:25
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-15
Matrix: Solid
Percent Solids: 82.3

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluorene	400	U	400	44	ug/Kg	☼	11/20/14 17:27	11/24/14 19:55	1
4-Chlorophenyl phenyl ether	400	U	400	53	ug/Kg	☼	11/20/14 17:27	11/24/14 19:55	1
4-Nitroaniline	2100	U	2100	59	ug/Kg	☼	11/20/14 17:27	11/24/14 19:55	1
4,6-Dinitro-2-methylphenol	2100	U	2100	210	ug/Kg	☼	11/20/14 17:27	11/24/14 19:55	1
N-Nitrosodiphenylamine	400	U	400	40	ug/Kg	☼	11/20/14 17:27	11/24/14 19:55	1
4-Bromophenyl phenyl ether	400	U	400	44	ug/Kg	☼	11/20/14 17:27	11/24/14 19:55	1
Hexachlorobenzene	400	U	400	47	ug/Kg	☼	11/20/14 17:27	11/24/14 19:55	1
Atrazine	400	U	400	28	ug/Kg	☼	11/20/14 17:27	11/24/14 19:55	1
Pentachlorophenol	2100	U	2100	400	ug/Kg	☼	11/20/14 17:27	11/24/14 19:55	1
Phenanthrene	400	U	400	33	ug/Kg	☼	11/20/14 17:27	11/24/14 19:55	1
Anthracene	400	U	400	30	ug/Kg	☼	11/20/14 17:27	11/24/14 19:55	1
Carbazole	400	U	400	36	ug/Kg	☼	11/20/14 17:27	11/24/14 19:55	1
Di-n-butyl phthalate	400	U	400	36	ug/Kg	☼	11/20/14 17:27	11/24/14 19:55	1
Fluoranthene	400	U	400	39	ug/Kg	☼	11/20/14 17:27	11/24/14 19:55	1
Pyrene	400	U	400	33	ug/Kg	☼	11/20/14 17:27	11/24/14 19:55	1
Butyl benzyl phthalate	400	U	400	31	ug/Kg	☼	11/20/14 17:27	11/24/14 19:55	1
3,3'-Dichlorobenzidine	800	U	800	34	ug/Kg	☼	11/20/14 17:27	11/24/14 19:55	1
Benzo[a]anthracene	400	U	400	33	ug/Kg	☼	11/20/14 17:27	11/24/14 19:55	1
Chrysene	400	U	400	25	ug/Kg	☼	11/20/14 17:27	11/24/14 19:55	1
Bis(2-ethylhexyl) phthalate	400	U	400	35	ug/Kg	☼	11/20/14 17:27	11/24/14 19:55	1
Di-n-octyl phthalate	400	U	400	35	ug/Kg	☼	11/20/14 17:27	11/24/14 19:55	1
Benzo[b]fluoranthene	400	U	400	46	ug/Kg	☼	11/20/14 17:27	11/24/14 19:55	1
Benzo[k]fluoranthene	400	U	400	79	ug/Kg	☼	11/20/14 17:27	11/24/14 19:55	1
Benzo[a]pyrene	400	U	400	63	ug/Kg	☼	11/20/14 17:27	11/24/14 19:55	1
Indeno[1,2,3-cd]pyrene	400	U	400	34	ug/Kg	☼	11/20/14 17:27	11/24/14 19:55	1
Dibenz(a,h)anthracene	400	U	400	47	ug/Kg	☼	11/20/14 17:27	11/24/14 19:55	1
Benzo[g,h,i]perylene	400	U	400	27	ug/Kg	☼	11/20/14 17:27	11/24/14 19:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*69*		*37 - 115*	*11/20/14 17:27*	*11/24/14 19:55*	*1*
2-Fluorobiphenyl	*72*		*41 - 116*	*11/20/14 17:27*	*11/24/14 19:55*	*1*
Terphenyl-d14 (Surr)	*73*		*46 - 126*	*11/20/14 17:27*	*11/24/14 19:55*	*1*
Phenol-d5 (Surr)	*63*		*38 - 122*	*11/20/14 17:27*	*11/24/14 19:55*	*1*
2-Fluorophenol (Surr)	*61*		*39 - 114*	*11/20/14 17:27*	*11/24/14 19:55*	*1*
2,4,6-Tribromophenol (Surr)	*65*		*45 - 129*	*11/20/14 17:27*	*11/24/14 19:55*	*1*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Gasoline Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	0.31	U	0.31	0.023	mg/Kg	☼	11/20/14 16:38	11/23/14 14:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*92*		*70 - 131*	*11/20/14 16:38*	*11/23/14 14:07*	*1*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**77**		4.0	2.5	mg/Kg	☼	11/20/14 15:52	11/21/14 21:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*64*		*45 - 130*	*11/20/14 15:52*	*11/21/14 21:52*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: CSX C&O Canal Brunswick, MD

TestAmerica Job ID: 680-107453-1

Client Sample ID: GP-87(16-17)(111914)
Date Collected: 11/19/14 08:30
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-16
Matrix: Solid
Percent Solids: 84.6

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	30	J	54	16	ug/Kg	☼	11/23/14 10:00	11/23/14 15:01	1
Benzene	11	U	11	2.4	ug/Kg	☼	11/23/14 10:00	11/23/14 15:01	1
Bromodichloromethane	11	U	11	5.4	ug/Kg	☼	11/23/14 10:00	11/23/14 15:01	1
Bromoform	11	U	11	5.4	ug/Kg	☼	11/23/14 10:00	11/23/14 15:01	1
Bromomethane	11	U	11	5.4	ug/Kg	☼	11/23/14 10:00	11/23/14 15:01	1
Carbon disulfide	11	U	11	5.4	ug/Kg	☼	11/23/14 10:00	11/23/14 15:01	1
Carbon tetrachloride	11	U	11	3.6	ug/Kg	☼	11/23/14 10:00	11/23/14 15:01	1
Chlorobenzene	11	U	11	1.1	ug/Kg	☼	11/23/14 10:00	11/23/14 15:01	1
Chloroethane	11	U	11	5.4	ug/Kg	☼	11/23/14 10:00	11/23/14 15:01	1
Chloroform	11	U	11	5.4	ug/Kg	☼	11/23/14 10:00	11/23/14 15:01	1
Chloromethane	11	U	11	2.1	ug/Kg	☼	11/23/14 10:00	11/23/14 15:01	1
cis-1,2-Dichloroethene	11	U	11	1.6	ug/Kg	☼	11/23/14 10:00	11/23/14 15:01	1
cis-1,3-Dichloropropene	11	U	11	2.6	ug/Kg	☼	11/23/14 10:00	11/23/14 15:01	1
Cyclohexane	11	U	11	2.0	ug/Kg	☼	11/23/14 10:00	11/23/14 15:01	1
Dibromochloromethane	11	U	11	5.4	ug/Kg	☼	11/23/14 10:00	11/23/14 15:01	1
1,2-Dibromo-3-Chloropropane	11	U	11	7.1	ug/Kg	☼	11/23/14 10:00	11/23/14 15:01	1
1,2-Dichlorobenzene	11	U	11	1.5	ug/Kg	☼	11/23/14 10:00	11/23/14 15:01	1
1,3-Dichlorobenzene	11	U	11	2.0	ug/Kg	☼	11/23/14 10:00	11/23/14 15:01	1
1,4-Dichlorobenzene	11	U	11	5.4	ug/Kg	☼	11/23/14 10:00	11/23/14 15:01	1
Dichlorodifluoromethane	11	U	11	2.8	ug/Kg	☼	11/23/14 10:00	11/23/14 15:01	1
1,1-Dichloroethane	11	U	11	1.8	ug/Kg	☼	11/23/14 10:00	11/23/14 15:01	1
1,2-Dichloroethane	11	U	11	1.8	ug/Kg	☼	11/23/14 10:00	11/23/14 15:01	1
1,1-Dichloroethene	11	U	11	5.4	ug/Kg	☼	11/23/14 10:00	11/23/14 15:01	1
1,2-Dichloropropane	11	U	11	5.4	ug/Kg	☼	11/23/14 10:00	11/23/14 15:01	1
Diisopropyl ether	11	U	11	1.2	ug/Kg	☼	11/23/14 10:00	11/23/14 15:01	1
Ethylbenzene	11	U	11	1.3	ug/Kg	☼	11/23/14 10:00	11/23/14 15:01	1
Ethylene Dibromide	11	U	11	2.1	ug/Kg	☼	11/23/14 10:00	11/23/14 15:01	1
Ethyl tert-butyl ether	11	U	11	5.4	ug/Kg	☼	11/23/14 10:00	11/23/14 15:01	1
2-Hexanone	54	U	54	11	ug/Kg	☼	11/23/14 10:00	11/23/14 15:01	1
Isopropylbenzene	11	U	11	1.5	ug/Kg	☼	11/23/14 10:00	11/23/14 15:01	1
Methyl acetate	11	U	11	9.9	ug/Kg	☼	11/23/14 10:00	11/23/14 15:01	1
Methylcyclohexane	11	U	11	3.2	ug/Kg	☼	11/23/14 10:00	11/23/14 15:01	1
Methylene Chloride	32	U	32	21	ug/Kg	☼	11/23/14 10:00	11/23/14 15:01	1
Methyl Ethyl Ketone	54	U	54	13	ug/Kg	☼	11/23/14 10:00	11/23/14 15:01	1
methyl isobutyl ketone	54	U	54	11	ug/Kg	☼	11/23/14 10:00	11/23/14 15:01	1
Methyl tert-butyl ether	11	U	11	2.1	ug/Kg	☼	11/23/14 10:00	11/23/14 15:01	1
Naphthalene	11	U	11	4.3	ug/Kg	☼	11/23/14 10:00	11/23/14 15:01	1
Styrene	11	U	11	2.1	ug/Kg	☼	11/23/14 10:00	11/23/14 15:01	1
Tert-amyl methyl ether	11	U	11	2.1	ug/Kg	☼	11/23/14 10:00	11/23/14 15:01	1
tert-Butyl alcohol	21	U	21	17	ug/Kg	☼	11/23/14 10:00	11/23/14 15:01	1
1,1,2,2-Tetrachloroethane	11	U	11	5.4	ug/Kg	☼	11/23/14 10:00	11/23/14 15:01	1
Tetrachloroethene	11	U	11	5.4	ug/Kg	☼	11/23/14 10:00	11/23/14 15:01	1
Toluene	11	U	11	2.1	ug/Kg	☼	11/23/14 10:00	11/23/14 15:01	1
trans-1,2-Dichloroethene	11	U	11	5.4	ug/Kg	☼	11/23/14 10:00	11/23/14 15:01	1
trans-1,3-Dichloropropene	11	U	11	5.4	ug/Kg	☼	11/23/14 10:00	11/23/14 15:01	1
1,2,4-Trichlorobenzene	11	U	11	4.3	ug/Kg	☼	11/23/14 10:00	11/23/14 15:01	1
1,1,1-Trichloroethane	11	U	11	2.4	ug/Kg	☼	11/23/14 10:00	11/23/14 15:01	1
1,1,2-Trichloroethane	11	U	11	5.4	ug/Kg	☼	11/23/14 10:00	11/23/14 15:01	1
Trichloroethene	11	U	11	2.1	ug/Kg	☼	11/23/14 10:00	11/23/14 15:01	1

Client Sample ID: GP-87(16-17)(111914)
Date Collected: 11/19/14 08:30
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-16
Matrix: Solid
Percent Solids: 84.6

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichlorofluoromethane	11	U	11	5.4	ug/Kg	☼	11/23/14 10:00	11/23/14 15:01	1
1,1,2-Trichloro-1,2,2-trifluoroethane	11	U	11	4.3	ug/Kg	☼	11/23/14 10:00	11/23/14 15:01	1
Vinyl chloride	11	U	11	5.4	ug/Kg	☼	11/23/14 10:00	11/23/14 15:01	1
Xylenes, Total	11	U	11	2.1	ug/Kg	☼	11/23/14 10:00	11/23/14 15:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*119*		*72 - 122*	*11/23/14 10:00*	*11/23/14 15:01*	*1*
Dibromofluoromethane	*105*		*79 - 123*	*11/23/14 10:00*	*11/23/14 15:01*	*1*
Toluene-d8 (Surr)	*102*		*80 - 120*	*11/23/14 10:00*	*11/23/14 15:01*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzaldehyde	390	U	390	68	ug/Kg	☼	11/20/14 17:27	11/24/14 20:21	1
Phenol	390	U	390	40	ug/Kg	☼	11/20/14 17:27	11/24/14 20:21	1
Bis(2-chloroethyl)ether	390	U	390	53	ug/Kg	☼	11/20/14 17:27	11/24/14 20:21	1
2-Chlorophenol	390	U	390	47	ug/Kg	☼	11/20/14 17:27	11/24/14 20:21	1
2-Methylphenol	390	U	390	32	ug/Kg	☼	11/20/14 17:27	11/24/14 20:21	1
bis (2-chloroisopropyl) ether	390	U	390	35	ug/Kg	☼	11/20/14 17:27	11/24/14 20:21	1
Acetophenone	390	U	390	33	ug/Kg	☼	11/20/14 17:27	11/24/14 20:21	1
3 & 4 Methylphenol	390	U	390	51	ug/Kg	☼	11/20/14 17:27	11/24/14 20:21	1
N-Nitrosodi-n-propylamine	390	U	390	38	ug/Kg	☼	11/20/14 17:27	11/24/14 20:21	1
Hexachloroethane	390	U	390	33	ug/Kg	☼	11/20/14 17:27	11/24/14 20:21	1
Nitrobenzene	390	U	390	31	ug/Kg	☼	11/20/14 17:27	11/24/14 20:21	1
Isophorone	390	U	390	39	ug/Kg	☼	11/20/14 17:27	11/24/14 20:21	1
2-Nitrophenol	390	U	390	48	ug/Kg	☼	11/20/14 17:27	11/24/14 20:21	1
2,4-Dimethylphenol	390	U	390	52	ug/Kg	☼	11/20/14 17:27	11/24/14 20:21	1
Bis(2-chloroethoxy)methane	390	U	390	46	ug/Kg	☼	11/20/14 17:27	11/24/14 20:21	1
2,4-Dichlorophenol	390	U	390	41	ug/Kg	☼	11/20/14 17:27	11/24/14 20:21	1
Naphthalene	390	U	390	35	ug/Kg	☼	11/20/14 17:27	11/24/14 20:21	1
4-Chloroaniline	780	U	780	61	ug/Kg	☼	11/20/14 17:27	11/24/14 20:21	1
Hexachlorobutadiene	390	U	390	42	ug/Kg	☼	11/20/14 17:27	11/24/14 20:21	1
Caprolactam	390	U	390	78	ug/Kg	☼	11/20/14 17:27	11/24/14 20:21	1
4-Chloro-3-methylphenol	390	U	390	41	ug/Kg	☼	11/20/14 17:27	11/24/14 20:21	1
2-Methylnaphthalene	390	U	390	45	ug/Kg	☼	11/20/14 17:27	11/24/14 20:21	1
Hexachlorocyclopentadiene	390	U	390	48	ug/Kg	☼	11/20/14 17:27	11/24/14 20:21	1
2,4,6-Trichlorophenol	390	U	390	34	ug/Kg	☼	11/20/14 17:27	11/24/14 20:21	1
2,4,5-Trichlorophenol	390	U	390	41	ug/Kg	☼	11/20/14 17:27	11/24/14 20:21	1
1,1'-Biphenyl	2000	U	2000	2000	ug/Kg	☼	11/20/14 17:27	11/24/14 20:21	1
2-Chloronaphthalene	390	U	390	41	ug/Kg	☼	11/20/14 17:27	11/24/14 20:21	1
2-Nitroaniline	2000	U	2000	53	ug/Kg	☼	11/20/14 17:27	11/24/14 20:21	1
Dimethyl phthalate	390	U	390	40	ug/Kg	☼	11/20/14 17:27	11/24/14 20:21	1
2,6-Dinitrotoluene	390	U	390	50	ug/Kg	☼	11/20/14 17:27	11/24/14 20:21	1
Acenaphthylene	390	U	390	42	ug/Kg	☼	11/20/14 17:27	11/24/14 20:21	1
3-Nitroaniline	2000	U	2000	54	ug/Kg	☼	11/20/14 17:27	11/24/14 20:21	1
Acenaphthene	390	U	390	48	ug/Kg	☼	11/20/14 17:27	11/24/14 20:21	1
2,4-Dinitrophenol	2000	U	2000	980	ug/Kg	☼	11/20/14 17:27	11/24/14 20:21	1
4-Nitrophenol	2000	U	2000	390	ug/Kg	☼	11/20/14 17:27	11/24/14 20:21	1
Dibenzofuran	390	U	390	39	ug/Kg	☼	11/20/14 17:27	11/24/14 20:21	1
2,4-Dinitrotoluene	390	U	390	58	ug/Kg	☼	11/20/14 17:27	11/24/14 20:21	1
Diethyl phthalate	390	U	390	44	ug/Kg	☼	11/20/14 17:27	11/24/14 20:21	1

Client Sample ID: GP-87(16-17)(111914)
Date Collected: 11/19/14 08:30
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-16
Matrix: Solid
Percent Solids: 84.6

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluorene	390	U	390	42	ug/Kg	☼	11/20/14 17:27	11/24/14 20:21	1
4-Chlorophenyl phenyl ether	390	U	390	52	ug/Kg	☼	11/20/14 17:27	11/24/14 20:21	1
4-Nitroaniline	2000	U	2000	58	ug/Kg	☼	11/20/14 17:27	11/24/14 20:21	1
4,6-Dinitro-2-methylphenol	2000	U	2000	200	ug/Kg	☼	11/20/14 17:27	11/24/14 20:21	1
N-Nitrosodiphenylamine	390	U	390	39	ug/Kg	☼	11/20/14 17:27	11/24/14 20:21	1
4-Bromophenyl phenyl ether	390	U	390	42	ug/Kg	☼	11/20/14 17:27	11/24/14 20:21	1
Hexachlorobenzene	390	U	390	46	ug/Kg	☼	11/20/14 17:27	11/24/14 20:21	1
Atrazine	390	U	390	27	ug/Kg	☼	11/20/14 17:27	11/24/14 20:21	1
Pentachlorophenol	2000	U	2000	390	ug/Kg	☼	11/20/14 17:27	11/24/14 20:21	1
Phenanthrene	**33**	**J**	390	32	ug/Kg	☼	11/20/14 17:27	11/24/14 20:21	1
Anthracene	390	U	390	29	ug/Kg	☼	11/20/14 17:27	11/24/14 20:21	1
Carbazole	390	U	390	35	ug/Kg	☼	11/20/14 17:27	11/24/14 20:21	1
Di-n-butyl phthalate	390	U	390	35	ug/Kg	☼	11/20/14 17:27	11/24/14 20:21	1
Fluoranthene	390	U	390	38	ug/Kg	☼	11/20/14 17:27	11/24/14 20:21	1
Pyrene	390	U	390	32	ug/Kg	☼	11/20/14 17:27	11/24/14 20:21	1
Butyl benzyl phthalate	390	U	390	31	ug/Kg	☼	11/20/14 17:27	11/24/14 20:21	1
3,3'-Dichlorobenzidine	780	U	780	33	ug/Kg	☼	11/20/14 17:27	11/24/14 20:21	1
Benzo[a]anthracene	390	U	390	32	ug/Kg	☼	11/20/14 17:27	11/24/14 20:21	1
Chrysene	390	U	390	25	ug/Kg	☼	11/20/14 17:27	11/24/14 20:21	1
Bis(2-ethylhexyl) phthalate	390	U	390	34	ug/Kg	☼	11/20/14 17:27	11/24/14 20:21	1
Di-n-octyl phthalate	390	U	390	34	ug/Kg	☼	11/20/14 17:27	11/24/14 20:21	1
Benzo[b]fluoranthene	390	U	390	45	ug/Kg	☼	11/20/14 17:27	11/24/14 20:21	1
Benzo[k]fluoranthene	390	U	390	77	ug/Kg	☼	11/20/14 17:27	11/24/14 20:21	1
Benzo[a]pyrene	390	U	390	61	ug/Kg	☼	11/20/14 17:27	11/24/14 20:21	1
Indeno[1,2,3-cd]pyrene	390	U	390	33	ug/Kg	☼	11/20/14 17:27	11/24/14 20:21	1
Dibenz(a,h)anthracene	390	U	390	46	ug/Kg	☼	11/20/14 17:27	11/24/14 20:21	1
Benzo[g,h,i]perylene	390	U	390	26	ug/Kg	☼	11/20/14 17:27	11/24/14 20:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*68*		*37 - 115*	*11/20/14 17:27*	*11/24/14 20:21*	*1*
2-Fluorobiphenyl	*76*		*41 - 116*	*11/20/14 17:27*	*11/24/14 20:21*	*1*
Terphenyl-d14 (Surr)	*79*		*46 - 126*	*11/20/14 17:27*	*11/24/14 20:21*	*1*
Phenol-d5 (Surr)	*65*		*38 - 122*	*11/20/14 17:27*	*11/24/14 20:21*	*1*
2-Fluorophenol (Surr)	*59*		*39 - 114*	*11/20/14 17:27*	*11/24/14 20:21*	*1*
2,4,6-Tribromophenol (Surr)	*60*		*45 - 129*	*11/20/14 17:27*	*11/24/14 20:21*	*1*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Gasoline Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**51**	**B**	29	2.2	mg/Kg	☼	11/20/14 16:38	12/01/14 16:56	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*35*	*X*	*70 - 131*	*11/20/14 16:38*	*12/01/14 16:56*	*20*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**29**		3.9	2.5	mg/Kg	☼	11/20/14 15:52	11/21/14 17:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*93*		*45 - 130*	*11/20/14 15:52*	*11/21/14 17:17*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: CSX C&O Canal Brunswick, MD

TestAmerica Job ID: 680-107453-1

Client Sample ID: GP-88(12-13)(111914)
Date Collected: 11/19/14 09:10
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-17
Matrix: Solid
Percent Solids: 82.4

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	26	U	26	7.6	ug/Kg	☼	11/23/14 10:00	11/23/14 15:25	1
Benzene	5.2	U	5.2	1.2	ug/Kg	☼	11/23/14 10:00	11/23/14 15:25	1
Bromodichloromethane	5.2	U	5.2	2.6	ug/Kg	☼	11/23/14 10:00	11/23/14 15:25	1
Bromoform	5.2	U	5.2	2.6	ug/Kg	☼	11/23/14 10:00	11/23/14 15:25	1
Bromomethane	5.2	U	5.2	2.6	ug/Kg	☼	11/23/14 10:00	11/23/14 15:25	1
Carbon disulfide	5.2	U	5.2	2.6	ug/Kg	☼	11/23/14 10:00	11/23/14 15:25	1
Carbon tetrachloride	5.2	U	5.2	1.8	ug/Kg	☼	11/23/14 10:00	11/23/14 15:25	1
Chlorobenzene	5.2	U	5.2	0.54	ug/Kg	☼	11/23/14 10:00	11/23/14 15:25	1
Chloroethane	5.2	U	5.2	2.6	ug/Kg	☼	11/23/14 10:00	11/23/14 15:25	1
Chloroform	5.2	U	5.2	2.6	ug/Kg	☼	11/23/14 10:00	11/23/14 15:25	1
Chloromethane	5.2	U	5.2	1.0	ug/Kg	☼	11/23/14 10:00	11/23/14 15:25	1
cis-1,2-Dichloroethene	5.2	U	5.2	0.79	ug/Kg	☼	11/23/14 10:00	11/23/14 15:25	1
cis-1,3-Dichloropropene	5.2	U	5.2	1.3	ug/Kg	☼	11/23/14 10:00	11/23/14 15:25	1
Cyclohexane	5.2	U	5.2	0.98	ug/Kg	☼	11/23/14 10:00	11/23/14 15:25	1
Dibromochloromethane	5.2	U	5.2	2.6	ug/Kg	☼	11/23/14 10:00	11/23/14 15:25	1
1,2-Dibromo-3-Chloropropane	5.2	U	5.2	3.5	ug/Kg	☼	11/23/14 10:00	11/23/14 15:25	1
1,2-Dichlorobenzene	5.2	U	5.2	0.74	ug/Kg	☼	11/23/14 10:00	11/23/14 15:25	1
1,3-Dichlorobenzene	5.2	U	5.2	0.99	ug/Kg	☼	11/23/14 10:00	11/23/14 15:25	1
1,4-Dichlorobenzene	5.2	U	5.2	2.6	ug/Kg	☼	11/23/14 10:00	11/23/14 15:25	1
Dichlorodifluoromethane	5.2	U	5.2	1.4	ug/Kg	☼	11/23/14 10:00	11/23/14 15:25	1
1,1-Dichloroethane	5.2	U	5.2	0.87	ug/Kg	☼	11/23/14 10:00	11/23/14 15:25	1
1,2-Dichloroethane	5.2	U	5.2	0.86	ug/Kg	☼	11/23/14 10:00	11/23/14 15:25	1
1,1-Dichloroethene	5.2	U	5.2	2.6	ug/Kg	☼	11/23/14 10:00	11/23/14 15:25	1
1,2-Dichloropropane	5.2	U	5.2	2.6	ug/Kg	☼	11/23/14 10:00	11/23/14 15:25	1
Diisopropyl ether	5.2	U	5.2	0.58	ug/Kg	☼	11/23/14 10:00	11/23/14 15:25	1
Ethylbenzene	5.2	U	5.2	0.64	ug/Kg	☼	11/23/14 10:00	11/23/14 15:25	1
Ethylene Dibromide	5.2	U	5.2	1.0	ug/Kg	☼	11/23/14 10:00	11/23/14 15:25	1
Ethyl tert-butyl ether	5.2	U	5.2	2.6	ug/Kg	☼	11/23/14 10:00	11/23/14 15:25	1
2-Hexanone	26	U	26	5.2	ug/Kg	☼	11/23/14 10:00	11/23/14 15:25	1
Isopropylbenzene	5.2	U	5.2	0.71	ug/Kg	☼	11/23/14 10:00	11/23/14 15:25	1
Methyl acetate	5.2	U	5.2	4.8	ug/Kg	☼	11/23/14 10:00	11/23/14 15:25	1
Methylcyclohexane	5.2	U	5.2	1.6	ug/Kg	☼	11/23/14 10:00	11/23/14 15:25	1
Methylene Chloride	16	U	16	10	ug/Kg	☼	11/23/14 10:00	11/23/14 15:25	1
Methyl Ethyl Ketone	26	U	26	6.3	ug/Kg	☼	11/23/14 10:00	11/23/14 15:25	1
methyl isobutyl ketone	26	U	26	5.2	ug/Kg	☼	11/23/14 10:00	11/23/14 15:25	1
Methyl tert-butyl ether	5.2	U	5.2	1.0	ug/Kg	☼	11/23/14 10:00	11/23/14 15:25	1
Naphthalene	5.2	U	5.2	2.1	ug/Kg	☼	11/23/14 10:00	11/23/14 15:25	1
Styrene	5.2	U	5.2	1.0	ug/Kg	☼	11/23/14 10:00	11/23/14 15:25	1
Tert-amyl methyl ether	5.2	U	5.2	1.0	ug/Kg	☼	11/23/14 10:00	11/23/14 15:25	1
tert-Butyl alcohol	**32**		10	8.4	ug/Kg	☼	11/23/14 10:00	11/23/14 15:25	1
1,1,2,2-Tetrachloroethane	5.2	U	5.2	2.6	ug/Kg	☼	11/23/14 10:00	11/23/14 15:25	1
Tetrachloroethene	5.2	U	5.2	2.6	ug/Kg	☼	11/23/14 10:00	11/23/14 15:25	1
Toluene	5.2	U	5.2	1.0	ug/Kg	☼	11/23/14 10:00	11/23/14 15:25	1
trans-1,2-Dichloroethene	5.2	U	5.2	2.6	ug/Kg	☼	11/23/14 10:00	11/23/14 15:25	1
trans-1,3-Dichloropropene	5.2	U	5.2	2.6	ug/Kg	☼	11/23/14 10:00	11/23/14 15:25	1
1,2,4-Trichlorobenzene	5.2	U	5.2	2.1	ug/Kg	☼	11/23/14 10:00	11/23/14 15:25	1
1,1,1-Trichloroethane	5.2	U	5.2	1.2	ug/Kg	☼	11/23/14 10:00	11/23/14 15:25	1
1,1,2-Trichloroethane	5.2	U	5.2	2.6	ug/Kg	☼	11/23/14 10:00	11/23/14 15:25	1
Trichloroethene	5.2	U	5.2	1.0	ug/Kg	☼	11/23/14 10:00	11/23/14 15:25	1

Client Sample ID: GP-88(12-13)(111914)
Date Collected: 11/19/14 09:10
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-17
Matrix: Solid
Percent Solids: 82.4

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichlorofluoromethane	5.2	U	5.2	2.6	ug/Kg	☼	11/23/14 10:00	11/23/14 15:25	1
1,1,2-Trichloro-1,2,2-trifluoroethane	5.2	U	5.2	2.1	ug/Kg	☼	11/23/14 10:00	11/23/14 15:25	1
Vinyl chloride	5.2	U	5.2	2.6	ug/Kg	☼	11/23/14 10:00	11/23/14 15:25	1
Xylenes, Total	5.2	U	5.2	1.0	ug/Kg	☼	11/23/14 10:00	11/23/14 15:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*88*		*72 - 122*	*11/23/14 10:00*	*11/23/14 15:25*	*1*
Dibromofluoromethane	*98*		*79 - 123*	*11/23/14 10:00*	*11/23/14 15:25*	*1*
Toluene-d8 (Surr)	*94*		*80 - 120*	*11/23/14 10:00*	*11/23/14 15:25*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzaldehyde	400	U	400	70	ug/Kg	☼	11/20/14 17:27	11/24/14 20:46	1
Phenol	400	U	400	41	ug/Kg	☼	11/20/14 17:27	11/24/14 20:46	1
Bis(2-chloroethyl)ether	400	U	400	54	ug/Kg	☼	11/20/14 17:27	11/24/14 20:46	1
2-Chlorophenol	400	U	400	48	ug/Kg	☼	11/20/14 17:27	11/24/14 20:46	1
2-Methylphenol	400	U	400	33	ug/Kg	☼	11/20/14 17:27	11/24/14 20:46	1
bis (2-chloroisopropyl) ether	400	U	400	36	ug/Kg	☼	11/20/14 17:27	11/24/14 20:46	1
Acetophenone	400	U	400	34	ug/Kg	☼	11/20/14 17:27	11/24/14 20:46	1
3 & 4 Methylphenol	400	U	400	52	ug/Kg	☼	11/20/14 17:27	11/24/14 20:46	1
N-Nitrosodi-n-propylamine	400	U	400	39	ug/Kg	☼	11/20/14 17:27	11/24/14 20:46	1
Hexachloroethane	400	U	400	34	ug/Kg	☼	11/20/14 17:27	11/24/14 20:46	1
Nitrobenzene	400	U	400	31	ug/Kg	☼	11/20/14 17:27	11/24/14 20:46	1
Isophorone	400	U	400	40	ug/Kg	☼	11/20/14 17:27	11/24/14 20:46	1
2-Nitrophenol	400	U	400	49	ug/Kg	☼	11/20/14 17:27	11/24/14 20:46	1
2,4-Dimethylphenol	400	U	400	53	ug/Kg	☼	11/20/14 17:27	11/24/14 20:46	1
Bis(2-chloroethoxy)methane	400	U	400	47	ug/Kg	☼	11/20/14 17:27	11/24/14 20:46	1
2,4-Dichlorophenol	400	U	400	42	ug/Kg	☼	11/20/14 17:27	11/24/14 20:46	1
Naphthalene	400	U	400	36	ug/Kg	☼	11/20/14 17:27	11/24/14 20:46	1
4-Chloroaniline	800	U	800	63	ug/Kg	☼	11/20/14 17:27	11/24/14 20:46	1
Hexachlorobutadiene	400	U	400	43	ug/Kg	☼	11/20/14 17:27	11/24/14 20:46	1
Caprolactam	400	U	400	80	ug/Kg	☼	11/20/14 17:27	11/24/14 20:46	1
4-Chloro-3-methylphenol	400	U	400	42	ug/Kg	☼	11/20/14 17:27	11/24/14 20:46	1
2-Methylnaphthalene	400	U	400	46	ug/Kg	☼	11/20/14 17:27	11/24/14 20:46	1
Hexachlorocyclopentadiene	400	U	400	49	ug/Kg	☼	11/20/14 17:27	11/24/14 20:46	1
2,4,6-Trichlorophenol	400	U	400	35	ug/Kg	☼	11/20/14 17:27	11/24/14 20:46	1
2,4,5-Trichlorophenol	400	U	400	42	ug/Kg	☼	11/20/14 17:27	11/24/14 20:46	1
1,1'-Biphenyl	2000	U	2000	2000	ug/Kg	☼	11/20/14 17:27	11/24/14 20:46	1
2-Chloronaphthalene	400	U	400	42	ug/Kg	☼	11/20/14 17:27	11/24/14 20:46	1
2-Nitroaniline	2000	U	2000	54	ug/Kg	☼	11/20/14 17:27	11/24/14 20:46	1
Dimethyl phthalate	400	U	400	41	ug/Kg	☼	11/20/14 17:27	11/24/14 20:46	1
2,6-Dinitrotoluene	400	U	400	51	ug/Kg	☼	11/20/14 17:27	11/24/14 20:46	1
Acenaphthylene	400	U	400	43	ug/Kg	☼	11/20/14 17:27	11/24/14 20:46	1
3-Nitroaniline	2000	U	2000	55	ug/Kg	☼	11/20/14 17:27	11/24/14 20:46	1
Acenaphthene	400	U	400	49	ug/Kg	☼	11/20/14 17:27	11/24/14 20:46	1
2,4-Dinitrophenol	2000	U	2000	1000	ug/Kg	☼	11/20/14 17:27	11/24/14 20:46	1
4-Nitrophenol	2000	U	2000	400	ug/Kg	☼	11/20/14 17:27	11/24/14 20:46	1
Dibenzofuran	400	U	400	40	ug/Kg	☼	11/20/14 17:27	11/24/14 20:46	1
2,4-Dinitrotoluene	400	U	400	59	ug/Kg	☼	11/20/14 17:27	11/24/14 20:46	1
Diethyl phthalate	400	U	400	45	ug/Kg	☼	11/20/14 17:27	11/24/14 20:46	1

Client Sample ID: GP-88(12-13)(111914)
Date Collected: 11/19/14 09:10
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-17
Matrix: Solid
Percent Solids: 82.4

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluorene	400	U	400	43	ug/Kg	☼	11/20/14 17:27	11/24/14 20:46	1
4-Chlorophenyl phenyl ether	400	U	400	53	ug/Kg	☼	11/20/14 17:27	11/24/14 20:46	1
4-Nitroaniline	2000	U	2000	59	ug/Kg	☼	11/20/14 17:27	11/24/14 20:46	1
4,6-Dinitro-2-methylphenol	2000	U	2000	200	ug/Kg	☼	11/20/14 17:27	11/24/14 20:46	1
N-Nitrosodiphenylamine	400	U	400	40	ug/Kg	☼	11/20/14 17:27	11/24/14 20:46	1
4-Bromophenyl phenyl ether	400	U	400	43	ug/Kg	☼	11/20/14 17:27	11/24/14 20:46	1
Hexachlorobenzene	400	U	400	47	ug/Kg	☼	11/20/14 17:27	11/24/14 20:46	1
Atrazine	400	U	400	28	ug/Kg	☼	11/20/14 17:27	11/24/14 20:46	1
Pentachlorophenol	2000	U	2000	400	ug/Kg	☼	11/20/14 17:27	11/24/14 20:46	1
Phenanthrene	400	U	400	33	ug/Kg	☼	11/20/14 17:27	11/24/14 20:46	1
Anthracene	400	U	400	30	ug/Kg	☼	11/20/14 17:27	11/24/14 20:46	1
Carbazole	400	U	400	36	ug/Kg	☼	11/20/14 17:27	11/24/14 20:46	1
Di-n-butyl phthalate	400	U	400	36	ug/Kg	☼	11/20/14 17:27	11/24/14 20:46	1
Fluoranthene	400	U	400	39	ug/Kg	☼	11/20/14 17:27	11/24/14 20:46	1
Pyrene	400	U	400	33	ug/Kg	☼	11/20/14 17:27	11/24/14 20:46	1
Butyl benzyl phthalate	400	U	400	31	ug/Kg	☼	11/20/14 17:27	11/24/14 20:46	1
3,3'-Dichlorobenzidine	800	U	800	34	ug/Kg	☼	11/20/14 17:27	11/24/14 20:46	1
Benzo[a]anthracene	400	U	400	33	ug/Kg	☼	11/20/14 17:27	11/24/14 20:46	1
Chrysene	400	U	400	25	ug/Kg	☼	11/20/14 17:27	11/24/14 20:46	1
Bis(2-ethylhexyl) phthalate	400	U	400	35	ug/Kg	☼	11/20/14 17:27	11/24/14 20:46	1
Di-n-octyl phthalate	400	U	400	35	ug/Kg	☼	11/20/14 17:27	11/24/14 20:46	1
Benzo[b]fluoranthene	400	U	400	46	ug/Kg	☼	11/20/14 17:27	11/24/14 20:46	1
Benzo[k]fluoranthene	400	U	400	78	ug/Kg	☼	11/20/14 17:27	11/24/14 20:46	1
Benzo[a]pyrene	400	U	400	63	ug/Kg	☼	11/20/14 17:27	11/24/14 20:46	1
Indeno[1,2,3-cd]pyrene	400	U	400	34	ug/Kg	☼	11/20/14 17:27	11/24/14 20:46	1
Dibenz(a,h)anthracene	400	U	400	47	ug/Kg	☼	11/20/14 17:27	11/24/14 20:46	1
Benzo[g,h,i]perylene	400	U	400	27	ug/Kg	☼	11/20/14 17:27	11/24/14 20:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*80*		*37 - 115*	*11/20/14 17:27*	*11/24/14 20:46*	*1*
2-Fluorobiphenyl	*81*		*41 - 116*	*11/20/14 17:27*	*11/24/14 20:46*	*1*
Terphenyl-d14 (Surr)	*90*		*46 - 126*	*11/20/14 17:27*	*11/24/14 20:46*	*1*
Phenol-d5 (Surr)	*69*		*38 - 122*	*11/20/14 17:27*	*11/24/14 20:46*	*1*
2-Fluorophenol (Surr)	*69*		*39 - 114*	*11/20/14 17:27*	*11/24/14 20:46*	*1*
2,4,6-Tribromophenol (Surr)	*72*		*45 - 129*	*11/20/14 17:27*	*11/24/14 20:46*	*1*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Gasoline Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**0.068**	**J B**	0.22	0.017	mg/Kg	☼	11/20/14 16:38	11/24/14 15:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*91*		*70 - 131*	*11/20/14 16:38*	*11/24/14 15:43*	*1*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	4.0	U	4.0	2.5	mg/Kg	☼	11/20/14 15:52	11/21/14 22:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*56*		*45 - 130*	*11/20/14 15:52*	*11/21/14 22:06*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: CSX C&O Canal Brunswick, MD

TestAmerica Job ID: 680-107453-1

Client Sample ID: GP-88(15-16)(111914)
Date Collected: 11/19/14 09:15
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-18
Matrix: Solid
Percent Solids: 83.5

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	25	U	25	7.2	ug/Kg	☼	11/23/14 10:00	11/23/14 15:49	1
Benzene	4.9	U	4.9	1.1	ug/Kg	☼	11/23/14 10:00	11/23/14 15:49	1
Bromodichloromethane	4.9	U	4.9	2.5	ug/Kg	☼	11/23/14 10:00	11/23/14 15:49	1
Bromoform	4.9	U	4.9	2.5	ug/Kg	☼	11/23/14 10:00	11/23/14 15:49	1
Bromomethane	4.9	U	4.9	2.5	ug/Kg	☼	11/23/14 10:00	11/23/14 15:49	1
Carbon disulfide	4.9	U	4.9	2.5	ug/Kg	☼	11/23/14 10:00	11/23/14 15:49	1
Carbon tetrachloride	4.9	U	4.9	1.7	ug/Kg	☼	11/23/14 10:00	11/23/14 15:49	1
Chlorobenzene	4.9	U	4.9	0.51	ug/Kg	☼	11/23/14 10:00	11/23/14 15:49	1
Chloroethane	4.9	U	4.9	2.5	ug/Kg	☼	11/23/14 10:00	11/23/14 15:49	1
Chloroform	4.9	U	4.9	2.5	ug/Kg	☼	11/23/14 10:00	11/23/14 15:49	1
Chloromethane	4.9	U	4.9	0.98	ug/Kg	☼	11/23/14 10:00	11/23/14 15:49	1
cis-1,2-Dichloroethene	4.9	U	4.9	0.75	ug/Kg	☼	11/23/14 10:00	11/23/14 15:49	1
cis-1,3-Dichloropropene	4.9	U	4.9	1.2	ug/Kg	☼	11/23/14 10:00	11/23/14 15:49	1
Cyclohexane	4.9	U	4.9	0.92	ug/Kg	☼	11/23/14 10:00	11/23/14 15:49	1
Dibromochloromethane	4.9	U	4.9	2.5	ug/Kg	☼	11/23/14 10:00	11/23/14 15:49	1
1,2-Dibromo-3-Chloropropane	4.9	U	4.9	3.2	ug/Kg	☼	11/23/14 10:00	11/23/14 15:49	1
1,2-Dichlorobenzene	4.9	U	4.9	0.70	ug/Kg	☼	11/23/14 10:00	11/23/14 15:49	1
1,3-Dichlorobenzene	4.9	U	4.9	0.93	ug/Kg	☼	11/23/14 10:00	11/23/14 15:49	1
1,4-Dichlorobenzene	4.9	U	4.9	2.5	ug/Kg	☼	11/23/14 10:00	11/23/14 15:49	1
Dichlorodifluoromethane	4.9	U	4.9	1.3	ug/Kg	☼	11/23/14 10:00	11/23/14 15:49	1
1,1-Dichloroethane	4.9	U	4.9	0.81	ug/Kg	☼	11/23/14 10:00	11/23/14 15:49	1
1,2-Dichloroethane	4.9	U	4.9	0.80	ug/Kg	☼	11/23/14 10:00	11/23/14 15:49	1
1,1-Dichloroethene	4.9	U	4.9	2.5	ug/Kg	☼	11/23/14 10:00	11/23/14 15:49	1
1,2-Dichloropropane	4.9	U	4.9	2.5	ug/Kg	☼	11/23/14 10:00	11/23/14 15:49	1
Diisopropyl ether	4.9	U	4.9	0.54	ug/Kg	☼	11/23/14 10:00	11/23/14 15:49	1
Ethylbenzene	4.9	U	4.9	0.60	ug/Kg	☼	11/23/14 10:00	11/23/14 15:49	1
Ethylene Dibromide	4.9	U	4.9	0.98	ug/Kg	☼	11/23/14 10:00	11/23/14 15:49	1
Ethyl tert-butyl ether	4.9	U	4.9	2.5	ug/Kg	☼	11/23/14 10:00	11/23/14 15:49	1
2-Hexanone	25	U	25	4.9	ug/Kg	☼	11/23/14 10:00	11/23/14 15:49	1
Isopropylbenzene	4.9	U	4.9	0.67	ug/Kg	☼	11/23/14 10:00	11/23/14 15:49	1
Methyl acetate	4.9	U	4.9	4.5	ug/Kg	☼	11/23/14 10:00	11/23/14 15:49	1
Methylcyclohexane	4.9	U	4.9	1.5	ug/Kg	☼	11/23/14 10:00	11/23/14 15:49	1
Methylene Chloride	15	U	15	9.8	ug/Kg	☼	11/23/14 10:00	11/23/14 15:49	1
Methyl Ethyl Ketone	25	U	25	5.9	ug/Kg	☼	11/23/14 10:00	11/23/14 15:49	1
methyl isobutyl ketone	25	U	25	4.9	ug/Kg	☼	11/23/14 10:00	11/23/14 15:49	1
Methyl tert-butyl ether	4.9	U	4.9	0.98	ug/Kg	☼	11/23/14 10:00	11/23/14 15:49	1
Naphthalene	4.9	U	4.9	2.0	ug/Kg	☼	11/23/14 10:00	11/23/14 15:49	1
Styrene	4.9	U	4.9	0.98	ug/Kg	☼	11/23/14 10:00	11/23/14 15:49	1
Tert-amyl methyl ether	4.9	U	4.9	0.98	ug/Kg	☼	11/23/14 10:00	11/23/14 15:49	1
tert-Butyl alcohol	9.8	U	9.8	7.8	ug/Kg	☼	11/23/14 10:00	11/23/14 15:49	1
1,1,2,2-Tetrachloroethane	4.9	U	4.9	2.5	ug/Kg	☼	11/23/14 10:00	11/23/14 15:49	1
Tetrachloroethene	4.9	U	4.9	2.5	ug/Kg	☼	11/23/14 10:00	11/23/14 15:49	1
Toluene	4.9	U	4.9	0.98	ug/Kg	☼	11/23/14 10:00	11/23/14 15:49	1
trans-1,2-Dichloroethene	4.9	U	4.9	2.5	ug/Kg	☼	11/23/14 10:00	11/23/14 15:49	1
trans-1,3-Dichloropropene	4.9	U	4.9	2.5	ug/Kg	☼	11/23/14 10:00	11/23/14 15:49	1
1,2,4-Trichlorobenzene	4.9	U	4.9	2.0	ug/Kg	☼	11/23/14 10:00	11/23/14 15:49	1
1,1,1-Trichloroethane	4.9	U	4.9	1.1	ug/Kg	☼	11/23/14 10:00	11/23/14 15:49	1
1,1,2-Trichloroethane	4.9	U	4.9	2.5	ug/Kg	☼	11/23/14 10:00	11/23/14 15:49	1
Trichloroethene	4.9	U	4.9	0.98	ug/Kg	☼	11/23/14 10:00	11/23/14 15:49	1

Client Sample ID: GP-88(15-16)(111914)
Date Collected: 11/19/14 09:15
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-18
Matrix: Solid
Percent Solids: 83.5

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichlorofluoromethane	4.9	U	4.9	2.5	ug/Kg	☼	11/23/14 10:00	11/23/14 15:49	1
1,1,2-Trichloro-1,2,2-trifluoroethane	4.9	U	4.9	2.0	ug/Kg	☼	11/23/14 10:00	11/23/14 15:49	1
Vinyl chloride	4.9	U	4.9	2.5	ug/Kg	☼	11/23/14 10:00	11/23/14 15:49	1
Xylenes, Total	4.9	U	4.9	0.98	ug/Kg	☼	11/23/14 10:00	11/23/14 15:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*91*		*72 - 122*	*11/23/14 10:00*	*11/23/14 15:49*	*1*
Dibromofluoromethane	*100*		*79 - 123*	*11/23/14 10:00*	*11/23/14 15:49*	*1*
Toluene-d8 (Surr)	*94*		*80 - 120*	*11/23/14 10:00*	*11/23/14 15:49*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzaldehyde	390	U	390	69	ug/Kg	☼	11/20/14 17:27	11/24/14 21:11	1
Phenol	390	U	390	41	ug/Kg	☼	11/20/14 17:27	11/24/14 21:11	1
Bis(2-chloroethyl)ether	390	U	390	54	ug/Kg	☼	11/20/14 17:27	11/24/14 21:11	1
2-Chlorophenol	390	U	390	48	ug/Kg	☼	11/20/14 17:27	11/24/14 21:11	1
2-Methylphenol	390	U	390	32	ug/Kg	☼	11/20/14 17:27	11/24/14 21:11	1
bis (2-chloroisopropyl) ether	390	U	390	36	ug/Kg	☼	11/20/14 17:27	11/24/14 21:11	1
Acetophenone	390	U	390	33	ug/Kg	☼	11/20/14 17:27	11/24/14 21:11	1
3 & 4 Methylphenol	390	U	390	51	ug/Kg	☼	11/20/14 17:27	11/24/14 21:11	1
N-Nitrosodi-n-propylamine	390	U	390	38	ug/Kg	☼	11/20/14 17:27	11/24/14 21:11	1
Hexachloroethane	390	U	390	33	ug/Kg	☼	11/20/14 17:27	11/24/14 21:11	1
Nitrobenzene	390	U	390	31	ug/Kg	☼	11/20/14 17:27	11/24/14 21:11	1
Isophorone	390	U	390	39	ug/Kg	☼	11/20/14 17:27	11/24/14 21:11	1
2-Nitrophenol	390	U	390	49	ug/Kg	☼	11/20/14 17:27	11/24/14 21:11	1
2,4-Dimethylphenol	390	U	390	52	ug/Kg	☼	11/20/14 17:27	11/24/14 21:11	1
Bis(2-chloroethoxy)methane	390	U	390	46	ug/Kg	☼	11/20/14 17:27	11/24/14 21:11	1
2,4-Dichlorophenol	390	U	390	42	ug/Kg	☼	11/20/14 17:27	11/24/14 21:11	1
Naphthalene	390	U	390	36	ug/Kg	☼	11/20/14 17:27	11/24/14 21:11	1
4-Chloroaniline	790	U	790	62	ug/Kg	☼	11/20/14 17:27	11/24/14 21:11	1
Hexachlorobutadiene	390	U	390	43	ug/Kg	☼	11/20/14 17:27	11/24/14 21:11	1
Caprolactam	390	U	390	79	ug/Kg	☼	11/20/14 17:27	11/24/14 21:11	1
4-Chloro-3-methylphenol	390	U	390	42	ug/Kg	☼	11/20/14 17:27	11/24/14 21:11	1
2-Methylnaphthalene	390	U	390	45	ug/Kg	☼	11/20/14 17:27	11/24/14 21:11	1
Hexachlorocyclopentadiene	390	U	390	49	ug/Kg	☼	11/20/14 17:27	11/24/14 21:11	1
2,4,6-Trichlorophenol	390	U	390	35	ug/Kg	☼	11/20/14 17:27	11/24/14 21:11	1
2,4,5-Trichlorophenol	390	U	390	42	ug/Kg	☼	11/20/14 17:27	11/24/14 21:11	1
1,1'-Biphenyl	2000	U	2000	2000	ug/Kg	☼	11/20/14 17:27	11/24/14 21:11	1
2-Chloronaphthalene	390	U	390	42	ug/Kg	☼	11/20/14 17:27	11/24/14 21:11	1
2-Nitroaniline	2000	U	2000	54	ug/Kg	☼	11/20/14 17:27	11/24/14 21:11	1
Dimethyl phthalate	390	U	390	41	ug/Kg	☼	11/20/14 17:27	11/24/14 21:11	1
2,6-Dinitrotoluene	390	U	390	50	ug/Kg	☼	11/20/14 17:27	11/24/14 21:11	1
Acenaphthylene	390	U	390	43	ug/Kg	☼	11/20/14 17:27	11/24/14 21:11	1
3-Nitroaniline	2000	U	2000	55	ug/Kg	☼	11/20/14 17:27	11/24/14 21:11	1
Acenaphthene	390	U	390	49	ug/Kg	☼	11/20/14 17:27	11/24/14 21:11	1
2,4-Dinitrophenol	2000	U	2000	990	ug/Kg	☼	11/20/14 17:27	11/24/14 21:11	1
4-Nitrophenol	2000	U	2000	390	ug/Kg	☼	11/20/14 17:27	11/24/14 21:11	1
Dibenzofuran	390	U	390	39	ug/Kg	☼	11/20/14 17:27	11/24/14 21:11	1
2,4-Dinitrotoluene	390	U	390	58	ug/Kg	☼	11/20/14 17:27	11/24/14 21:11	1
Diethyl phthalate	390	U	390	44	ug/Kg	☼	11/20/14 17:27	11/24/14 21:11	1

Client: ARCADIS U.S., Inc.
Project/Site: CSX C&O Canal Brunswick, MD

TestAmerica Job ID: 680-107453-1

Client Sample ID: GP-88(15-16)(111914)
Date Collected: 11/19/14 09:15
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-18
Matrix: Solid
Percent Solids: 83.5

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluorene	390	U	390	43	ug/Kg	☼	11/20/14 17:27	11/24/14 21:11	1
4-Chlorophenyl phenyl ether	390	U	390	52	ug/Kg	☼	11/20/14 17:27	11/24/14 21:11	1
4-Nitroaniline	2000	U	2000	58	ug/Kg	☼	11/20/14 17:27	11/24/14 21:11	1
4,6-Dinitro-2-methylphenol	2000	U	2000	200	ug/Kg	☼	11/20/14 17:27	11/24/14 21:11	1
N-Nitrosodiphenylamine	390	U	390	39	ug/Kg	☼	11/20/14 17:27	11/24/14 21:11	1
4-Bromophenyl phenyl ether	390	U	390	43	ug/Kg	☼	11/20/14 17:27	11/24/14 21:11	1
Hexachlorobenzene	390	U	390	46	ug/Kg	☼	11/20/14 17:27	11/24/14 21:11	1
Atrazine	390	U	390	27	ug/Kg	☼	11/20/14 17:27	11/24/14 21:11	1
Pentachlorophenol	2000	U	2000	390	ug/Kg	☼	11/20/14 17:27	11/24/14 21:11	1
Phenanthrene	**48**	**J**	390	32	ug/Kg	☼	11/20/14 17:27	11/24/14 21:11	1
Anthracene	390	U	390	30	ug/Kg	☼	11/20/14 17:27	11/24/14 21:11	1
Carbazole	390	U	390	36	ug/Kg	☼	11/20/14 17:27	11/24/14 21:11	1
Di-n-butyl phthalate	390	U	390	36	ug/Kg	☼	11/20/14 17:27	11/24/14 21:11	1
Fluoranthene	**220**	**J**	390	38	ug/Kg	☼	11/20/14 17:27	11/24/14 21:11	1
Pyrene	**180**	**J**	390	32	ug/Kg	☼	11/20/14 17:27	11/24/14 21:11	1
Butyl benzyl phthalate	390	U	390	31	ug/Kg	☼	11/20/14 17:27	11/24/14 21:11	1
3,3'-Dichlorobenzidine	790	U	790	33	ug/Kg	☼	11/20/14 17:27	11/24/14 21:11	1
Benzo[a]anthracene	390	U	390	32	ug/Kg	☼	11/20/14 17:27	11/24/14 21:11	1
Chrysene	**63**	**J**	390	25	ug/Kg	☼	11/20/14 17:27	11/24/14 21:11	1
Bis(2-ethylhexyl) phthalate	390	U	390	35	ug/Kg	☼	11/20/14 17:27	11/24/14 21:11	1
Di-n-octyl phthalate	390	U	390	35	ug/Kg	☼	11/20/14 17:27	11/24/14 21:11	1
Benzo[b]fluoranthene	**75**	**J**	390	45	ug/Kg	☼	11/20/14 17:27	11/24/14 21:11	1
Benzo[k]fluoranthene	390	U	390	77	ug/Kg	☼	11/20/14 17:27	11/24/14 21:11	1
Benzo[a]pyrene	390	U	390	62	ug/Kg	☼	11/20/14 17:27	11/24/14 21:11	1
Indeno[1,2,3-cd]pyrene	390	U	390	33	ug/Kg	☼	11/20/14 17:27	11/24/14 21:11	1
Dibenz(a,h)anthracene	390	U	390	46	ug/Kg	☼	11/20/14 17:27	11/24/14 21:11	1
Benzo[g,h,i]perylene	390	U	390	26	ug/Kg	☼	11/20/14 17:27	11/24/14 21:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*76*		*37 - 115*	*11/20/14 17:27*	*11/24/14 21:11*	*1*
2-Fluorobiphenyl	*82*		*41 - 116*	*11/20/14 17:27*	*11/24/14 21:11*	*1*
Terphenyl-d14 (Surr)	*88*		*46 - 126*	*11/20/14 17:27*	*11/24/14 21:11*	*1*
Phenol-d5 (Surr)	*77*		*38 - 122*	*11/20/14 17:27*	*11/24/14 21:11*	*1*
2-Fluorophenol (Surr)	*78*		*39 - 114*	*11/20/14 17:27*	*11/24/14 21:11*	*1*
2,4,6-Tribromophenol (Surr)	*94*		*45 - 129*	*11/20/14 17:27*	*11/24/14 21:11*	*1*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Gasoline Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	0.26	U	0.26	0.020	mg/Kg	☼	11/20/14 16:38	11/23/14 15:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*80*		*70 - 131*	*11/20/14 16:38*	*11/23/14 15:13*	*1*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**160**		3.9	2.5	mg/Kg	☼	11/20/14 15:52	11/21/14 22:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*59*		*45 - 130*	*11/20/14 15:52*	*11/21/14 22:21*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: CSX C&O Canal Brunswick, MD

TestAmerica Job ID: 680-107453-1

Client Sample ID: GP-89(12-13)(111914)
Date Collected: 11/19/14 10:10
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-19
Matrix: Solid
Percent Solids: 81.7

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	25	U	25	7.4	ug/Kg	☼	11/23/14 10:00	11/23/14 16:14	1
Benzene	5.1	U	5.1	1.1	ug/Kg	☼	11/23/14 10:00	11/23/14 16:14	1
Bromodichloromethane	5.1	U	5.1	2.5	ug/Kg	☼	11/23/14 10:00	11/23/14 16:14	1
Bromoform	5.1	U	5.1	2.5	ug/Kg	☼	11/23/14 10:00	11/23/14 16:14	1
Bromomethane	5.1	U	5.1	2.5	ug/Kg	☼	11/23/14 10:00	11/23/14 16:14	1
Carbon disulfide	5.1	U	5.1	2.5	ug/Kg	☼	11/23/14 10:00	11/23/14 16:14	1
Carbon tetrachloride	5.1	U	5.1	1.7	ug/Kg	☼	11/23/14 10:00	11/23/14 16:14	1
Chlorobenzene	5.1	U	5.1	0.53	ug/Kg	☼	11/23/14 10:00	11/23/14 16:14	1
Chloroethane	5.1	U	5.1	2.5	ug/Kg	☼	11/23/14 10:00	11/23/14 16:14	1
Chloroform	5.1	U	5.1	2.5	ug/Kg	☼	11/23/14 10:00	11/23/14 16:14	1
Chloromethane	5.1	U	5.1	1.0	ug/Kg	☼	11/23/14 10:00	11/23/14 16:14	1
cis-1,2-Dichloroethene	5.1	U	5.1	0.77	ug/Kg	☼	11/23/14 10:00	11/23/14 16:14	1
cis-1,3-Dichloropropene	5.1	U	5.1	1.2	ug/Kg	☼	11/23/14 10:00	11/23/14 16:14	1
Cyclohexane	5.1	U	5.1	0.95	ug/Kg	☼	11/23/14 10:00	11/23/14 16:14	1
Dibromochloromethane	5.1	U	5.1	2.5	ug/Kg	☼	11/23/14 10:00	11/23/14 16:14	1
1,2-Dibromo-3-Chloropropane	5.1	U	5.1	3.3	ug/Kg	☼	11/23/14 10:00	11/23/14 16:14	1
1,2-Dichlorobenzene	5.1	U	5.1	0.72	ug/Kg	☼	11/23/14 10:00	11/23/14 16:14	1
1,3-Dichlorobenzene	5.1	U	5.1	0.96	ug/Kg	☼	11/23/14 10:00	11/23/14 16:14	1
1,4-Dichlorobenzene	5.1	U	5.1	2.5	ug/Kg	☼	11/23/14 10:00	11/23/14 16:14	1
Dichlorodifluoromethane	5.1	U	5.1	1.3	ug/Kg	☼	11/23/14 10:00	11/23/14 16:14	1
1,1-Dichloroethane	5.1	U	5.1	0.84	ug/Kg	☼	11/23/14 10:00	11/23/14 16:14	1
1,2-Dichloroethane	5.1	U	5.1	0.83	ug/Kg	☼	11/23/14 10:00	11/23/14 16:14	1
1,1-Dichloroethene	5.1	U	5.1	2.5	ug/Kg	☼	11/23/14 10:00	11/23/14 16:14	1
1,2-Dichloropropane	5.1	U	5.1	2.5	ug/Kg	☼	11/23/14 10:00	11/23/14 16:14	1
Diisopropyl ether	5.1	U	5.1	0.56	ug/Kg	☼	11/23/14 10:00	11/23/14 16:14	1
Ethylbenzene	5.1	U	5.1	0.62	ug/Kg	☼	11/23/14 10:00	11/23/14 16:14	1
Ethylene Dibromide	5.1	U	5.1	1.0	ug/Kg	☼	11/23/14 10:00	11/23/14 16:14	1
Ethyl tert-butyl ether	5.1	U	5.1	2.5	ug/Kg	☼	11/23/14 10:00	11/23/14 16:14	1
2-Hexanone	25	U	25	5.1	ug/Kg	☼	11/23/14 10:00	11/23/14 16:14	1
Isopropylbenzene	5.1	U	5.1	0.69	ug/Kg	☼	11/23/14 10:00	11/23/14 16:14	1
Methyl acetate	5.1	U	5.1	4.7	ug/Kg	☼	11/23/14 10:00	11/23/14 16:14	1
Methylcyclohexane	5.1	U	5.1	1.5	ug/Kg	☼	11/23/14 10:00	11/23/14 16:14	1
Methylene Chloride	15	U	15	10	ug/Kg	☼	11/23/14 10:00	11/23/14 16:14	1
Methyl Ethyl Ketone	25	U	25	6.1	ug/Kg	☼	11/23/14 10:00	11/23/14 16:14	1
methyl isobutyl ketone	25	U	25	5.1	ug/Kg	☼	11/23/14 10:00	11/23/14 16:14	1
Methyl tert-butyl ether	5.1	U	5.1	1.0	ug/Kg	☼	11/23/14 10:00	11/23/14 16:14	1
Naphthalene	5.1	U	5.1	2.0	ug/Kg	☼	11/23/14 10:00	11/23/14 16:14	1
Styrene	5.1	U	5.1	1.0	ug/Kg	☼	11/23/14 10:00	11/23/14 16:14	1
Tert-amyl methyl ether	5.1	U	5.1	1.0	ug/Kg	☼	11/23/14 10:00	11/23/14 16:14	1
tert-Butyl alcohol	10	U	10	8.1	ug/Kg	☼	11/23/14 10:00	11/23/14 16:14	1
1,1,2,2-Tetrachloroethane	5.1	U	5.1	2.5	ug/Kg	☼	11/23/14 10:00	11/23/14 16:14	1
Tetrachloroethene	5.1	U	5.1	2.5	ug/Kg	☼	11/23/14 10:00	11/23/14 16:14	1
Toluene	5.1	U	5.1	1.0	ug/Kg	☼	11/23/14 10:00	11/23/14 16:14	1
trans-1,2-Dichloroethene	5.1	U	5.1	2.5	ug/Kg	☼	11/23/14 10:00	11/23/14 16:14	1
trans-1,3-Dichloropropene	5.1	U	5.1	2.5	ug/Kg	☼	11/23/14 10:00	11/23/14 16:14	1
1,2,4-Trichlorobenzene	5.1	U	5.1	2.0	ug/Kg	☼	11/23/14 10:00	11/23/14 16:14	1
1,1,1-Trichloroethane	5.1	U	5.1	1.1	ug/Kg	☼	11/23/14 10:00	11/23/14 16:14	1
1,1,2-Trichloroethane	5.1	U	5.1	2.5	ug/Kg	☼	11/23/14 10:00	11/23/14 16:14	1
Trichloroethene	5.1	U	5.1	1.0	ug/Kg	☼	11/23/14 10:00	11/23/14 16:14	1

Client Sample ID: GP-89(12-13)(111914)
Date Collected: 11/19/14 10:10
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-19
Matrix: Solid
Percent Solids: 81.7

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichlorofluoromethane	5.1	U	5.1	2.5	ug/Kg	☼	11/23/14 10:00	11/23/14 16:14	1
1,1,2-Trichloro-1,2,2-trifluoroethane	5.1	U	5.1	2.0	ug/Kg	☼	11/23/14 10:00	11/23/14 16:14	1
Vinyl chloride	5.1	U	5.1	2.5	ug/Kg	☼	11/23/14 10:00	11/23/14 16:14	1
Xylenes, Total	5.1	U	5.1	1.0	ug/Kg	☼	11/23/14 10:00	11/23/14 16:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*93*		*72 - 122*	*11/23/14 10:00*	*11/23/14 16:14*	*1*
Dibromofluoromethane	*102*		*79 - 123*	*11/23/14 10:00*	*11/23/14 16:14*	*1*
Toluene-d8 (Surr)	*94*		*80 - 120*	*11/23/14 10:00*	*11/23/14 16:14*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzaldehyde	400	U	400	70	ug/Kg	☼	11/20/14 17:27	11/24/14 21:36	1
Phenol	400	U	400	41	ug/Kg	☼	11/20/14 17:27	11/24/14 21:36	1
Bis(2-chloroethyl)ether	400	U	400	55	ug/Kg	☼	11/20/14 17:27	11/24/14 21:36	1
2-Chlorophenol	400	U	400	48	ug/Kg	☼	11/20/14 17:27	11/24/14 21:36	1
2-Methylphenol	400	U	400	33	ug/Kg	☼	11/20/14 17:27	11/24/14 21:36	1
bis (2-chloroisopropyl) ether	400	U	400	36	ug/Kg	☼	11/20/14 17:27	11/24/14 21:36	1
Acetophenone	400	U	400	34	ug/Kg	☼	11/20/14 17:27	11/24/14 21:36	1
3 & 4 Methylphenol	400	U	400	52	ug/Kg	☼	11/20/14 17:27	11/24/14 21:36	1
N-Nitrosodi-n-propylamine	400	U	400	39	ug/Kg	☼	11/20/14 17:27	11/24/14 21:36	1
Hexachloroethane	400	U	400	34	ug/Kg	☼	11/20/14 17:27	11/24/14 21:36	1
Nitrobenzene	400	U	400	31	ug/Kg	☼	11/20/14 17:27	11/24/14 21:36	1
Isophorone	400	U	400	40	ug/Kg	☼	11/20/14 17:27	11/24/14 21:36	1
2-Nitrophenol	400	U	400	50	ug/Kg	☼	11/20/14 17:27	11/24/14 21:36	1
2,4-Dimethylphenol	400	U	400	53	ug/Kg	☼	11/20/14 17:27	11/24/14 21:36	1
Bis(2-chloroethoxy)methane	400	U	400	47	ug/Kg	☼	11/20/14 17:27	11/24/14 21:36	1
2,4-Dichlorophenol	400	U	400	42	ug/Kg	☼	11/20/14 17:27	11/24/14 21:36	1
Naphthalene	400	U	400	36	ug/Kg	☼	11/20/14 17:27	11/24/14 21:36	1
4-Chloroaniline	800	U	800	63	ug/Kg	☼	11/20/14 17:27	11/24/14 21:36	1
Hexachlorobutadiene	400	U	400	44	ug/Kg	☼	11/20/14 17:27	11/24/14 21:36	1
Caprolactam	400	U	400	80	ug/Kg	☼	11/20/14 17:27	11/24/14 21:36	1
4-Chloro-3-methylphenol	400	U	400	42	ug/Kg	☼	11/20/14 17:27	11/24/14 21:36	1
2-Methylnaphthalene	400	U	400	46	ug/Kg	☼	11/20/14 17:27	11/24/14 21:36	1
Hexachlorocyclopentadiene	400	U	400	50	ug/Kg	☼	11/20/14 17:27	11/24/14 21:36	1
2,4,6-Trichlorophenol	400	U	400	35	ug/Kg	☼	11/20/14 17:27	11/24/14 21:36	1
2,4,5-Trichlorophenol	400	U	400	42	ug/Kg	☼	11/20/14 17:27	11/24/14 21:36	1
1,1'-Biphenyl	2100	U	2100	2100	ug/Kg	☼	11/20/14 17:27	11/24/14 21:36	1
2-Chloronaphthalene	400	U	400	42	ug/Kg	☼	11/20/14 17:27	11/24/14 21:36	1
2-Nitroaniline	2100	U	2100	55	ug/Kg	☼	11/20/14 17:27	11/24/14 21:36	1
Dimethyl phthalate	400	U	400	41	ug/Kg	☼	11/20/14 17:27	11/24/14 21:36	1
2,6-Dinitrotoluene	400	U	400	51	ug/Kg	☼	11/20/14 17:27	11/24/14 21:36	1
Acenaphthylene	400	U	400	44	ug/Kg	☼	11/20/14 17:27	11/24/14 21:36	1
3-Nitroaniline	2100	U	2100	56	ug/Kg	☼	11/20/14 17:27	11/24/14 21:36	1
Acenaphthene	400	U	400	50	ug/Kg	☼	11/20/14 17:27	11/24/14 21:36	1
2,4-Dinitrophenol	2100	U	2100	1000	ug/Kg	☼	11/20/14 17:27	11/24/14 21:36	1
4-Nitrophenol	2100	U	2100	400	ug/Kg	☼	11/20/14 17:27	11/24/14 21:36	1
Dibenzofuran	400	U	400	40	ug/Kg	☼	11/20/14 17:27	11/24/14 21:36	1
2,4-Dinitrotoluene	400	U	400	59	ug/Kg	☼	11/20/14 17:27	11/24/14 21:36	1
Diethyl phthalate	400	U	400	45	ug/Kg	☼	11/20/14 17:27	11/24/14 21:36	1

Client Sample ID: GP-89(12-13)(111914)
Date Collected: 11/19/14 10:10
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-19
Matrix: Solid
Percent Solids: 81.7

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluorene	400	U	400	44	ug/Kg	☼	11/20/14 17:27	11/24/14 21:36	1
4-Chlorophenyl phenyl ether	400	U	400	53	ug/Kg	☼	11/20/14 17:27	11/24/14 21:36	1
4-Nitroaniline	2100	U	2100	59	ug/Kg	☼	11/20/14 17:27	11/24/14 21:36	1
4,6-Dinitro-2-methylphenol	2100	U	2100	210	ug/Kg	☼	11/20/14 17:27	11/24/14 21:36	1
N-Nitrosodiphenylamine	400	U	400	40	ug/Kg	☼	11/20/14 17:27	11/24/14 21:36	1
4-Bromophenyl phenyl ether	400	U	400	44	ug/Kg	☼	11/20/14 17:27	11/24/14 21:36	1
Hexachlorobenzene	400	U	400	47	ug/Kg	☼	11/20/14 17:27	11/24/14 21:36	1
Atrazine	400	U	400	28	ug/Kg	☼	11/20/14 17:27	11/24/14 21:36	1
Pentachlorophenol	2100	U	2100	400	ug/Kg	☼	11/20/14 17:27	11/24/14 21:36	1
Phenanthrene	400	U	400	33	ug/Kg	☼	11/20/14 17:27	11/24/14 21:36	1
Anthracene	400	U	400	30	ug/Kg	☼	11/20/14 17:27	11/24/14 21:36	1
Carbazole	400	U	400	36	ug/Kg	☼	11/20/14 17:27	11/24/14 21:36	1
Di-n-butyl phthalate	400	U	400	36	ug/Kg	☼	11/20/14 17:27	11/24/14 21:36	1
Fluoranthene	400	U	400	39	ug/Kg	☼	11/20/14 17:27	11/24/14 21:36	1
Pyrene	400	U	400	33	ug/Kg	☼	11/20/14 17:27	11/24/14 21:36	1
Butyl benzyl phthalate	400	U	400	31	ug/Kg	☼	11/20/14 17:27	11/24/14 21:36	1
3,3'-Dichlorobenzidine	800	U	800	34	ug/Kg	☼	11/20/14 17:27	11/24/14 21:36	1
Benzo[a]anthracene	400	U	400	33	ug/Kg	☼	11/20/14 17:27	11/24/14 21:36	1
Chrysene	400	U	400	25	ug/Kg	☼	11/20/14 17:27	11/24/14 21:36	1
Bis(2-ethylhexyl) phthalate	400	U	400	35	ug/Kg	☼	11/20/14 17:27	11/24/14 21:36	1
Di-n-octyl phthalate	400	U	400	35	ug/Kg	☼	11/20/14 17:27	11/24/14 21:36	1
Benzo[b]fluoranthene	400	U	400	46	ug/Kg	☼	11/20/14 17:27	11/24/14 21:36	1
Benzo[k]fluoranthene	400	U	400	79	ug/Kg	☼	11/20/14 17:27	11/24/14 21:36	1
Benzo[a]pyrene	400	U	400	63	ug/Kg	☼	11/20/14 17:27	11/24/14 21:36	1
Indeno[1,2,3-cd]pyrene	400	U	400	34	ug/Kg	☼	11/20/14 17:27	11/24/14 21:36	1
Dibenz(a,h)anthracene	400	U	400	47	ug/Kg	☼	11/20/14 17:27	11/24/14 21:36	1
Benzo[g,h,i]perylene	400	U	400	27	ug/Kg	☼	11/20/14 17:27	11/24/14 21:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*80*		*37 - 115*	*11/20/14 17:27*	*11/24/14 21:36*	*1*
2-Fluorobiphenyl	*84*		*41 - 116*	*11/20/14 17:27*	*11/24/14 21:36*	*1*
Terphenyl-d14 (Surr)	*91*		*46 - 126*	*11/20/14 17:27*	*11/24/14 21:36*	*1*
Phenol-d5 (Surr)	*68*		*38 - 122*	*11/20/14 17:27*	*11/24/14 21:36*	*1*
2-Fluorophenol (Surr)	*63*		*39 - 114*	*11/20/14 17:27*	*11/24/14 21:36*	*1*
2,4,6-Tribromophenol (Surr)	*61*		*45 - 129*	*11/20/14 17:27*	*11/24/14 21:36*	*1*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Gasoline Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	0.27	U	0.27	0.020	mg/Kg	☼	11/20/14 16:38	11/23/14 15:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*76*		*70 - 131*	*11/20/14 16:38*	*11/23/14 15:35*	*1*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	4.0	U	4.0	2.6	mg/Kg	☼	11/20/14 15:52	11/21/14 22:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*69*		*45 - 130*	*11/20/14 15:52*	*11/21/14 22:35*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: CSX C&O Canal Brunswick, MD

TestAmerica Job ID: 680-107453-1

Client Sample ID: GP-89(15.5-16.5)(111914)
Date Collected: 11/19/14 10:15
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-20
Matrix: Solid
Percent Solids: 84.4

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	**12**	**J**	23	6.8	ug/Kg	☼	11/23/14 10:00	11/23/14 16:38	1
Benzene	4.6	U	4.6	1.0	ug/Kg	☼	11/23/14 10:00	11/23/14 16:38	1
Bromodichloromethane	4.6	U	4.6	2.3	ug/Kg	☼	11/23/14 10:00	11/23/14 16:38	1
Bromoform	4.6	U	4.6	2.3	ug/Kg	☼	11/23/14 10:00	11/23/14 16:38	1
Bromomethane	4.6	U	4.6	2.3	ug/Kg	☼	11/23/14 10:00	11/23/14 16:38	1
Carbon disulfide	4.6	U	4.6	2.3	ug/Kg	☼	11/23/14 10:00	11/23/14 16:38	1
Carbon tetrachloride	4.6	U	4.6	1.6	ug/Kg	☼	11/23/14 10:00	11/23/14 16:38	1
Chlorobenzene	4.6	U	4.6	0.48	ug/Kg	☼	11/23/14 10:00	11/23/14 16:38	1
Chloroethane	4.6	U	4.6	2.3	ug/Kg	☼	11/23/14 10:00	11/23/14 16:38	1
Chloroform	4.6	U	4.6	2.3	ug/Kg	☼	11/23/14 10:00	11/23/14 16:38	1
Chloromethane	4.6	U	4.6	0.93	ug/Kg	☼	11/23/14 10:00	11/23/14 16:38	1
cis-1,2-Dichloroethene	4.6	U	4.6	0.70	ug/Kg	☼	11/23/14 10:00	11/23/14 16:38	1
cis-1,3-Dichloropropene	4.6	U	4.6	1.1	ug/Kg	☼	11/23/14 10:00	11/23/14 16:38	1
Cyclohexane	4.6	U	4.6	0.87	ug/Kg	☼	11/23/14 10:00	11/23/14 16:38	1
Dibromochloromethane	4.6	U	4.6	2.3	ug/Kg	☼	11/23/14 10:00	11/23/14 16:38	1
1,2-Dibromo-3-Chloropropane	4.6	U	4.6	3.1	ug/Kg	☼	11/23/14 10:00	11/23/14 16:38	1
1,2-Dichlorobenzene	4.6	U	4.6	0.66	ug/Kg	☼	11/23/14 10:00	11/23/14 16:38	1
1,3-Dichlorobenzene	4.6	U	4.6	0.88	ug/Kg	☼	11/23/14 10:00	11/23/14 16:38	1
1,4-Dichlorobenzene	4.6	U	4.6	2.3	ug/Kg	☼	11/23/14 10:00	11/23/14 16:38	1
Dichlorodifluoromethane	4.6	U	4.6	1.2	ug/Kg	☼	11/23/14 10:00	11/23/14 16:38	1
1,1-Dichloroethane	4.6	U	4.6	0.77	ug/Kg	☼	11/23/14 10:00	11/23/14 16:38	1
1,2-Dichloroethane	4.6	U	4.6	0.76	ug/Kg	☼	11/23/14 10:00	11/23/14 16:38	1
1,1-Dichloroethene	4.6	U	4.6	2.3	ug/Kg	☼	11/23/14 10:00	11/23/14 16:38	1
1,2-Dichloropropane	4.6	U	4.6	2.3	ug/Kg	☼	11/23/14 10:00	11/23/14 16:38	1
Diisopropyl ether	4.6	U	4.6	0.51	ug/Kg	☼	11/23/14 10:00	11/23/14 16:38	1
Ethylbenzene	4.6	U	4.6	0.56	ug/Kg	☼	11/23/14 10:00	11/23/14 16:38	1
Ethylene Dibromide	4.6	U	4.6	0.93	ug/Kg	☼	11/23/14 10:00	11/23/14 16:38	1
Ethyl tert-butyl ether	4.6	U	4.6	2.3	ug/Kg	☼	11/23/14 10:00	11/23/14 16:38	1
2-Hexanone	23	U	23	4.6	ug/Kg	☼	11/23/14 10:00	11/23/14 16:38	1
Isopropylbenzene	4.6	U	4.6	0.63	ug/Kg	☼	11/23/14 10:00	11/23/14 16:38	1
Methyl acetate	4.6	U	4.6	4.3	ug/Kg	☼	11/23/14 10:00	11/23/14 16:38	1
Methylcyclohexane	4.6	U	4.6	1.4	ug/Kg	☼	11/23/14 10:00	11/23/14 16:38	1
Methylene Chloride	14	U	14	9.3	ug/Kg	☼	11/23/14 10:00	11/23/14 16:38	1
Methyl Ethyl Ketone	23	U	23	5.6	ug/Kg	☼	11/23/14 10:00	11/23/14 16:38	1
methyl isobutyl ketone	23	U	23	4.6	ug/Kg	☼	11/23/14 10:00	11/23/14 16:38	1
Methyl tert-butyl ether	4.6	U	4.6	0.93	ug/Kg	☼	11/23/14 10:00	11/23/14 16:38	1
Naphthalene	4.6	U	4.6	1.9	ug/Kg	☼	11/23/14 10:00	11/23/14 16:38	1
Styrene	4.6	U	4.6	0.93	ug/Kg	☼	11/23/14 10:00	11/23/14 16:38	1
Tert-amyl methyl ether	4.6	U	4.6	0.93	ug/Kg	☼	11/23/14 10:00	11/23/14 16:38	1
tert-Butyl alcohol	**9.8**		9.3	7.4	ug/Kg	☼	11/23/14 10:00	11/23/14 16:38	1
1,1,2,2-Tetrachloroethane	4.6	U	4.6	2.3	ug/Kg	☼	11/23/14 10:00	11/23/14 16:38	1
Tetrachloroethene	4.6	U	4.6	2.3	ug/Kg	☼	11/23/14 10:00	11/23/14 16:38	1
Toluene	4.6	U	4.6	0.93	ug/Kg	☼	11/23/14 10:00	11/23/14 16:38	1
trans-1,2-Dichloroethene	4.6	U	4.6	2.3	ug/Kg	☼	11/23/14 10:00	11/23/14 16:38	1
trans-1,3-Dichloropropene	4.6	U	4.6	2.3	ug/Kg	☼	11/23/14 10:00	11/23/14 16:38	1
1,2,4-Trichlorobenzene	4.6	U	4.6	1.9	ug/Kg	☼	11/23/14 10:00	11/23/14 16:38	1
1,1,1-Trichloroethane	4.6	U	4.6	1.0	ug/Kg	☼	11/23/14 10:00	11/23/14 16:38	1
1,1,2-Trichloroethane	4.6	U	4.6	2.3	ug/Kg	☼	11/23/14 10:00	11/23/14 16:38	1
Trichloroethene	4.6	U	4.6	0.93	ug/Kg	☼	11/23/14 10:00	11/23/14 16:38	1

Client Sample ID: GP-89(15.5-16.5)(111914)
Date Collected: 11/19/14 10:15
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-20
Matrix: Solid
Percent Solids: 84.4

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichlorofluoromethane	4.6	U	4.6	2.3	ug/Kg	☼	11/23/14 10:00	11/23/14 16:38	1
1,1,2-Trichloro-1,2,2-trifluoroethane	4.6	U	4.6	1.9	ug/Kg	☼	11/23/14 10:00	11/23/14 16:38	1
Vinyl chloride	4.6	U	4.6	2.3	ug/Kg	☼	11/23/14 10:00	11/23/14 16:38	1
Xylenes, Total	4.6	U	4.6	0.93	ug/Kg	☼	11/23/14 10:00	11/23/14 16:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*90*		*72 - 122*	*11/23/14 10:00*	*11/23/14 16:38*	*1*
Dibromofluoromethane	*97*		*79 - 123*	*11/23/14 10:00*	*11/23/14 16:38*	*1*
Toluene-d8 (Surr)	*95*		*80 - 120*	*11/23/14 10:00*	*11/23/14 16:38*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzaldehyde	390	U	390	68	ug/Kg	☼	11/20/14 17:27	11/24/14 22:01	1
Phenol	390	U	390	40	ug/Kg	☼	11/20/14 17:27	11/24/14 22:01	1
Bis(2-chloroethyl)ether	390	U	390	53	ug/Kg	☼	11/20/14 17:27	11/24/14 22:01	1
2-Chlorophenol	390	U	390	47	ug/Kg	☼	11/20/14 17:27	11/24/14 22:01	1
2-Methylphenol	390	U	390	32	ug/Kg	☼	11/20/14 17:27	11/24/14 22:01	1
bis (2-chloroisopropyl) ether	390	U	390	35	ug/Kg	☼	11/20/14 17:27	11/24/14 22:01	1
Acetophenone	390	U	390	33	ug/Kg	☼	11/20/14 17:27	11/24/14 22:01	1
3 & 4 Methylphenol	390	U	390	51	ug/Kg	☼	11/20/14 17:27	11/24/14 22:01	1
N-Nitrosodi-n-propylamine	390	U	390	38	ug/Kg	☼	11/20/14 17:27	11/24/14 22:01	1
Hexachloroethane	390	U	390	33	ug/Kg	☼	11/20/14 17:27	11/24/14 22:01	1
Nitrobenzene	390	U	390	31	ug/Kg	☼	11/20/14 17:27	11/24/14 22:01	1
Isophorone	390	U	390	39	ug/Kg	☼	11/20/14 17:27	11/24/14 22:01	1
2-Nitrophenol	390	U	390	48	ug/Kg	☼	11/20/14 17:27	11/24/14 22:01	1
2,4-Dimethylphenol	390	U	390	52	ug/Kg	☼	11/20/14 17:27	11/24/14 22:01	1
Bis(2-chloroethoxy)methane	390	U	390	46	ug/Kg	☼	11/20/14 17:27	11/24/14 22:01	1
2,4-Dichlorophenol	390	U	390	41	ug/Kg	☼	11/20/14 17:27	11/24/14 22:01	1
Naphthalene	390	U	390	35	ug/Kg	☼	11/20/14 17:27	11/24/14 22:01	1
4-Chloroaniline	780	U	780	61	ug/Kg	☼	11/20/14 17:27	11/24/14 22:01	1
Hexachlorobutadiene	390	U	390	42	ug/Kg	☼	11/20/14 17:27	11/24/14 22:01	1
Caprolactam	390	U	390	78	ug/Kg	☼	11/20/14 17:27	11/24/14 22:01	1
4-Chloro-3-methylphenol	390	U	390	41	ug/Kg	☼	11/20/14 17:27	11/24/14 22:01	1
2-Methylnaphthalene	390	U	390	45	ug/Kg	☼	11/20/14 17:27	11/24/14 22:01	1
Hexachlorocyclopentadiene	390	U	390	48	ug/Kg	☼	11/20/14 17:27	11/24/14 22:01	1
2,4,6-Trichlorophenol	390	U	390	34	ug/Kg	☼	11/20/14 17:27	11/24/14 22:01	1
2,4,5-Trichlorophenol	390	U	390	41	ug/Kg	☼	11/20/14 17:27	11/24/14 22:01	1
1,1'-Biphenyl	2000	U	2000	2000	ug/Kg	☼	11/20/14 17:27	11/24/14 22:01	1
2-Chloronaphthalene	390	U	390	41	ug/Kg	☼	11/20/14 17:27	11/24/14 22:01	1
2-Nitroaniline	2000	U	2000	53	ug/Kg	☼	11/20/14 17:27	11/24/14 22:01	1
Dimethyl phthalate	390	U	390	40	ug/Kg	☼	11/20/14 17:27	11/24/14 22:01	1
2,6-Dinitrotoluene	390	U	390	49	ug/Kg	☼	11/20/14 17:27	11/24/14 22:01	1
Acenaphthylene	390	U	390	42	ug/Kg	☼	11/20/14 17:27	11/24/14 22:01	1
3-Nitroaniline	2000	U	2000	54	ug/Kg	☼	11/20/14 17:27	11/24/14 22:01	1
Acenaphthene	390	U	390	48	ug/Kg	☼	11/20/14 17:27	11/24/14 22:01	1
2,4-Dinitrophenol	2000	U	2000	980	ug/Kg	☼	11/20/14 17:27	11/24/14 22:01	1
4-Nitrophenol	2000	U	2000	390	ug/Kg	☼	11/20/14 17:27	11/24/14 22:01	1
Dibenzofuran	390	U	390	39	ug/Kg	☼	11/20/14 17:27	11/24/14 22:01	1
2,4-Dinitrotoluene	390	U	390	58	ug/Kg	☼	11/20/14 17:27	11/24/14 22:01	1
Diethyl phthalate	390	U	390	43	ug/Kg	☼	11/20/14 17:27	11/24/14 22:01	1

Client Sample ID: GP-89(15.5-16.5)(111914)
Date Collected: 11/19/14 10:15
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-20
Matrix: Solid
Percent Solids: 84.4

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluorene	390	U	390	42	ug/Kg	☼	11/20/14 17:27	11/24/14 22:01	1
4-Chlorophenyl phenyl ether	390	U	390	52	ug/Kg	☼	11/20/14 17:27	11/24/14 22:01	1
4-Nitroaniline	2000	U	2000	58	ug/Kg	☼	11/20/14 17:27	11/24/14 22:01	1
4,6-Dinitro-2-methylphenol	2000	U	2000	200	ug/Kg	☼	11/20/14 17:27	11/24/14 22:01	1
N-Nitrosodiphenylamine	390	U	390	39	ug/Kg	☼	11/20/14 17:27	11/24/14 22:01	1
4-Bromophenyl phenyl ether	390	U	390	42	ug/Kg	☼	11/20/14 17:27	11/24/14 22:01	1
Hexachlorobenzene	390	U	390	46	ug/Kg	☼	11/20/14 17:27	11/24/14 22:01	1
Atrazine	390	U	390	27	ug/Kg	☼	11/20/14 17:27	11/24/14 22:01	1
Pentachlorophenol	2000	U	2000	390	ug/Kg	☼	11/20/14 17:27	11/24/14 22:01	1
Phenanthrene	390	U	390	32	ug/Kg	☼	11/20/14 17:27	11/24/14 22:01	1
Anthracene	390	U	390	29	ug/Kg	☼	11/20/14 17:27	11/24/14 22:01	1
Carbazole	390	U	390	35	ug/Kg	☼	11/20/14 17:27	11/24/14 22:01	1
Di-n-butyl phthalate	390	U	390	35	ug/Kg	☼	11/20/14 17:27	11/24/14 22:01	1
Fluoranthene	390	U	390	38	ug/Kg	☼	11/20/14 17:27	11/24/14 22:01	1
Pyrene	390	U	390	32	ug/Kg	☼	11/20/14 17:27	11/24/14 22:01	1
Butyl benzyl phthalate	390	U	390	31	ug/Kg	☼	11/20/14 17:27	11/24/14 22:01	1
3,3'-Dichlorobenzidine	780	U	780	33	ug/Kg	☼	11/20/14 17:27	11/24/14 22:01	1
Benzo[a]anthracene	390	U	390	32	ug/Kg	☼	11/20/14 17:27	11/24/14 22:01	1
Chrysene	390	U	390	25	ug/Kg	☼	11/20/14 17:27	11/24/14 22:01	1
Bis(2-ethylhexyl) phthalate	390	U	390	34	ug/Kg	☼	11/20/14 17:27	11/24/14 22:01	1
Di-n-octyl phthalate	390	U	390	34	ug/Kg	☼	11/20/14 17:27	11/24/14 22:01	1
Benzo[b]fluoranthene	390	U	390	45	ug/Kg	☼	11/20/14 17:27	11/24/14 22:01	1
Benzo[k]fluoranthene	390	U	390	76	ug/Kg	☼	11/20/14 17:27	11/24/14 22:01	1
Benzo[a]pyrene	390	U	390	61	ug/Kg	☼	11/20/14 17:27	11/24/14 22:01	1
Indeno[1,2,3-cd]pyrene	390	U	390	33	ug/Kg	☼	11/20/14 17:27	11/24/14 22:01	1
Dibenz(a,h)anthracene	390	U	390	46	ug/Kg	☼	11/20/14 17:27	11/24/14 22:01	1
Benzo[g,h,i]perylene	390	U	390	26	ug/Kg	☼	11/20/14 17:27	11/24/14 22:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*63*		*37 - 115*	*11/20/14 17:27*	*11/24/14 22:01*	*1*
2-Fluorobiphenyl	*74*		*41 - 116*	*11/20/14 17:27*	*11/24/14 22:01*	*1*
Terphenyl-d14 (Surr)	*79*		*46 - 126*	*11/20/14 17:27*	*11/24/14 22:01*	*1*
Phenol-d5 (Surr)	*66*		*38 - 122*	*11/20/14 17:27*	*11/24/14 22:01*	*1*
2-Fluorophenol (Surr)	*66*		*39 - 114*	*11/20/14 17:27*	*11/24/14 22:01*	*1*
2,4,6-Tribromophenol (Surr)	*79*		*45 - 129*	*11/20/14 17:27*	*11/24/14 22:01*	*1*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Gasoline Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**0.080**	**J**	0.22	0.017	mg/Kg	☼	11/20/14 16:38	11/23/14 15:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*86*		*70 - 131*	*11/20/14 16:38*	*11/23/14 15:57*	*1*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**3.1**	**J**	3.9	2.5	mg/Kg	☼	11/20/14 15:52	11/21/14 22:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*65*		*45 - 130*	*11/20/14 15:52*	*11/21/14 22:50*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: CSX C&O Canal Brunswick, MD

TestAmerica Job ID: 680-107453-1

Client Sample ID: GP-90(9-10)(111914)
Date Collected: 11/19/14 10:45
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-21
Matrix: Solid
Percent Solids: 83.8

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	26	U	26	7.6	ug/Kg	☼	11/23/14 10:00	11/23/14 17:03	1
Benzene	5.2	U	5.2	1.1	ug/Kg	☼	11/23/14 10:00	11/23/14 17:03	1
Bromodichloromethane	5.2	U	5.2	2.6	ug/Kg	☼	11/23/14 10:00	11/23/14 17:03	1
Bromoform	5.2	U	5.2	2.6	ug/Kg	☼	11/23/14 10:00	11/23/14 17:03	1
Bromomethane	5.2	U	5.2	2.6	ug/Kg	☼	11/23/14 10:00	11/23/14 17:03	1
Carbon disulfide	5.2	U	5.2	2.6	ug/Kg	☼	11/23/14 10:00	11/23/14 17:03	1
Carbon tetrachloride	5.2	U	5.2	1.8	ug/Kg	☼	11/23/14 10:00	11/23/14 17:03	1
Chlorobenzene	5.2	U	5.2	0.54	ug/Kg	☼	11/23/14 10:00	11/23/14 17:03	1
Chloroethane	5.2	U	5.2	2.6	ug/Kg	☼	11/23/14 10:00	11/23/14 17:03	1
Chloroform	5.2	U	5.2	2.6	ug/Kg	☼	11/23/14 10:00	11/23/14 17:03	1
Chloromethane	5.2	U	5.2	1.0	ug/Kg	☼	11/23/14 10:00	11/23/14 17:03	1
cis-1,2-Dichloroethene	5.2	U	5.2	0.79	ug/Kg	☼	11/23/14 10:00	11/23/14 17:03	1
cis-1,3-Dichloropropene	5.2	U	5.2	1.2	ug/Kg	☼	11/23/14 10:00	11/23/14 17:03	1
Cyclohexane	5.2	U	5.2	0.98	ug/Kg	☼	11/23/14 10:00	11/23/14 17:03	1
Dibromochloromethane	5.2	U	5.2	2.6	ug/Kg	☼	11/23/14 10:00	11/23/14 17:03	1
1,2-Dibromo-3-Chloropropane	5.2	U	5.2	3.4	ug/Kg	☼	11/23/14 10:00	11/23/14 17:03	1
1,2-Dichlorobenzene	5.2	U	5.2	0.74	ug/Kg	☼	11/23/14 10:00	11/23/14 17:03	1
1,3-Dichlorobenzene	5.2	U	5.2	0.99	ug/Kg	☼	11/23/14 10:00	11/23/14 17:03	1
1,4-Dichlorobenzene	5.2	U	5.2	2.6	ug/Kg	☼	11/23/14 10:00	11/23/14 17:03	1
Dichlorodifluoromethane	5.2	U	5.2	1.3	ug/Kg	☼	11/23/14 10:00	11/23/14 17:03	1
1,1-Dichloroethane	5.2	U	5.2	0.86	ug/Kg	☼	11/23/14 10:00	11/23/14 17:03	1
1,2-Dichloroethane	5.2	U	5.2	0.85	ug/Kg	☼	11/23/14 10:00	11/23/14 17:03	1
1,1-Dichloroethene	5.2	U	5.2	2.6	ug/Kg	☼	11/23/14 10:00	11/23/14 17:03	1
1,2-Dichloropropane	5.2	U	5.2	2.6	ug/Kg	☼	11/23/14 10:00	11/23/14 17:03	1
Diisopropyl ether	5.2	U	5.2	0.57	ug/Kg	☼	11/23/14 10:00	11/23/14 17:03	1
Ethylbenzene	5.2	U	5.2	0.63	ug/Kg	☼	11/23/14 10:00	11/23/14 17:03	1
Ethylene Dibromide	5.2	U	5.2	1.0	ug/Kg	☼	11/23/14 10:00	11/23/14 17:03	1
Ethyl tert-butyl ether	5.2	U	5.2	2.6	ug/Kg	☼	11/23/14 10:00	11/23/14 17:03	1
2-Hexanone	26	U	26	5.2	ug/Kg	☼	11/23/14 10:00	11/23/14 17:03	1
Isopropylbenzene	5.2	U	5.2	0.71	ug/Kg	☼	11/23/14 10:00	11/23/14 17:03	1
Methyl acetate	5.2	U	5.2	4.8	ug/Kg	☼	11/23/14 10:00	11/23/14 17:03	1
Methylcyclohexane	5.2	U	5.2	1.6	ug/Kg	☼	11/23/14 10:00	11/23/14 17:03	1
Methylene Chloride	16	U	16	10	ug/Kg	☼	11/23/14 10:00	11/23/14 17:03	1
Methyl Ethyl Ketone	26	U	26	6.2	ug/Kg	☼	11/23/14 10:00	11/23/14 17:03	1
methyl isobutyl ketone	26	U	26	5.2	ug/Kg	☼	11/23/14 10:00	11/23/14 17:03	1
Methyl tert-butyl ether	5.2	U	5.2	1.0	ug/Kg	☼	11/23/14 10:00	11/23/14 17:03	1
Naphthalene	5.2	U	5.2	2.1	ug/Kg	☼	11/23/14 10:00	11/23/14 17:03	1
Styrene	5.2	U	5.2	1.0	ug/Kg	☼	11/23/14 10:00	11/23/14 17:03	1
Tert-amyl methyl ether	5.2	U	5.2	1.0	ug/Kg	☼	11/23/14 10:00	11/23/14 17:03	1
tert-Butyl alcohol	10	U	10	8.3	ug/Kg	☼	11/23/14 10:00	11/23/14 17:03	1
1,1,2,2-Tetrachloroethane	5.2	U	5.2	2.6	ug/Kg	☼	11/23/14 10:00	11/23/14 17:03	1
Tetrachloroethene	5.2	U	5.2	2.6	ug/Kg	☼	11/23/14 10:00	11/23/14 17:03	1
Toluene	5.2	U	5.2	1.0	ug/Kg	☼	11/23/14 10:00	11/23/14 17:03	1
trans-1,2-Dichloroethene	5.2	U	5.2	2.6	ug/Kg	☼	11/23/14 10:00	11/23/14 17:03	1
trans-1,3-Dichloropropene	5.2	U	5.2	2.6	ug/Kg	☼	11/23/14 10:00	11/23/14 17:03	1
1,2,4-Trichlorobenzene	5.2	U	5.2	2.1	ug/Kg	☼	11/23/14 10:00	11/23/14 17:03	1
1,1,1-Trichloroethane	5.2	U	5.2	1.1	ug/Kg	☼	11/23/14 10:00	11/23/14 17:03	1
1,1,2-Trichloroethane	5.2	U	5.2	2.6	ug/Kg	☼	11/23/14 10:00	11/23/14 17:03	1
Trichloroethene	5.2	U	5.2	1.0	ug/Kg	☼	11/23/14 10:00	11/23/14 17:03	1

Client Sample ID: GP-90(9-10)(111914)
Date Collected: 11/19/14 10:45
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-21
Matrix: Solid
Percent Solids: 83.8

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichlorofluoromethane	5.2	U	5.2	2.6	ug/Kg	☼	11/23/14 10:00	11/23/14 17:03	1
1,1,2-Trichloro-1,2,2-trifluoroethane	5.2	U	5.2	2.1	ug/Kg	☼	11/23/14 10:00	11/23/14 17:03	1
Vinyl chloride	5.2	U	5.2	2.6	ug/Kg	☼	11/23/14 10:00	11/23/14 17:03	1
Xylenes, Total	5.2	U	5.2	1.0	ug/Kg	☼	11/23/14 10:00	11/23/14 17:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*94*		*72 - 122*	*11/23/14 10:00*	*11/23/14 17:03*	*1*
Dibromofluoromethane	*102*		*79 - 123*	*11/23/14 10:00*	*11/23/14 17:03*	*1*
Toluene-d8 (Surr)	*97*		*80 - 120*	*11/23/14 10:00*	*11/23/14 17:03*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzaldehyde	390	U	390	69	ug/Kg	☼	11/20/14 17:57	11/24/14 16:02	1
Phenol	390	U	390	41	ug/Kg	☼	11/20/14 17:57	11/24/14 16:02	1
Bis(2-chloroethyl)ether	390	U	390	54	ug/Kg	☼	11/20/14 17:57	11/24/14 16:02	1
2-Chlorophenol	390	U	390	48	ug/Kg	☼	11/20/14 17:57	11/24/14 16:02	1
2-Methylphenol	390	U	390	32	ug/Kg	☼	11/20/14 17:57	11/24/14 16:02	1
bis (2-chloroisopropyl) ether	390	U	390	36	ug/Kg	☼	11/20/14 17:57	11/24/14 16:02	1
Acetophenone	390	U	390	33	ug/Kg	☼	11/20/14 17:57	11/24/14 16:02	1
3 & 4 Methylphenol	390	U	390	51	ug/Kg	☼	11/20/14 17:57	11/24/14 16:02	1
N-Nitrosodi-n-propylamine	390	U	390	38	ug/Kg	☼	11/20/14 17:57	11/24/14 16:02	1
Hexachloroethane	390	U	390	33	ug/Kg	☼	11/20/14 17:57	11/24/14 16:02	1
Nitrobenzene	390	U	390	31	ug/Kg	☼	11/20/14 17:57	11/24/14 16:02	1
Isophorone	390	U	390	39	ug/Kg	☼	11/20/14 17:57	11/24/14 16:02	1
2-Nitrophenol	390	U	390	49	ug/Kg	☼	11/20/14 17:57	11/24/14 16:02	1
2,4-Dimethylphenol	390	U	390	52	ug/Kg	☼	11/20/14 17:57	11/24/14 16:02	1
Bis(2-chloroethoxy)methane	390	U	390	46	ug/Kg	☼	11/20/14 17:57	11/24/14 16:02	1
2,4-Dichlorophenol	390	U	390	42	ug/Kg	☼	11/20/14 17:57	11/24/14 16:02	1
Naphthalene	390	U	390	36	ug/Kg	☼	11/20/14 17:57	11/24/14 16:02	1
4-Chloroaniline	790	U	790	62	ug/Kg	☼	11/20/14 17:57	11/24/14 16:02	1
Hexachlorobutadiene	390	U	390	43	ug/Kg	☼	11/20/14 17:57	11/24/14 16:02	1
Caprolactam	390	U	390	79	ug/Kg	☼	11/20/14 17:57	11/24/14 16:02	1
4-Chloro-3-methylphenol	390	U	390	42	ug/Kg	☼	11/20/14 17:57	11/24/14 16:02	1
2-Methylnaphthalene	390	U	390	45	ug/Kg	☼	11/20/14 17:57	11/24/14 16:02	1
Hexachlorocyclopentadiene	390	U	390	49	ug/Kg	☼	11/20/14 17:57	11/24/14 16:02	1
2,4,6-Trichlorophenol	390	U	390	35	ug/Kg	☼	11/20/14 17:57	11/24/14 16:02	1
2,4,5-Trichlorophenol	390	U	390	42	ug/Kg	☼	11/20/14 17:57	11/24/14 16:02	1
1,1'-Biphenyl	2000	U	2000	2000	ug/Kg	☼	11/20/14 17:57	11/24/14 16:02	1
2-Chloronaphthalene	390	U	390	42	ug/Kg	☼	11/20/14 17:57	11/24/14 16:02	1
2-Nitroaniline	2000	U	2000	54	ug/Kg	☼	11/20/14 17:57	11/24/14 16:02	1
Dimethyl phthalate	390	U	390	41	ug/Kg	☼	11/20/14 17:57	11/24/14 16:02	1
2,6-Dinitrotoluene	390	U	390	50	ug/Kg	☼	11/20/14 17:57	11/24/14 16:02	1
Acenaphthylene	390	U	390	43	ug/Kg	☼	11/20/14 17:57	11/24/14 16:02	1
3-Nitroaniline	2000	U	2000	55	ug/Kg	☼	11/20/14 17:57	11/24/14 16:02	1
Acenaphthene	390	U	390	49	ug/Kg	☼	11/20/14 17:57	11/24/14 16:02	1
2,4-Dinitrophenol	2000	U	2000	990	ug/Kg	☼	11/20/14 17:57	11/24/14 16:02	1
4-Nitrophenol	2000	U	2000	390	ug/Kg	☼	11/20/14 17:57	11/24/14 16:02	1
Dibenzofuran	390	U	390	39	ug/Kg	☼	11/20/14 17:57	11/24/14 16:02	1
2,4-Dinitrotoluene	390	U	390	58	ug/Kg	☼	11/20/14 17:57	11/24/14 16:02	1
Diethyl phthalate	390	U	390	44	ug/Kg	☼	11/20/14 17:57	11/24/14 16:02	1

Client: ARCADIS U.S., Inc.
Project/Site: CSX C&O Canal Brunswick, MD

TestAmerica Job ID: 680-107453-1

Client Sample ID: GP-90(9-10)(111914)
Date Collected: 11/19/14 10:45
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-21
Matrix: Solid
Percent Solids: 83.8

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluorene	390	U	390	43	ug/Kg	☼	11/20/14 17:57	11/24/14 16:02	1
4-Chlorophenyl phenyl ether	390	U	390	52	ug/Kg	☼	11/20/14 17:57	11/24/14 16:02	1
4-Nitroaniline	2000	U	2000	58	ug/Kg	☼	11/20/14 17:57	11/24/14 16:02	1
4,6-Dinitro-2-methylphenol	2000	U	2000	200	ug/Kg	☼	11/20/14 17:57	11/24/14 16:02	1
N-Nitrosodiphenylamine	390	U	390	39	ug/Kg	☼	11/20/14 17:57	11/24/14 16:02	1
4-Bromophenyl phenyl ether	390	U	390	43	ug/Kg	☼	11/20/14 17:57	11/24/14 16:02	1
Hexachlorobenzene	390	U	390	46	ug/Kg	☼	11/20/14 17:57	11/24/14 16:02	1
Atrazine	390	U	390	27	ug/Kg	☼	11/20/14 17:57	11/24/14 16:02	1
Pentachlorophenol	2000	U	2000	390	ug/Kg	☼	11/20/14 17:57	11/24/14 16:02	1
Phenanthrene	390	U	390	32	ug/Kg	☼	11/20/14 17:57	11/24/14 16:02	1
Anthracene	390	U	390	30	ug/Kg	☼	11/20/14 17:57	11/24/14 16:02	1
Carbazole	390	U	390	36	ug/Kg	☼	11/20/14 17:57	11/24/14 16:02	1
Di-n-butyl phthalate	390	U	390	36	ug/Kg	☼	11/20/14 17:57	11/24/14 16:02	1
Fluoranthene	390	U	390	38	ug/Kg	☼	11/20/14 17:57	11/24/14 16:02	1
Pyrene	390	U	390	32	ug/Kg	☼	11/20/14 17:57	11/24/14 16:02	1
Butyl benzyl phthalate	390	U	390	31	ug/Kg	☼	11/20/14 17:57	11/24/14 16:02	1
3,3'-Dichlorobenzidine	790	U	790	33	ug/Kg	☼	11/20/14 17:57	11/24/14 16:02	1
Benzo[a]anthracene	390	U	390	32	ug/Kg	☼	11/20/14 17:57	11/24/14 16:02	1
Chrysene	390	U	390	25	ug/Kg	☼	11/20/14 17:57	11/24/14 16:02	1
Bis(2-ethylhexyl) phthalate	390	U	390	35	ug/Kg	☼	11/20/14 17:57	11/24/14 16:02	1
Di-n-octyl phthalate	390	U	390	35	ug/Kg	☼	11/20/14 17:57	11/24/14 16:02	1
Benzo[b]fluoranthene	390	U	390	45	ug/Kg	☼	11/20/14 17:57	11/24/14 16:02	1
Benzo[k]fluoranthene	390	U	390	77	ug/Kg	☼	11/20/14 17:57	11/24/14 16:02	1
Benzo[a]pyrene	390	U	390	62	ug/Kg	☼	11/20/14 17:57	11/24/14 16:02	1
Indeno[1,2,3-cd]pyrene	390	U	390	33	ug/Kg	☼	11/20/14 17:57	11/24/14 16:02	1
Dibenz(a,h)anthracene	390	U	390	46	ug/Kg	☼	11/20/14 17:57	11/24/14 16:02	1
Benzo[g,h,i]perylene	390	U	390	26	ug/Kg	☼	11/20/14 17:57	11/24/14 16:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*63*		*37 - 115*	*11/20/14 17:57*	*11/24/14 16:02*	*1*
2-Fluorobiphenyl	*86*		*41 - 116*	*11/20/14 17:57*	*11/24/14 16:02*	*1*
Terphenyl-d14 (Surr)	*133*	*X*	*46 - 126*	*11/20/14 17:57*	*11/24/14 16:02*	*1*
Phenol-d5 (Surr)	*70*		*38 - 122*	*11/20/14 17:57*	*11/24/14 16:02*	*1*
2-Fluorophenol (Surr)	*70*		*39 - 114*	*11/20/14 17:57*	*11/24/14 16:02*	*1*
2,4,6-Tribromophenol (Surr)	*83*		*45 - 129*	*11/20/14 17:57*	*11/24/14 16:02*	*1*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Gasoline Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**0.46**		0.26	0.020	mg/Kg	☼	11/20/14 16:38	11/23/14 16:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*83*		*70 - 131*	*11/20/14 16:38*	*11/23/14 16:19*	*1*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	3.9	U	3.9	2.5	mg/Kg	☼	11/20/14 17:57	11/22/14 03:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*62*		*45 - 130*	*11/20/14 17:57*	*11/22/14 03:25*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: CSX C&O Canal Brunswick, MD

TestAmerica Job ID: 680-107453-1

Client Sample ID: GP-90(12.5-13.5)(111914)
Date Collected: 11/19/14 10:50
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-22
Matrix: Solid
Percent Solids: 81.7

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	21	U	21	6.2	ug/Kg	☼	11/23/14 10:00	11/23/14 17:27	1
Benzene	4.2	U	4.2	0.93	ug/Kg	☼	11/23/14 10:00	11/23/14 17:27	1
Bromodichloromethane	4.2	U	4.2	2.1	ug/Kg	☼	11/23/14 10:00	11/23/14 17:27	1
Bromoform	4.2	U	4.2	2.1	ug/Kg	☼	11/23/14 10:00	11/23/14 17:27	1
Bromomethane	4.2	U	4.2	2.1	ug/Kg	☼	11/23/14 10:00	11/23/14 17:27	1
Carbon disulfide	4.2	U	4.2	2.1	ug/Kg	☼	11/23/14 10:00	11/23/14 17:27	1
Carbon tetrachloride	4.2	U	4.2	1.4	ug/Kg	☼	11/23/14 10:00	11/23/14 17:27	1
Chlorobenzene	4.2	U	4.2	0.44	ug/Kg	☼	11/23/14 10:00	11/23/14 17:27	1
Chloroethane	4.2	U	4.2	2.1	ug/Kg	☼	11/23/14 10:00	11/23/14 17:27	1
Chloroform	4.2	U	4.2	2.1	ug/Kg	☼	11/23/14 10:00	11/23/14 17:27	1
Chloromethane	4.2	U	4.2	0.85	ug/Kg	☼	11/23/14 10:00	11/23/14 17:27	1
cis-1,2-Dichloroethene	4.2	U	4.2	0.64	ug/Kg	☼	11/23/14 10:00	11/23/14 17:27	1
cis-1,3-Dichloropropene	4.2	U	4.2	1.0	ug/Kg	☼	11/23/14 10:00	11/23/14 17:27	1
Cyclohexane	4.2	U	4.2	0.80	ug/Kg	☼	11/23/14 10:00	11/23/14 17:27	1
Dibromochloromethane	4.2	U	4.2	2.1	ug/Kg	☼	11/23/14 10:00	11/23/14 17:27	1
1,2-Dibromo-3-Chloropropane	4.2	U	4.2	2.8	ug/Kg	☼	11/23/14 10:00	11/23/14 17:27	1
1,2-Dichlorobenzene	4.2	U	4.2	0.60	ug/Kg	☼	11/23/14 10:00	11/23/14 17:27	1
1,3-Dichlorobenzene	4.2	U	4.2	0.81	ug/Kg	☼	11/23/14 10:00	11/23/14 17:27	1
1,4-Dichlorobenzene	4.2	U	4.2	2.1	ug/Kg	☼	11/23/14 10:00	11/23/14 17:27	1
Dichlorodifluoromethane	4.2	U	4.2	1.1	ug/Kg	☼	11/23/14 10:00	11/23/14 17:27	1
1,1-Dichloroethane	4.2	U	4.2	0.70	ug/Kg	☼	11/23/14 10:00	11/23/14 17:27	1
1,2-Dichloroethane	4.2	U	4.2	0.70	ug/Kg	☼	11/23/14 10:00	11/23/14 17:27	1
1,1-Dichloroethene	4.2	U	4.2	2.1	ug/Kg	☼	11/23/14 10:00	11/23/14 17:27	1
1,2-Dichloropropane	4.2	U	4.2	2.1	ug/Kg	☼	11/23/14 10:00	11/23/14 17:27	1
Diisopropyl ether	4.2	U	4.2	0.47	ug/Kg	☼	11/23/14 10:00	11/23/14 17:27	1
Ethylbenzene	4.2	U	4.2	0.52	ug/Kg	☼	11/23/14 10:00	11/23/14 17:27	1
Ethylene Dibromide	4.2	U	4.2	0.85	ug/Kg	☼	11/23/14 10:00	11/23/14 17:27	1
Ethyl tert-butyl ether	4.2	U	4.2	2.1	ug/Kg	☼	11/23/14 10:00	11/23/14 17:27	1
2-Hexanone	21	U	21	4.2	ug/Kg	☼	11/23/14 10:00	11/23/14 17:27	1
Isopropylbenzene	4.2	U	4.2	0.58	ug/Kg	☼	11/23/14 10:00	11/23/14 17:27	1
Methyl acetate	4.2	U	4.2	3.9	ug/Kg	☼	11/23/14 10:00	11/23/14 17:27	1
Methylcyclohexane	4.2	U	4.2	1.3	ug/Kg	☼	11/23/14 10:00	11/23/14 17:27	1
Methylene Chloride	13	U	13	8.5	ug/Kg	☼	11/23/14 10:00	11/23/14 17:27	1
Methyl Ethyl Ketone	21	U	21	5.1	ug/Kg	☼	11/23/14 10:00	11/23/14 17:27	1
methyl isobutyl ketone	21	U	21	4.2	ug/Kg	☼	11/23/14 10:00	11/23/14 17:27	1
Methyl tert-butyl ether	4.2	U	4.2	0.85	ug/Kg	☼	11/23/14 10:00	11/23/14 17:27	1
Naphthalene	4.2	U	4.2	1.7	ug/Kg	☼	11/23/14 10:00	11/23/14 17:27	1
Styrene	4.2	U	4.2	0.85	ug/Kg	☼	11/23/14 10:00	11/23/14 17:27	1
Tert-amyl methyl ether	4.2	U	4.2	0.85	ug/Kg	☼	11/23/14 10:00	11/23/14 17:27	1
tert-Butyl alcohol	8.5	U	8.5	6.8	ug/Kg	☼	11/23/14 10:00	11/23/14 17:27	1
1,1,2,2-Tetrachloroethane	4.2	U	4.2	2.1	ug/Kg	☼	11/23/14 10:00	11/23/14 17:27	1
Tetrachloroethene	4.2	U	4.2	2.1	ug/Kg	☼	11/23/14 10:00	11/23/14 17:27	1
Toluene	4.2	U	4.2	0.85	ug/Kg	☼	11/23/14 10:00	11/23/14 17:27	1
trans-1,2-Dichloroethene	4.2	U	4.2	2.1	ug/Kg	☼	11/23/14 10:00	11/23/14 17:27	1
trans-1,3-Dichloropropene	4.2	U	4.2	2.1	ug/Kg	☼	11/23/14 10:00	11/23/14 17:27	1
1,2,4-Trichlorobenzene	4.2	U	4.2	1.7	ug/Kg	☼	11/23/14 10:00	11/23/14 17:27	1
1,1,1-Trichloroethane	4.2	U	4.2	0.93	ug/Kg	☼	11/23/14 10:00	11/23/14 17:27	1
1,1,2-Trichloroethane	4.2	U	4.2	2.1	ug/Kg	☼	11/23/14 10:00	11/23/14 17:27	1
Trichloroethene	4.2	U	4.2	0.85	ug/Kg	☼	11/23/14 10:00	11/23/14 17:27	1

Client Sample ID: GP-90(12.5-13.5)(111914)
Date Collected: 11/19/14 10:50
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-22
Matrix: Solid
Percent Solids: 81.7

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichlorofluoromethane	4.2	U	4.2	2.1	ug/Kg	☼	11/23/14 10:00	11/23/14 17:27	1
1,1,2-Trichloro-1,2,2-trifluoroethane	4.2	U	4.2	1.7	ug/Kg	☼	11/23/14 10:00	11/23/14 17:27	1
Vinyl chloride	4.2	U	4.2	2.1	ug/Kg	☼	11/23/14 10:00	11/23/14 17:27	1
Xylenes, Total	4.2	U	4.2	0.85	ug/Kg	☼	11/23/14 10:00	11/23/14 17:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*90*		*72 - 122*	*11/23/14 10:00*	*11/23/14 17:27*	*1*
Dibromofluoromethane	*84*		*79 - 123*	*11/23/14 10:00*	*11/23/14 17:27*	*1*
Toluene-d8 (Surr)	*108*		*80 - 120*	*11/23/14 10:00*	*11/23/14 17:27*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzaldehyde	400	U	400	71	ug/Kg	☼	11/20/14 17:57	11/24/14 16:25	1
Phenol	400	U	400	42	ug/Kg	☼	11/20/14 17:57	11/24/14 16:25	1
Bis(2-chloroethyl)ether	400	U	400	55	ug/Kg	☼	11/20/14 17:57	11/24/14 16:25	1
2-Chlorophenol	400	U	400	49	ug/Kg	☼	11/20/14 17:57	11/24/14 16:25	1
2-Methylphenol	400	U	400	33	ug/Kg	☼	11/20/14 17:57	11/24/14 16:25	1
bis (2-chloroisopropyl) ether	400	U	400	37	ug/Kg	☼	11/20/14 17:57	11/24/14 16:25	1
Acetophenone	400	U	400	34	ug/Kg	☼	11/20/14 17:57	11/24/14 16:25	1
3 & 4 Methylphenol	400	U	400	53	ug/Kg	☼	11/20/14 17:57	11/24/14 16:25	1
N-Nitrosodi-n-propylamine	400	U	400	39	ug/Kg	☼	11/20/14 17:57	11/24/14 16:25	1
Hexachloroethane	400	U	400	34	ug/Kg	☼	11/20/14 17:57	11/24/14 16:25	1
Nitrobenzene	400	U	400	32	ug/Kg	☼	11/20/14 17:57	11/24/14 16:25	1
Isophorone	400	U	400	40	ug/Kg	☼	11/20/14 17:57	11/24/14 16:25	1
2-Nitrophenol	400	U	400	50	ug/Kg	☼	11/20/14 17:57	11/24/14 16:25	1
2,4-Dimethylphenol	400	U	400	54	ug/Kg	☼	11/20/14 17:57	11/24/14 16:25	1
Bis(2-chloroethoxy)methane	400	U	400	48	ug/Kg	☼	11/20/14 17:57	11/24/14 16:25	1
2,4-Dichlorophenol	400	U	400	43	ug/Kg	☼	11/20/14 17:57	11/24/14 16:25	1
Naphthalene	400	U	400	37	ug/Kg	☼	11/20/14 17:57	11/24/14 16:25	1
4-Chloroaniline	810	U	810	64	ug/Kg	☼	11/20/14 17:57	11/24/14 16:25	1
Hexachlorobutadiene	400	U	400	44	ug/Kg	☼	11/20/14 17:57	11/24/14 16:25	1
Caprolactam	400	U	400	81	ug/Kg	☼	11/20/14 17:57	11/24/14 16:25	1
4-Chloro-3-methylphenol	400	U	400	43	ug/Kg	☼	11/20/14 17:57	11/24/14 16:25	1
2-Methylnaphthalene	400	U	400	47	ug/Kg	☼	11/20/14 17:57	11/24/14 16:25	1
Hexachlorocyclopentadiene	400	U	400	50	ug/Kg	☼	11/20/14 17:57	11/24/14 16:25	1
2,4,6-Trichlorophenol	400	U	400	35	ug/Kg	☼	11/20/14 17:57	11/24/14 16:25	1
2,4,5-Trichlorophenol	400	U	400	43	ug/Kg	☼	11/20/14 17:57	11/24/14 16:25	1
1,1'-Biphenyl	2100	U	2100	2100	ug/Kg	☼	11/20/14 17:57	11/24/14 16:25	1
2-Chloronaphthalene	400	U	400	43	ug/Kg	☼	11/20/14 17:57	11/24/14 16:25	1
2-Nitroaniline	2100	U	2100	55	ug/Kg	☼	11/20/14 17:57	11/24/14 16:25	1
Dimethyl phthalate	400	U	400	42	ug/Kg	☼	11/20/14 17:57	11/24/14 16:25	1
2,6-Dinitrotoluene	400	U	400	51	ug/Kg	☼	11/20/14 17:57	11/24/14 16:25	1
Acenaphthylene	400	U	400	44	ug/Kg	☼	11/20/14 17:57	11/24/14 16:25	1
3-Nitroaniline	2100	U	2100	56	ug/Kg	☼	11/20/14 17:57	11/24/14 16:25	1
Acenaphthene	400	U	400	50	ug/Kg	☼	11/20/14 17:57	11/24/14 16:25	1
2,4-Dinitrophenol	2100	U	2100	1000	ug/Kg	☼	11/20/14 17:57	11/24/14 16:25	1
4-Nitrophenol	2100	U	2100	400	ug/Kg	☼	11/20/14 17:57	11/24/14 16:25	1
Dibenzofuran	400	U	400	40	ug/Kg	☼	11/20/14 17:57	11/24/14 16:25	1
2,4-Dinitrotoluene	400	U	400	60	ug/Kg	☼	11/20/14 17:57	11/24/14 16:25	1
Diethyl phthalate	400	U	400	45	ug/Kg	☼	11/20/14 17:57	11/24/14 16:25	1

Client: ARCADIS U.S., Inc.
Project/Site: CSX C&O Canal Brunswick, MD

TestAmerica Job ID: 680-107453-1

Client Sample ID: GP-90(12.5-13.5)(111914)
Date Collected: 11/19/14 10:50
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-22
Matrix: Solid
Percent Solids: 81.7

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluorene	400	U	400	44	ug/Kg	☼	11/20/14 17:57	11/24/14 16:25	1
4-Chlorophenyl phenyl ether	400	U	400	54	ug/Kg	☼	11/20/14 17:57	11/24/14 16:25	1
4-Nitroaniline	2100	U	2100	60	ug/Kg	☼	11/20/14 17:57	11/24/14 16:25	1
4,6-Dinitro-2-methylphenol	2100	U	2100	210	ug/Kg	☼	11/20/14 17:57	11/24/14 16:25	1
N-Nitrosodiphenylamine	400	U	400	40	ug/Kg	☼	11/20/14 17:57	11/24/14 16:25	1
4-Bromophenyl phenyl ether	400	U	400	44	ug/Kg	☼	11/20/14 17:57	11/24/14 16:25	1
Hexachlorobenzene	400	U	400	48	ug/Kg	☼	11/20/14 17:57	11/24/14 16:25	1
Atrazine	400	U	400	28	ug/Kg	☼	11/20/14 17:57	11/24/14 16:25	1
Pentachlorophenol	2100	U	2100	400	ug/Kg	☼	11/20/14 17:57	11/24/14 16:25	1
Phenanthrene	400	U	400	33	ug/Kg	☼	11/20/14 17:57	11/24/14 16:25	1
Anthracene	400	U	400	31	ug/Kg	☼	11/20/14 17:57	11/24/14 16:25	1
Carbazole	400	U	400	37	ug/Kg	☼	11/20/14 17:57	11/24/14 16:25	1
Di-n-butyl phthalate	400	U	400	37	ug/Kg	☼	11/20/14 17:57	11/24/14 16:25	1
Fluoranthene	400	U	400	39	ug/Kg	☼	11/20/14 17:57	11/24/14 16:25	1
Pyrene	400	U	400	33	ug/Kg	☼	11/20/14 17:57	11/24/14 16:25	1
Butyl benzyl phthalate	400	U	400	32	ug/Kg	☼	11/20/14 17:57	11/24/14 16:25	1
3,3'-Dichlorobenzidine	810	U	810	34	ug/Kg	☼	11/20/14 17:57	11/24/14 16:25	1
Benzo[a]anthracene	400	U	400	33	ug/Kg	☼	11/20/14 17:57	11/24/14 16:25	1
Chrysene	400	U	400	26	ug/Kg	☼	11/20/14 17:57	11/24/14 16:25	1
Bis(2-ethylhexyl) phthalate	400	U	400	35	ug/Kg	☼	11/20/14 17:57	11/24/14 16:25	1
Di-n-octyl phthalate	400	U	400	35	ug/Kg	☼	11/20/14 17:57	11/24/14 16:25	1
Benzo[b]fluoranthene	400	U	400	47	ug/Kg	☼	11/20/14 17:57	11/24/14 16:25	1
Benzo[k]fluoranthene	400	U	400	80	ug/Kg	☼	11/20/14 17:57	11/24/14 16:25	1
Benzo[a]pyrene	400	U	400	64	ug/Kg	☼	11/20/14 17:57	11/24/14 16:25	1
Indeno[1,2,3-cd]pyrene	400	U	400	34	ug/Kg	☼	11/20/14 17:57	11/24/14 16:25	1
Dibenz(a,h)anthracene	400	U	400	48	ug/Kg	☼	11/20/14 17:57	11/24/14 16:25	1
Benzo[g,h,i]perylene	400	U	400	27	ug/Kg	☼	11/20/14 17:57	11/24/14 16:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*62*		*37 - 115*	*11/20/14 17:57*	*11/24/14 16:25*	*1*
2-Fluorobiphenyl	*80*		*41 - 116*	*11/20/14 17:57*	*11/24/14 16:25*	*1*
Terphenyl-d14 (Surr)	*120*		*46 - 126*	*11/20/14 17:57*	*11/24/14 16:25*	*1*
Phenol-d5 (Surr)	*50*		*38 - 122*	*11/20/14 17:57*	*11/24/14 16:25*	*1*
2-Fluorophenol (Surr)	*42*		*39 - 114*	*11/20/14 17:57*	*11/24/14 16:25*	*1*
2,4,6-Tribromophenol (Surr)	*22*	*X*	*45 - 129*	*11/20/14 17:57*	*11/24/14 16:25*	*1*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Gasoline Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**0.11**	**J**	0.24	0.018	mg/Kg	☼	11/20/14 16:38	11/23/14 16:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*78*		*70 - 131*	*11/20/14 16:38*	*11/23/14 16:41*	*1*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	4.0	U	4.0	2.6	mg/Kg	☼	11/20/14 17:57	11/22/14 02:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*42*	*X*	*45 - 130*	*11/20/14 17:57*	*11/22/14 02:12*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: CSX C&O Canal Brunswick, MD

TestAmerica Job ID: 680-107453-1

Client Sample ID: GP-91(11-12)(111914)
Date Collected: 11/19/14 11:50
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-23
Matrix: Solid
Percent Solids: 81.7

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	1100	U	1100	320	ug/Kg	☼	12/01/14 09:24	12/01/14 17:58	50
Benzene	220	U	220	49	ug/Kg	☼	12/01/14 09:24	12/01/14 17:58	50
Bromodichloromethane	220	U	220	110	ug/Kg	☼	12/01/14 09:24	12/01/14 17:58	50
Bromoform	220	U	220	110	ug/Kg	☼	12/01/14 09:24	12/01/14 17:58	50
Bromomethane	220	U	220	110	ug/Kg	☼	12/01/14 09:24	12/01/14 17:58	50
Carbon disulfide	220	U	220	110	ug/Kg	☼	12/01/14 09:24	12/01/14 17:58	50
Carbon tetrachloride	220	U	220	76	ug/Kg	☼	12/01/14 09:24	12/01/14 17:58	50
Chlorobenzene	220	U	220	23	ug/Kg	☼	12/01/14 09:24	12/01/14 17:58	50
Chloroethane	220	U	220	110	ug/Kg	☼	12/01/14 09:24	12/01/14 17:58	50
Chloroform	220	U	220	110	ug/Kg	☼	12/01/14 09:24	12/01/14 17:58	50
Chloromethane	220	U	220	45	ug/Kg	☼	12/01/14 09:24	12/01/14 17:58	50
cis-1,2-Dichloroethene	220	U	220	34	ug/Kg	☼	12/01/14 09:24	12/01/14 17:58	50
cis-1,3-Dichloropropene	220	U	220	53	ug/Kg	☼	12/01/14 09:24	12/01/14 17:58	50
Cyclohexane	220	U	220	42	ug/Kg	☼	12/01/14 09:24	12/01/14 17:58	50
Dibromochloromethane	220	U	220	110	ug/Kg	☼	12/01/14 09:24	12/01/14 17:58	50
1,2-Dibromo-3-Chloropropane	220	U	220	150	ug/Kg	☼	12/01/14 09:24	12/01/14 17:58	50
1,2-Dichlorobenzene	220	U	220	32	ug/Kg	☼	12/01/14 09:24	12/01/14 17:58	50
1,3-Dichlorobenzene	220	U	220	42	ug/Kg	☼	12/01/14 09:24	12/01/14 17:58	50
1,4-Dichlorobenzene	220	U	220	110	ug/Kg	☼	12/01/14 09:24	12/01/14 17:58	50
Dichlorodifluoromethane	220	U	220	58	ug/Kg	☼	12/01/14 09:24	12/01/14 17:58	50
1,1-Dichloroethane	220	U	220	37	ug/Kg	☼	12/01/14 09:24	12/01/14 17:58	50
1,2-Dichloroethane	220	U	220	36	ug/Kg	☼	12/01/14 09:24	12/01/14 17:58	50
1,1-Dichloroethene	220	U	220	110	ug/Kg	☼	12/01/14 09:24	12/01/14 17:58	50
1,2-Dichloropropane	220	U	220	110	ug/Kg	☼	12/01/14 09:24	12/01/14 17:58	50
Diisopropyl ether	220	U	220	24	ug/Kg	☼	12/01/14 09:24	12/01/14 17:58	50
Ethylbenzene	220	U	220	27	ug/Kg	☼	12/01/14 09:24	12/01/14 17:58	50
Ethylene Dibromide	220	U	220	45	ug/Kg	☼	12/01/14 09:24	12/01/14 17:58	50
Ethyl tert-butyl ether	220	U	220	110	ug/Kg	☼	12/01/14 09:24	12/01/14 17:58	50
2-Hexanone	1100	U	1100	220	ug/Kg	☼	12/01/14 09:24	12/01/14 17:58	50
Isopropylbenzene	220	U	220	30	ug/Kg	☼	12/01/14 09:24	12/01/14 17:58	50
Methyl acetate	220	U	220	200	ug/Kg	☼	12/01/14 09:24	12/01/14 17:58	50
Methylcyclohexane	220	U	220	67	ug/Kg	☼	12/01/14 09:24	12/01/14 17:58	50
Methylene Chloride	670	U	670	450	ug/Kg	☼	12/01/14 09:24	12/01/14 17:58	50
Methyl Ethyl Ketone	1100	U	1100	270	ug/Kg	☼	12/01/14 09:24	12/01/14 17:58	50
methyl isobutyl ketone	1100	U	1100	220	ug/Kg	☼	12/01/14 09:24	12/01/14 17:58	50
Methyl tert-butyl ether	220	U	220	45	ug/Kg	☼	12/01/14 09:24	12/01/14 17:58	50
Naphthalene	220	U	220	89	ug/Kg	☼	12/01/14 09:24	12/01/14 17:58	50
Styrene	220	U	220	45	ug/Kg	☼	12/01/14 09:24	12/01/14 17:58	50
Tert-amyl methyl ether	220	U	220	45	ug/Kg	☼	12/01/14 09:24	12/01/14 17:58	50
tert-Butyl alcohol	450	U	450	360	ug/Kg	☼	12/01/14 09:24	12/01/14 17:58	50
1,1,2,2-Tetrachloroethane	220	U	220	110	ug/Kg	☼	12/01/14 09:24	12/01/14 17:58	50
Tetrachloroethene	220	U	220	110	ug/Kg	☼	12/01/14 09:24	12/01/14 17:58	50
Toluene	220	U	220	45	ug/Kg	☼	12/01/14 09:24	12/01/14 17:58	50
trans-1,2-Dichloroethene	220	U	220	110	ug/Kg	☼	12/01/14 09:24	12/01/14 17:58	50
trans-1,3-Dichloropropene	220	U	220	110	ug/Kg	☼	12/01/14 09:24	12/01/14 17:58	50
1,2,4-Trichlorobenzene	220	U	220	89	ug/Kg	☼	12/01/14 09:24	12/01/14 17:58	50
1,1,1-Trichloroethane	220	U	220	49	ug/Kg	☼	12/01/14 09:24	12/01/14 17:58	50
1,1,2-Trichloroethane	220	U	220	110	ug/Kg	☼	12/01/14 09:24	12/01/14 17:58	50
Trichloroethene	220	U	220	45	ug/Kg	☼	12/01/14 09:24	12/01/14 17:58	50

Client Sample ID: GP-91(11-12)(111914)
Date Collected: 11/19/14 11:50
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-23
Matrix: Solid
Percent Solids: 81.7

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichlorofluoromethane	220	U	220	110	ug/Kg	☼	12/01/14 09:24	12/01/14 17:58	50
1,1,2-Trichloro-1,2,2-trifluoroethane	220	U	220	89	ug/Kg	☼	12/01/14 09:24	12/01/14 17:58	50
Vinyl chloride	220	U	220	110	ug/Kg	☼	12/01/14 09:24	12/01/14 17:58	50
Xylenes, Total	220	U	220	45	ug/Kg	☼	12/01/14 09:24	12/01/14 17:58	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*88*		*72 - 122*	*12/01/14 09:24*	*12/01/14 17:58*	*50*
Dibromofluoromethane	*100*		*79 - 123*	*12/01/14 09:24*	*12/01/14 17:58*	*50*
Toluene-d8 (Surr)	*116*		*80 - 120*	*12/01/14 09:24*	*12/01/14 17:58*	*50*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzaldehyde	400	U	400	71	ug/Kg	☼	11/20/14 17:57	11/24/14 16:47	1
Phenol	400	U	400	42	ug/Kg	☼	11/20/14 17:57	11/24/14 16:47	1
Bis(2-chloroethyl)ether	400	U	400	55	ug/Kg	☼	11/20/14 17:57	11/24/14 16:47	1
2-Chlorophenol	400	U	400	49	ug/Kg	☼	11/20/14 17:57	11/24/14 16:47	1
2-Methylphenol	400	U	400	33	ug/Kg	☼	11/20/14 17:57	11/24/14 16:47	1
bis (2-chloroisopropyl) ether	400	U	400	37	ug/Kg	☼	11/20/14 17:57	11/24/14 16:47	1
Acetophenone	400	U	400	34	ug/Kg	☼	11/20/14 17:57	11/24/14 16:47	1
3 & 4 Methylphenol	400	U	400	53	ug/Kg	☼	11/20/14 17:57	11/24/14 16:47	1
N-Nitrosodi-n-propylamine	400	U	400	39	ug/Kg	☼	11/20/14 17:57	11/24/14 16:47	1
Hexachloroethane	400	U	400	34	ug/Kg	☼	11/20/14 17:57	11/24/14 16:47	1
Nitrobenzene	400	U	400	32	ug/Kg	☼	11/20/14 17:57	11/24/14 16:47	1
Isophorone	400	U	400	40	ug/Kg	☼	11/20/14 17:57	11/24/14 16:47	1
2-Nitrophenol	400	U	400	50	ug/Kg	☼	11/20/14 17:57	11/24/14 16:47	1
2,4-Dimethylphenol	400	U	400	54	ug/Kg	☼	11/20/14 17:57	11/24/14 16:47	1
Bis(2-chloroethoxy)methane	400	U	400	48	ug/Kg	☼	11/20/14 17:57	11/24/14 16:47	1
2,4-Dichlorophenol	400	U	400	43	ug/Kg	☼	11/20/14 17:57	11/24/14 16:47	1
Naphthalene	400	U	400	37	ug/Kg	☼	11/20/14 17:57	11/24/14 16:47	1
4-Chloroaniline	810	U	810	64	ug/Kg	☼	11/20/14 17:57	11/24/14 16:47	1
Hexachlorobutadiene	400	U	400	44	ug/Kg	☼	11/20/14 17:57	11/24/14 16:47	1
Caprolactam	400	U	400	81	ug/Kg	☼	11/20/14 17:57	11/24/14 16:47	1
4-Chloro-3-methylphenol	400	U	400	43	ug/Kg	☼	11/20/14 17:57	11/24/14 16:47	1
2-Methylnaphthalene	400	U	400	46	ug/Kg	☼	11/20/14 17:57	11/24/14 16:47	1
Hexachlorocyclopentadiene	400	U	400	50	ug/Kg	☼	11/20/14 17:57	11/24/14 16:47	1
2,4,6-Trichlorophenol	400	U	400	35	ug/Kg	☼	11/20/14 17:57	11/24/14 16:47	1
2,4,5-Trichlorophenol	400	U	400	43	ug/Kg	☼	11/20/14 17:57	11/24/14 16:47	1
1,1'-Biphenyl	2100	U	2100	2100	ug/Kg	☼	11/20/14 17:57	11/24/14 16:47	1
2-Chloronaphthalene	400	U	400	43	ug/Kg	☼	11/20/14 17:57	11/24/14 16:47	1
2-Nitroaniline	2100	U	2100	55	ug/Kg	☼	11/20/14 17:57	11/24/14 16:47	1
Dimethyl phthalate	400	U	400	42	ug/Kg	☼	11/20/14 17:57	11/24/14 16:47	1
2,6-Dinitrotoluene	400	U	400	51	ug/Kg	☼	11/20/14 17:57	11/24/14 16:47	1
Acenaphthylene	400	U	400	44	ug/Kg	☼	11/20/14 17:57	11/24/14 16:47	1
3-Nitroaniline	2100	U	2100	56	ug/Kg	☼	11/20/14 17:57	11/24/14 16:47	1
Acenaphthene	400	U	400	50	ug/Kg	☼	11/20/14 17:57	11/24/14 16:47	1
2,4-Dinitrophenol	2100	U	2100	1000	ug/Kg	☼	11/20/14 17:57	11/24/14 16:47	1
4-Nitrophenol	2100	U	2100	400	ug/Kg	☼	11/20/14 17:57	11/24/14 16:47	1
Dibenzofuran	400	U	400	40	ug/Kg	☼	11/20/14 17:57	11/24/14 16:47	1
2,4-Dinitrotoluene	400	U	400	60	ug/Kg	☼	11/20/14 17:57	11/24/14 16:47	1
Diethyl phthalate	400	U	400	45	ug/Kg	☼	11/20/14 17:57	11/24/14 16:47	1

Client Sample ID: GP-91(11-12)(111914)
Date Collected: 11/19/14 11:50
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-23
Matrix: Solid
Percent Solids: 81.7

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluorene	**350**	**J**	400	44	ug/Kg	☼	11/20/14 17:57	11/24/14 16:47	1
4-Chlorophenyl phenyl ether	400	U	400	54	ug/Kg	☼	11/20/14 17:57	11/24/14 16:47	1
4-Nitroaniline	2100	U	2100	60	ug/Kg	☼	11/20/14 17:57	11/24/14 16:47	1
4,6-Dinitro-2-methylphenol	2100	U	2100	210	ug/Kg	☼	11/20/14 17:57	11/24/14 16:47	1
N-Nitrosodiphenylamine	400	U	400	40	ug/Kg	☼	11/20/14 17:57	11/24/14 16:47	1
4-Bromophenyl phenyl ether	400	U	400	44	ug/Kg	☼	11/20/14 17:57	11/24/14 16:47	1
Hexachlorobenzene	400	U	400	48	ug/Kg	☼	11/20/14 17:57	11/24/14 16:47	1
Atrazine	400	U	400	28	ug/Kg	☼	11/20/14 17:57	11/24/14 16:47	1
Pentachlorophenol	2100	U	2100	400	ug/Kg	☼	11/20/14 17:57	11/24/14 16:47	1
Phenanthrene	**1000**		400	33	ug/Kg	☼	11/20/14 17:57	11/24/14 16:47	1
Anthracene	400	U	400	31	ug/Kg	☼	11/20/14 17:57	11/24/14 16:47	1
Carbazole	400	U	400	37	ug/Kg	☼	11/20/14 17:57	11/24/14 16:47	1
Di-n-butyl phthalate	400	U	400	37	ug/Kg	☼	11/20/14 17:57	11/24/14 16:47	1
Fluoranthene	**57**	**J**	400	39	ug/Kg	☼	11/20/14 17:57	11/24/14 16:47	1
Pyrene	**130**	**J**	400	33	ug/Kg	☼	11/20/14 17:57	11/24/14 16:47	1
Butyl benzyl phthalate	400	U	400	32	ug/Kg	☼	11/20/14 17:57	11/24/14 16:47	1
3,3'-Dichlorobenzidine	810	U	810	34	ug/Kg	☼	11/20/14 17:57	11/24/14 16:47	1
Benzo[a]anthracene	400	U	400	33	ug/Kg	☼	11/20/14 17:57	11/24/14 16:47	1
Chrysene	400	U	400	26	ug/Kg	☼	11/20/14 17:57	11/24/14 16:47	1
Bis(2-ethylhexyl) phthalate	400	U	400	35	ug/Kg	☼	11/20/14 17:57	11/24/14 16:47	1
Di-n-octyl phthalate	400	U	400	35	ug/Kg	☼	11/20/14 17:57	11/24/14 16:47	1
Benzo[b]fluoranthene	400	U	400	46	ug/Kg	☼	11/20/14 17:57	11/24/14 16:47	1
Benzo[k]fluoranthene	400	U	400	79	ug/Kg	☼	11/20/14 17:57	11/24/14 16:47	1
Benzo[a]pyrene	400	U	400	64	ug/Kg	☼	11/20/14 17:57	11/24/14 16:47	1
Indeno[1,2,3-cd]pyrene	400	U	400	34	ug/Kg	☼	11/20/14 17:57	11/24/14 16:47	1
Dibenz(a,h)anthracene	400	U	400	48	ug/Kg	☼	11/20/14 17:57	11/24/14 16:47	1
Benzo[g,h,i]perylene	400	U	400	27	ug/Kg	☼	11/20/14 17:57	11/24/14 16:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*12*	*X*	*37 - 115*	*11/20/14 17:57*	*11/24/14 16:47*	*1*
2-Fluorobiphenyl	*79*		*41 - 116*	*11/20/14 17:57*	*11/24/14 16:47*	*1*
Terphenyl-d14 (Surr)	*117*		*46 - 126*	*11/20/14 17:57*	*11/24/14 16:47*	*1*
Phenol-d5 (Surr)	*65*		*38 - 122*	*11/20/14 17:57*	*11/24/14 16:47*	*1*
2-Fluorophenol (Surr)	*67*		*39 - 114*	*11/20/14 17:57*	*11/24/14 16:47*	*1*
2,4,6-Tribromophenol (Surr)	*93*		*45 - 129*	*11/20/14 17:57*	*11/24/14 16:47*	*1*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Gasoline Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**300**	**B**	84	6.4	mg/Kg	☼	11/20/14 16:38	12/01/14 16:11	100

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*56*	*X*	*70 - 131*	*11/20/14 16:38*	*12/01/14 16:11*	*100*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**130**		4.0	2.6	mg/Kg	☼	11/20/14 17:57	11/22/14 03:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*80*		*45 - 130*	*11/20/14 17:57*	*11/22/14 03:40*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: CSX C&O Canal Brunswick, MD

TestAmerica Job ID: 680-107453-1

Client Sample ID: GP-91(15-16)(111914)
Date Collected: 11/19/14 11:55
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-24
Matrix: Solid
Percent Solids: 81.3

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	1100	U	1100	320	ug/Kg	☼	12/01/14 09:24	12/01/14 18:22	50
Benzene	220	U	220	48	ug/Kg	☼	12/01/14 09:24	12/01/14 18:22	50
Bromodichloromethane	220	U	220	110	ug/Kg	☼	12/01/14 09:24	12/01/14 18:22	50
Bromoform	220	U	220	110	ug/Kg	☼	12/01/14 09:24	12/01/14 18:22	50
Bromomethane	220	U	220	110	ug/Kg	☼	12/01/14 09:24	12/01/14 18:22	50
Carbon disulfide	220	U	220	110	ug/Kg	☼	12/01/14 09:24	12/01/14 18:22	50
Carbon tetrachloride	220	U	220	74	ug/Kg	☼	12/01/14 09:24	12/01/14 18:22	50
Chlorobenzene	220	U	220	23	ug/Kg	☼	12/01/14 09:24	12/01/14 18:22	50
Chloroethane	220	U	220	110	ug/Kg	☼	12/01/14 09:24	12/01/14 18:22	50
Chloroform	220	U	220	110	ug/Kg	☼	12/01/14 09:24	12/01/14 18:22	50
Chloromethane	220	U	220	44	ug/Kg	☼	12/01/14 09:24	12/01/14 18:22	50
cis-1,2-Dichloroethene	220	U	220	33	ug/Kg	☼	12/01/14 09:24	12/01/14 18:22	50
cis-1,3-Dichloropropene	220	U	220	52	ug/Kg	☼	12/01/14 09:24	12/01/14 18:22	50
Cyclohexane	**130**	**J**	220	41	ug/Kg	☼	12/01/14 09:24	12/01/14 18:22	50
Dibromochloromethane	220	U	220	110	ug/Kg	☼	12/01/14 09:24	12/01/14 18:22	50
1,2-Dibromo-3-Chloropropane	220	U	220	140	ug/Kg	☼	12/01/14 09:24	12/01/14 18:22	50
1,2-Dichlorobenzene	220	U	220	31	ug/Kg	☼	12/01/14 09:24	12/01/14 18:22	50
1,3-Dichlorobenzene	220	U	220	41	ug/Kg	☼	12/01/14 09:24	12/01/14 18:22	50
1,4-Dichlorobenzene	220	U	220	110	ug/Kg	☼	12/01/14 09:24	12/01/14 18:22	50
Dichlorodifluoromethane	220	U	220	57	ug/Kg	☼	12/01/14 09:24	12/01/14 18:22	50
1,1-Dichloroethane	220	U	220	36	ug/Kg	☼	12/01/14 09:24	12/01/14 18:22	50
1,2-Dichloroethane	220	U	220	36	ug/Kg	☼	12/01/14 09:24	12/01/14 18:22	50
1,1-Dichloroethene	220	U	220	110	ug/Kg	☼	12/01/14 09:24	12/01/14 18:22	50
1,2-Dichloropropane	220	U	220	110	ug/Kg	☼	12/01/14 09:24	12/01/14 18:22	50
Diisopropyl ether	220	U	220	24	ug/Kg	☼	12/01/14 09:24	12/01/14 18:22	50
Ethylbenzene	220	U	220	27	ug/Kg	☼	12/01/14 09:24	12/01/14 18:22	50
Ethylene Dibromide	220	U	220	44	ug/Kg	☼	12/01/14 09:24	12/01/14 18:22	50
Ethyl tert-butyl ether	220	U	220	110	ug/Kg	☼	12/01/14 09:24	12/01/14 18:22	50
2-Hexanone	1100	U	1100	220	ug/Kg	☼	12/01/14 09:24	12/01/14 18:22	50
Isopropylbenzene	**1600**		220	30	ug/Kg	☼	12/01/14 09:24	12/01/14 18:22	50
Methyl acetate	220	U	220	200	ug/Kg	☼	12/01/14 09:24	12/01/14 18:22	50
Methylcyclohexane	**1300**		220	65	ug/Kg	☼	12/01/14 09:24	12/01/14 18:22	50
Methylene Chloride	650	U	650	440	ug/Kg	☼	12/01/14 09:24	12/01/14 18:22	50
Methyl Ethyl Ketone	1100	U	1100	260	ug/Kg	☼	12/01/14 09:24	12/01/14 18:22	50
methyl isobutyl ketone	1100	U	1100	220	ug/Kg	☼	12/01/14 09:24	12/01/14 18:22	50
Methyl tert-butyl ether	220	U	220	44	ug/Kg	☼	12/01/14 09:24	12/01/14 18:22	50
Naphthalene	220	U	220	87	ug/Kg	☼	12/01/14 09:24	12/01/14 18:22	50
Styrene	220	U	220	44	ug/Kg	☼	12/01/14 09:24	12/01/14 18:22	50
Tert-amyl methyl ether	220	U	220	44	ug/Kg	☼	12/01/14 09:24	12/01/14 18:22	50
tert-Butyl alcohol	440	U	440	350	ug/Kg	☼	12/01/14 09:24	12/01/14 18:22	50
1,1,2,2-Tetrachloroethane	220	U	220	110	ug/Kg	☼	12/01/14 09:24	12/01/14 18:22	50
Tetrachloroethene	220	U	220	110	ug/Kg	☼	12/01/14 09:24	12/01/14 18:22	50
Toluene	220	U	220	44	ug/Kg	☼	12/01/14 09:24	12/01/14 18:22	50
trans-1,2-Dichloroethene	220	U	220	110	ug/Kg	☼	12/01/14 09:24	12/01/14 18:22	50
trans-1,3-Dichloropropene	220	U	220	110	ug/Kg	☼	12/01/14 09:24	12/01/14 18:22	50
1,2,4-Trichlorobenzene	220	U	220	87	ug/Kg	☼	12/01/14 09:24	12/01/14 18:22	50
1,1,1-Trichloroethane	220	U	220	48	ug/Kg	☼	12/01/14 09:24	12/01/14 18:22	50
1,1,2-Trichloroethane	220	U	220	110	ug/Kg	☼	12/01/14 09:24	12/01/14 18:22	50
Trichloroethene	220	U	220	44	ug/Kg	☼	12/01/14 09:24	12/01/14 18:22	50

Client Sample ID: GP-91(15-16)(111914)
Date Collected: 11/19/14 11:55
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-24
Matrix: Solid
Percent Solids: 81.3

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichlorofluoromethane	220	U	220	110	ug/Kg	☼	12/01/14 09:24	12/01/14 18:22	50
1,1,2-Trichloro-1,2,2-trifluoroethane	220	U	220	87	ug/Kg	☼	12/01/14 09:24	12/01/14 18:22	50
Vinyl chloride	220	U	220	110	ug/Kg	☼	12/01/14 09:24	12/01/14 18:22	50
Xylenes, Total	220	U	220	44	ug/Kg	☼	12/01/14 09:24	12/01/14 18:22	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*91*		*72 - 122*	*12/01/14 09:24*	*12/01/14 18:22*	*50*
Dibromofluoromethane	*94*		*79 - 123*	*12/01/14 09:24*	*12/01/14 18:22*	*50*
Toluene-d8 (Surr)	*101*		*80 - 120*	*12/01/14 09:24*	*12/01/14 18:22*	*50*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzaldehyde	400	U	400	71	ug/Kg	☼	11/20/14 17:57	11/24/14 17:10	1
Phenol	400	U	400	42	ug/Kg	☼	11/20/14 17:57	11/24/14 17:10	1
Bis(2-chloroethyl)ether	400	U	400	55	ug/Kg	☼	11/20/14 17:57	11/24/14 17:10	1
2-Chlorophenol	400	U	400	49	ug/Kg	☼	11/20/14 17:57	11/24/14 17:10	1
2-Methylphenol	400	U	400	33	ug/Kg	☼	11/20/14 17:57	11/24/14 17:10	1
bis (2-chloroisopropyl) ether	400	U	400	37	ug/Kg	☼	11/20/14 17:57	11/24/14 17:10	1
Acetophenone	400	U	400	34	ug/Kg	☼	11/20/14 17:57	11/24/14 17:10	1
3 & 4 Methylphenol	400	U	400	53	ug/Kg	☼	11/20/14 17:57	11/24/14 17:10	1
N-Nitrosodi-n-propylamine	400	U	400	39	ug/Kg	☼	11/20/14 17:57	11/24/14 17:10	1
Hexachloroethane	400	U	400	34	ug/Kg	☼	11/20/14 17:57	11/24/14 17:10	1
Nitrobenzene	400	U	400	32	ug/Kg	☼	11/20/14 17:57	11/24/14 17:10	1
Isophorone	400	U	400	40	ug/Kg	☼	11/20/14 17:57	11/24/14 17:10	1
2-Nitrophenol	400	U	400	50	ug/Kg	☼	11/20/14 17:57	11/24/14 17:10	1
2,4-Dimethylphenol	400	U	400	54	ug/Kg	☼	11/20/14 17:57	11/24/14 17:10	1
Bis(2-chloroethoxy)methane	400	U	400	48	ug/Kg	☼	11/20/14 17:57	11/24/14 17:10	1
2,4-Dichlorophenol	400	U	400	43	ug/Kg	☼	11/20/14 17:57	11/24/14 17:10	1
Naphthalene	400	U	400	37	ug/Kg	☼	11/20/14 17:57	11/24/14 17:10	1
4-Chloroaniline	810	U	810	64	ug/Kg	☼	11/20/14 17:57	11/24/14 17:10	1
Hexachlorobutadiene	400	U	400	44	ug/Kg	☼	11/20/14 17:57	11/24/14 17:10	1
Caprolactam	400	U	400	81	ug/Kg	☼	11/20/14 17:57	11/24/14 17:10	1
4-Chloro-3-methylphenol	400	U	400	43	ug/Kg	☼	11/20/14 17:57	11/24/14 17:10	1
2-Methylnaphthalene	400	U	400	47	ug/Kg	☼	11/20/14 17:57	11/24/14 17:10	1
Hexachlorocyclopentadiene	400	U	400	50	ug/Kg	☼	11/20/14 17:57	11/24/14 17:10	1
2,4,6-Trichlorophenol	400	U	400	36	ug/Kg	☼	11/20/14 17:57	11/24/14 17:10	1
2,4,5-Trichlorophenol	400	U	400	43	ug/Kg	☼	11/20/14 17:57	11/24/14 17:10	1
1,1'-Biphenyl	2100	U	2100	2100	ug/Kg	☼	11/20/14 17:57	11/24/14 17:10	1
2-Chloronaphthalene	400	U	400	43	ug/Kg	☼	11/20/14 17:57	11/24/14 17:10	1
2-Nitroaniline	2100	U	2100	55	ug/Kg	☼	11/20/14 17:57	11/24/14 17:10	1
Dimethyl phthalate	400	U	400	42	ug/Kg	☼	11/20/14 17:57	11/24/14 17:10	1
2,6-Dinitrotoluene	400	U	400	52	ug/Kg	☼	11/20/14 17:57	11/24/14 17:10	1
Acenaphthylene	400	U	400	44	ug/Kg	☼	11/20/14 17:57	11/24/14 17:10	1
3-Nitroaniline	2100	U	2100	56	ug/Kg	☼	11/20/14 17:57	11/24/14 17:10	1
Acenaphthene	**1200**		400	50	ug/Kg	☼	11/20/14 17:57	11/24/14 17:10	1
2,4-Dinitrophenol	2100	U	2100	1000	ug/Kg	☼	11/20/14 17:57	11/24/14 17:10	1
4-Nitrophenol	2100	U	2100	400	ug/Kg	☼	11/20/14 17:57	11/24/14 17:10	1
Dibenzofuran	400	U	400	40	ug/Kg	☼	11/20/14 17:57	11/24/14 17:10	1
2,4-Dinitrotoluene	400	U	400	60	ug/Kg	☼	11/20/14 17:57	11/24/14 17:10	1
Diethyl phthalate	400	U	400	45	ug/Kg	☼	11/20/14 17:57	11/24/14 17:10	1

Client Sample ID: GP-91(15-16)(111914)
Date Collected: 11/19/14 11:55
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-24
Matrix: Solid
Percent Solids: 81.3

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluorene	**2000**		400	44	ug/Kg	☼	11/20/14 17:57	11/24/14 17:10	1
4-Chlorophenyl phenyl ether	400	U	400	54	ug/Kg	☼	11/20/14 17:57	11/24/14 17:10	1
4-Nitroaniline	2100	U	2100	60	ug/Kg	☼	11/20/14 17:57	11/24/14 17:10	1
4,6-Dinitro-2-methylphenol	2100	U	2100	210	ug/Kg	☼	11/20/14 17:57	11/24/14 17:10	1
N-Nitrosodiphenylamine	400	U	400	40	ug/Kg	☼	11/20/14 17:57	11/24/14 17:10	1
4-Bromophenyl phenyl ether	400	U	400	44	ug/Kg	☼	11/20/14 17:57	11/24/14 17:10	1
Hexachlorobenzene	400	U	400	48	ug/Kg	☼	11/20/14 17:57	11/24/14 17:10	1
Atrazine	400	U	400	28	ug/Kg	☼	11/20/14 17:57	11/24/14 17:10	1
Pentachlorophenol	2100	U	2100	400	ug/Kg	☼	11/20/14 17:57	11/24/14 17:10	1
Phenanthrene	**5900**		400	33	ug/Kg	☼	11/20/14 17:57	11/24/14 17:10	1
Anthracene	**850**		400	31	ug/Kg	☼	11/20/14 17:57	11/24/14 17:10	1
Carbazole	400	U	400	37	ug/Kg	☼	11/20/14 17:57	11/24/14 17:10	1
Di-n-butyl phthalate	400	U	400	37	ug/Kg	☼	11/20/14 17:57	11/24/14 17:10	1
Fluoranthene	**180**	**J**	400	39	ug/Kg	☼	11/20/14 17:57	11/24/14 17:10	1
Pyrene	**460**		400	33	ug/Kg	☼	11/20/14 17:57	11/24/14 17:10	1
Butyl benzyl phthalate	400	U	400	32	ug/Kg	☼	11/20/14 17:57	11/24/14 17:10	1
3,3'-Dichlorobenzidine	810	U	810	34	ug/Kg	☼	11/20/14 17:57	11/24/14 17:10	1
Benzo[a]anthracene	400	U	400	33	ug/Kg	☼	11/20/14 17:57	11/24/14 17:10	1
Chrysene	**69**	**J**	400	26	ug/Kg	☼	11/20/14 17:57	11/24/14 17:10	1
Bis(2-ethylhexyl) phthalate	400	U	400	36	ug/Kg	☼	11/20/14 17:57	11/24/14 17:10	1
Di-n-octyl phthalate	400	U	400	36	ug/Kg	☼	11/20/14 17:57	11/24/14 17:10	1
Benzo[b]fluoranthene	400	U	400	47	ug/Kg	☼	11/20/14 17:57	11/24/14 17:10	1
Benzo[k]fluoranthene	400	U	400	80	ug/Kg	☼	11/20/14 17:57	11/24/14 17:10	1
Benzo[a]pyrene	400	U	400	64	ug/Kg	☼	11/20/14 17:57	11/24/14 17:10	1
Indeno[1,2,3-cd]pyrene	400	U	400	34	ug/Kg	☼	11/20/14 17:57	11/24/14 17:10	1
Dibenz(a,h)anthracene	400	U	400	48	ug/Kg	☼	11/20/14 17:57	11/24/14 17:10	1
Benzo[g,h,i]perylene	400	U	400	27	ug/Kg	☼	11/20/14 17:57	11/24/14 17:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*55*		*37 - 115*	*11/20/14 17:57*	*11/24/14 17:10*	*1*
2-Fluorobiphenyl	*73*		*41 - 116*	*11/20/14 17:57*	*11/24/14 17:10*	*1*
Terphenyl-d14 (Surr)	*122*		*46 - 126*	*11/20/14 17:57*	*11/24/14 17:10*	*1*
Phenol-d5 (Surr)	*65*		*38 - 122*	*11/20/14 17:57*	*11/24/14 17:10*	*1*
2-Fluorophenol (Surr)	*67*		*39 - 114*	*11/20/14 17:57*	*11/24/14 17:10*	*1*
2,4,6-Tribromophenol (Surr)	*102*		*45 - 129*	*11/20/14 17:57*	*11/24/14 17:10*	*1*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Gasoline Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**860**	**B**	330	25	mg/Kg	☼	11/20/14 16:38	12/01/14 14:44	250

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*0*	*X*	*70 - 131*	*11/20/14 16:38*	*12/01/14 14:44*	*250*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**1300**		41	26	mg/Kg	☼	11/20/14 17:57	11/24/14 20:39	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*0*	*D*	*45 - 130*	*11/20/14 17:57*	*11/24/14 20:39*	*10*

Client: ARCADIS U.S., Inc.
Project/Site: CSX C&O Canal Brunswick, MD

TestAmerica Job ID: 680-107453-1

Client Sample ID: GP-92(14-15)(111914)
Date Collected: 11/19/14 13:35
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-25
Matrix: Solid
Percent Solids: 82.8

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	1300	U	1300	380	ug/Kg	☼	12/01/14 09:24	12/01/14 18:47	50
Benzene	260	U	260	57	ug/Kg	☼	12/01/14 09:24	12/01/14 18:47	50
Bromodichloromethane	260	U	260	130	ug/Kg	☼	12/01/14 09:24	12/01/14 18:47	50
Bromoform	260	U	260	130	ug/Kg	☼	12/01/14 09:24	12/01/14 18:47	50
Bromomethane	260	U	260	130	ug/Kg	☼	12/01/14 09:24	12/01/14 18:47	50
Carbon disulfide	260	U	260	130	ug/Kg	☼	12/01/14 09:24	12/01/14 18:47	50
Carbon tetrachloride	260	U	260	89	ug/Kg	☼	12/01/14 09:24	12/01/14 18:47	50
Chlorobenzene	260	U	260	27	ug/Kg	☼	12/01/14 09:24	12/01/14 18:47	50
Chloroethane	260	U	260	130	ug/Kg	☼	12/01/14 09:24	12/01/14 18:47	50
Chloroform	260	U	260	130	ug/Kg	☼	12/01/14 09:24	12/01/14 18:47	50
Chloromethane	260	U	260	52	ug/Kg	☼	12/01/14 09:24	12/01/14 18:47	50
cis-1,2-Dichloroethene	260	U	260	40	ug/Kg	☼	12/01/14 09:24	12/01/14 18:47	50
cis-1,3-Dichloropropene	260	U	260	63	ug/Kg	☼	12/01/14 09:24	12/01/14 18:47	50
Cyclohexane	260	U	260	49	ug/Kg	☼	12/01/14 09:24	12/01/14 18:47	50
Dibromochloromethane	260	U	260	130	ug/Kg	☼	12/01/14 09:24	12/01/14 18:47	50
1,2-Dibromo-3-Chloropropane	260	U	260	170	ug/Kg	☼	12/01/14 09:24	12/01/14 18:47	50
1,2-Dichlorobenzene	260	U	260	37	ug/Kg	☼	12/01/14 09:24	12/01/14 18:47	50
1,3-Dichlorobenzene	260	U	260	50	ug/Kg	☼	12/01/14 09:24	12/01/14 18:47	50
1,4-Dichlorobenzene	260	U	260	130	ug/Kg	☼	12/01/14 09:24	12/01/14 18:47	50
Dichlorodifluoromethane	260	U	260	68	ug/Kg	☼	12/01/14 09:24	12/01/14 18:47	50
1,1-Dichloroethane	260	U	260	43	ug/Kg	☼	12/01/14 09:24	12/01/14 18:47	50
1,2-Dichloroethane	260	U	260	43	ug/Kg	☼	12/01/14 09:24	12/01/14 18:47	50
1,1-Dichloroethene	260	U	260	130	ug/Kg	☼	12/01/14 09:24	12/01/14 18:47	50
1,2-Dichloropropane	260	U	260	130	ug/Kg	☼	12/01/14 09:24	12/01/14 18:47	50
Diisopropyl ether	260	U	260	29	ug/Kg	☼	12/01/14 09:24	12/01/14 18:47	50
Ethylbenzene	260	U	260	32	ug/Kg	☼	12/01/14 09:24	12/01/14 18:47	50
Ethylene Dibromide	260	U	260	52	ug/Kg	☼	12/01/14 09:24	12/01/14 18:47	50
Ethyl tert-butyl ether	260	U	260	130	ug/Kg	☼	12/01/14 09:24	12/01/14 18:47	50
2-Hexanone	1300	U	1300	260	ug/Kg	☼	12/01/14 09:24	12/01/14 18:47	50
Isopropylbenzene	**53**	**J**	260	35	ug/Kg	☼	12/01/14 09:24	12/01/14 18:47	50
Methyl acetate	260	U	260	240	ug/Kg	☼	12/01/14 09:24	12/01/14 18:47	50
Methylcyclohexane	**450**		260	78	ug/Kg	☼	12/01/14 09:24	12/01/14 18:47	50
Methylene Chloride	780	U	780	520	ug/Kg	☼	12/01/14 09:24	12/01/14 18:47	50
Methyl Ethyl Ketone	1300	U	1300	310	ug/Kg	☼	12/01/14 09:24	12/01/14 18:47	50
methyl isobutyl ketone	1300	U	1300	260	ug/Kg	☼	12/01/14 09:24	12/01/14 18:47	50
Methyl tert-butyl ether	260	U	260	52	ug/Kg	☼	12/01/14 09:24	12/01/14 18:47	50
Naphthalene	260	U	260	100	ug/Kg	☼	12/01/14 09:24	12/01/14 18:47	50
Styrene	260	U	260	52	ug/Kg	☼	12/01/14 09:24	12/01/14 18:47	50
Tert-amyl methyl ether	260	U	260	52	ug/Kg	☼	12/01/14 09:24	12/01/14 18:47	50
tert-Butyl alcohol	520	U	520	420	ug/Kg	☼	12/01/14 09:24	12/01/14 18:47	50
1,1,2,2-Tetrachloroethane	260	U	260	130	ug/Kg	☼	12/01/14 09:24	12/01/14 18:47	50
Tetrachloroethene	260	U	260	130	ug/Kg	☼	12/01/14 09:24	12/01/14 18:47	50
Toluene	260	U	260	52	ug/Kg	☼	12/01/14 09:24	12/01/14 18:47	50
trans-1,2-Dichloroethene	260	U	260	130	ug/Kg	☼	12/01/14 09:24	12/01/14 18:47	50
trans-1,3-Dichloropropene	260	U	260	130	ug/Kg	☼	12/01/14 09:24	12/01/14 18:47	50
1,2,4-Trichlorobenzene	260	U	260	100	ug/Kg	☼	12/01/14 09:24	12/01/14 18:47	50
1,1,1-Trichloroethane	260	U	260	57	ug/Kg	☼	12/01/14 09:24	12/01/14 18:47	50
1,1,2-Trichloroethane	260	U	260	130	ug/Kg	☼	12/01/14 09:24	12/01/14 18:47	50
Trichloroethene	260	U	260	52	ug/Kg	☼	12/01/14 09:24	12/01/14 18:47	50

Client Sample ID: GP-92(14-15)(111914)
Date Collected: 11/19/14 13:35
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-25
Matrix: Solid
Percent Solids: 82.8

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichlorofluoromethane	260	U	260	130	ug/Kg	☼	12/01/14 09:24	12/01/14 18:47	50
1,1,2-Trichloro-1,2,2-trifluoroethane	260	U	260	100	ug/Kg	☼	12/01/14 09:24	12/01/14 18:47	50
Vinyl chloride	260	U	260	130	ug/Kg	☼	12/01/14 09:24	12/01/14 18:47	50
Xylenes, Total	260	U	260	52	ug/Kg	☼	12/01/14 09:24	12/01/14 18:47	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*94*		*72 - 122*	*12/01/14 09:24*	*12/01/14 18:47*	*50*
Dibromofluoromethane	*98*		*79 - 123*	*12/01/14 09:24*	*12/01/14 18:47*	*50*
Toluene-d8 (Surr)	*118*		*80 - 120*	*12/01/14 09:24*	*12/01/14 18:47*	*50*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzaldehyde	400	U	400	70	ug/Kg	☼	11/20/14 17:57	11/24/14 17:33	1
Phenol	400	U	400	41	ug/Kg	☼	11/20/14 17:57	11/24/14 17:33	1
Bis(2-chloroethyl)ether	400	U	400	54	ug/Kg	☼	11/20/14 17:57	11/24/14 17:33	1
2-Chlorophenol	400	U	400	48	ug/Kg	☼	11/20/14 17:57	11/24/14 17:33	1
2-Methylphenol	400	U	400	33	ug/Kg	☼	11/20/14 17:57	11/24/14 17:33	1
bis (2-chloroisopropyl) ether	400	U	400	36	ug/Kg	☼	11/20/14 17:57	11/24/14 17:33	1
Acetophenone	400	U	400	34	ug/Kg	☼	11/20/14 17:57	11/24/14 17:33	1
3 & 4 Methylphenol	400	U	400	52	ug/Kg	☼	11/20/14 17:57	11/24/14 17:33	1
N-Nitrosodi-n-propylamine	400	U	400	39	ug/Kg	☼	11/20/14 17:57	11/24/14 17:33	1
Hexachloroethane	400	U	400	34	ug/Kg	☼	11/20/14 17:57	11/24/14 17:33	1
Nitrobenzene	400	U	400	31	ug/Kg	☼	11/20/14 17:57	11/24/14 17:33	1
Isophorone	400	U	400	40	ug/Kg	☼	11/20/14 17:57	11/24/14 17:33	1
2-Nitrophenol	400	U	400	50	ug/Kg	☼	11/20/14 17:57	11/24/14 17:33	1
2,4-Dimethylphenol	400	U	400	53	ug/Kg	☼	11/20/14 17:57	11/24/14 17:33	1
Bis(2-chloroethoxy)methane	400	U	400	47	ug/Kg	☼	11/20/14 17:57	11/24/14 17:33	1
2,4-Dichlorophenol	400	U	400	42	ug/Kg	☼	11/20/14 17:57	11/24/14 17:33	1
Naphthalene	400	U	400	36	ug/Kg	☼	11/20/14 17:57	11/24/14 17:33	1
4-Chloroaniline	800	U	800	63	ug/Kg	☼	11/20/14 17:57	11/24/14 17:33	1
Hexachlorobutadiene	400	U	400	44	ug/Kg	☼	11/20/14 17:57	11/24/14 17:33	1
Caprolactam	400	U	400	80	ug/Kg	☼	11/20/14 17:57	11/24/14 17:33	1
4-Chloro-3-methylphenol	400	U	400	42	ug/Kg	☼	11/20/14 17:57	11/24/14 17:33	1
2-Methylnaphthalene	400	U	400	46	ug/Kg	☼	11/20/14 17:57	11/24/14 17:33	1
Hexachlorocyclopentadiene	400	U	400	50	ug/Kg	☼	11/20/14 17:57	11/24/14 17:33	1
2,4,6-Trichlorophenol	400	U	400	35	ug/Kg	☼	11/20/14 17:57	11/24/14 17:33	1
2,4,5-Trichlorophenol	400	U	400	42	ug/Kg	☼	11/20/14 17:57	11/24/14 17:33	1
1,1'-Biphenyl	2100	U	2100	2100	ug/Kg	☼	11/20/14 17:57	11/24/14 17:33	1
2-Chloronaphthalene	400	U	400	42	ug/Kg	☼	11/20/14 17:57	11/24/14 17:33	1
2-Nitroaniline	2100	U	2100	54	ug/Kg	☼	11/20/14 17:57	11/24/14 17:33	1
Dimethyl phthalate	400	U	400	41	ug/Kg	☼	11/20/14 17:57	11/24/14 17:33	1
2,6-Dinitrotoluene	400	U	400	51	ug/Kg	☼	11/20/14 17:57	11/24/14 17:33	1
Acenaphthylene	400	U	400	44	ug/Kg	☼	11/20/14 17:57	11/24/14 17:33	1
3-Nitroaniline	2100	U	2100	56	ug/Kg	☼	11/20/14 17:57	11/24/14 17:33	1
Acenaphthene	**270**	**J**	400	50	ug/Kg	☼	11/20/14 17:57	11/24/14 17:33	1
2,4-Dinitrophenol	2100	U	2100	1000	ug/Kg	☼	11/20/14 17:57	11/24/14 17:33	1
4-Nitrophenol	2100	U	2100	400	ug/Kg	☼	11/20/14 17:57	11/24/14 17:33	1
Dibenzofuran	400	U	400	40	ug/Kg	☼	11/20/14 17:57	11/24/14 17:33	1
2,4-Dinitrotoluene	400	U	400	59	ug/Kg	☼	11/20/14 17:57	11/24/14 17:33	1
Diethyl phthalate	400	U	400	45	ug/Kg	☼	11/20/14 17:57	11/24/14 17:33	1

Client Sample ID: GP-92(14-15)(111914)
Date Collected: 11/19/14 13:35
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-25
Matrix: Solid
Percent Solids: 82.8

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluorene	400	U	400	44	ug/Kg	☼	11/20/14 17:57	11/24/14 17:33	1
4-Chlorophenyl phenyl ether	400	U	400	53	ug/Kg	☼	11/20/14 17:57	11/24/14 17:33	1
4-Nitroaniline	2100	U	2100	59	ug/Kg	☼	11/20/14 17:57	11/24/14 17:33	1
4,6-Dinitro-2-methylphenol	2100	U	2100	210	ug/Kg	☼	11/20/14 17:57	11/24/14 17:33	1
N-Nitrosodiphenylamine	400	U	400	40	ug/Kg	☼	11/20/14 17:57	11/24/14 17:33	1
4-Bromophenyl phenyl ether	400	U	400	44	ug/Kg	☼	11/20/14 17:57	11/24/14 17:33	1
Hexachlorobenzene	400	U	400	47	ug/Kg	☼	11/20/14 17:57	11/24/14 17:33	1
Atrazine	400	U	400	28	ug/Kg	☼	11/20/14 17:57	11/24/14 17:33	1
Pentachlorophenol	2100	U	2100	400	ug/Kg	☼	11/20/14 17:57	11/24/14 17:33	1
Phenanthrene	**1600**		400	33	ug/Kg	☼	11/20/14 17:57	11/24/14 17:33	1
Anthracene	400	U	400	30	ug/Kg	☼	11/20/14 17:57	11/24/14 17:33	1
Carbazole	400	U	400	36	ug/Kg	☼	11/20/14 17:57	11/24/14 17:33	1
Di-n-butyl phthalate	400	U	400	36	ug/Kg	☼	11/20/14 17:57	11/24/14 17:33	1
Fluoranthene	**70**	**J**	400	39	ug/Kg	☼	11/20/14 17:57	11/24/14 17:33	1
Pyrene	**120**	**J**	400	33	ug/Kg	☼	11/20/14 17:57	11/24/14 17:33	1
Butyl benzyl phthalate	400	U	400	31	ug/Kg	☼	11/20/14 17:57	11/24/14 17:33	1
3,3'-Dichlorobenzidine	800	U	800	34	ug/Kg	☼	11/20/14 17:57	11/24/14 17:33	1
Benzo[a]anthracene	400	U	400	33	ug/Kg	☼	11/20/14 17:57	11/24/14 17:33	1
Chrysene	**31**	**J**	400	25	ug/Kg	☼	11/20/14 17:57	11/24/14 17:33	1
Bis(2-ethylhexyl) phthalate	400	U	400	35	ug/Kg	☼	11/20/14 17:57	11/24/14 17:33	1
Di-n-octyl phthalate	400	U	400	35	ug/Kg	☼	11/20/14 17:57	11/24/14 17:33	1
Benzo[b]fluoranthene	400	U	400	46	ug/Kg	☼	11/20/14 17:57	11/24/14 17:33	1
Benzo[k]fluoranthene	400	U	400	79	ug/Kg	☼	11/20/14 17:57	11/24/14 17:33	1
Benzo[a]pyrene	400	U	400	63	ug/Kg	☼	11/20/14 17:57	11/24/14 17:33	1
Indeno[1,2,3-cd]pyrene	400	U	400	34	ug/Kg	☼	11/20/14 17:57	11/24/14 17:33	1
Dibenz(a,h)anthracene	400	U	400	47	ug/Kg	☼	11/20/14 17:57	11/24/14 17:33	1
Benzo[g,h,i]perylene	400	U	400	27	ug/Kg	☼	11/20/14 17:57	11/24/14 17:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*18*	*X*	*37 - 115*	*11/20/14 17:57*	*11/24/14 17:33*	*1*
2-Fluorobiphenyl	*59*		*41 - 116*	*11/20/14 17:57*	*11/24/14 17:33*	*1*
Terphenyl-d14 (Surr)	*89*		*46 - 126*	*11/20/14 17:57*	*11/24/14 17:33*	*1*
Phenol-d5 (Surr)	*51*		*38 - 122*	*11/20/14 17:57*	*11/24/14 17:33*	*1*
2-Fluorophenol (Surr)	*53*		*39 - 114*	*11/20/14 17:57*	*11/24/14 17:33*	*1*
2,4,6-Tribromophenol (Surr)	*71*		*45 - 129*	*11/20/14 17:57*	*11/24/14 17:33*	*1*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Gasoline Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**76**	**B**	68	5.2	mg/Kg	☼	11/20/14 16:38	12/01/14 12:31	250

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*0*	*X*	*70 - 131*	*11/20/14 16:38*	*12/01/14 12:31*	*250*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**670**		40	25	mg/Kg	☼	11/20/14 17:57	11/24/14 20:53	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*0*	*D*	*45 - 130*	*11/20/14 17:57*	*11/24/14 20:53*	*10*

Client: ARCADIS U.S., Inc.
Project/Site: CSX C&O Canal Brunswick, MD

TestAmerica Job ID: 680-107453-1

Client Sample ID: GP-92(15.5-16.5)(111914)
Date Collected: 11/19/14 13:40
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-26
Matrix: Solid
Percent Solids: 82.5

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	1200	U	1200	360	ug/Kg	☼	12/01/14 09:24	12/01/14 19:12	50
Benzene	250	U	250	54	ug/Kg	☼	12/01/14 09:24	12/01/14 19:12	50
Bromodichloromethane	250	U	250	120	ug/Kg	☼	12/01/14 09:24	12/01/14 19:12	50
Bromoform	250	U	250	120	ug/Kg	☼	12/01/14 09:24	12/01/14 19:12	50
Bromomethane	250	U	250	120	ug/Kg	☼	12/01/14 09:24	12/01/14 19:12	50
Carbon disulfide	250	U	250	120	ug/Kg	☼	12/01/14 09:24	12/01/14 19:12	50
Carbon tetrachloride	250	U	250	84	ug/Kg	☼	12/01/14 09:24	12/01/14 19:12	50
Chlorobenzene	250	U	250	26	ug/Kg	☼	12/01/14 09:24	12/01/14 19:12	50
Chloroethane	250	U	250	120	ug/Kg	☼	12/01/14 09:24	12/01/14 19:12	50
Chloroform	250	U	250	120	ug/Kg	☼	12/01/14 09:24	12/01/14 19:12	50
Chloromethane	250	U	250	49	ug/Kg	☼	12/01/14 09:24	12/01/14 19:12	50
cis-1,2-Dichloroethene	250	U	250	38	ug/Kg	☼	12/01/14 09:24	12/01/14 19:12	50
cis-1,3-Dichloropropene	250	U	250	59	ug/Kg	☼	12/01/14 09:24	12/01/14 19:12	50
Cyclohexane	**58**	**J**	250	46	ug/Kg	☼	12/01/14 09:24	12/01/14 19:12	50
Dibromochloromethane	250	U	250	120	ug/Kg	☼	12/01/14 09:24	12/01/14 19:12	50
1,2-Dibromo-3-Chloropropane	250	U	250	160	ug/Kg	☼	12/01/14 09:24	12/01/14 19:12	50
1,2-Dichlorobenzene	250	U	250	35	ug/Kg	☼	12/01/14 09:24	12/01/14 19:12	50
1,3-Dichlorobenzene	250	U	250	47	ug/Kg	☼	12/01/14 09:24	12/01/14 19:12	50
1,4-Dichlorobenzene	250	U	250	120	ug/Kg	☼	12/01/14 09:24	12/01/14 19:12	50
Dichlorodifluoromethane	250	U	250	64	ug/Kg	☼	12/01/14 09:24	12/01/14 19:12	50
1,1-Dichloroethane	250	U	250	41	ug/Kg	☼	12/01/14 09:24	12/01/14 19:12	50
1,2-Dichloroethane	250	U	250	41	ug/Kg	☼	12/01/14 09:24	12/01/14 19:12	50
1,1-Dichloroethene	250	U	250	120	ug/Kg	☼	12/01/14 09:24	12/01/14 19:12	50
1,2-Dichloropropane	250	U	250	120	ug/Kg	☼	12/01/14 09:24	12/01/14 19:12	50
Diisopropyl ether	250	U	250	27	ug/Kg	☼	12/01/14 09:24	12/01/14 19:12	50
Ethylbenzene	250	U	250	30	ug/Kg	☼	12/01/14 09:24	12/01/14 19:12	50
Ethylene Dibromide	250	U	250	49	ug/Kg	☼	12/01/14 09:24	12/01/14 19:12	50
Ethyl tert-butyl ether	250	U	250	120	ug/Kg	☼	12/01/14 09:24	12/01/14 19:12	50
2-Hexanone	1200	U	1200	250	ug/Kg	☼	12/01/14 09:24	12/01/14 19:12	50
Isopropylbenzene	**240**	**J**	250	34	ug/Kg	☼	12/01/14 09:24	12/01/14 19:12	50
Methyl acetate	250	U	250	230	ug/Kg	☼	12/01/14 09:24	12/01/14 19:12	50
Methylcyclohexane	**650**		250	74	ug/Kg	☼	12/01/14 09:24	12/01/14 19:12	50
Methylene Chloride	740	U	740	490	ug/Kg	☼	12/01/14 09:24	12/01/14 19:12	50
Methyl Ethyl Ketone	1200	U	1200	300	ug/Kg	☼	12/01/14 09:24	12/01/14 19:12	50
methyl isobutyl ketone	1200	U	1200	250	ug/Kg	☼	12/01/14 09:24	12/01/14 19:12	50
Methyl tert-butyl ether	250	U	250	49	ug/Kg	☼	12/01/14 09:24	12/01/14 19:12	50
Naphthalene	250	U	250	99	ug/Kg	☼	12/01/14 09:24	12/01/14 19:12	50
Styrene	250	U	250	49	ug/Kg	☼	12/01/14 09:24	12/01/14 19:12	50
Tert-amyl methyl ether	250	U	250	49	ug/Kg	☼	12/01/14 09:24	12/01/14 19:12	50
tert-Butyl alcohol	490	U	490	400	ug/Kg	☼	12/01/14 09:24	12/01/14 19:12	50
1,1,2,2-Tetrachloroethane	250	U	250	120	ug/Kg	☼	12/01/14 09:24	12/01/14 19:12	50
Tetrachloroethene	250	U	250	120	ug/Kg	☼	12/01/14 09:24	12/01/14 19:12	50
Toluene	250	U	250	49	ug/Kg	☼	12/01/14 09:24	12/01/14 19:12	50
trans-1,2-Dichloroethene	250	U	250	120	ug/Kg	☼	12/01/14 09:24	12/01/14 19:12	50
trans-1,3-Dichloropropene	250	U	250	120	ug/Kg	☼	12/01/14 09:24	12/01/14 19:12	50
1,2,4-Trichlorobenzene	250	U	250	99	ug/Kg	☼	12/01/14 09:24	12/01/14 19:12	50
1,1,1-Trichloroethane	250	U	250	54	ug/Kg	☼	12/01/14 09:24	12/01/14 19:12	50
1,1,2-Trichloroethane	250	U	250	120	ug/Kg	☼	12/01/14 09:24	12/01/14 19:12	50
Trichloroethene	250	U	250	49	ug/Kg	☼	12/01/14 09:24	12/01/14 19:12	50

Client Sample ID: GP-92(15.5-16.5)(111914)
Date Collected: 11/19/14 13:40
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-26
Matrix: Solid
Percent Solids: 82.5

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichlorofluoromethane	250	U	250	120	ug/Kg	☼	12/01/14 09:24	12/01/14 19:12	50
1,1,2-Trichloro-1,2,2-trifluoroethane	250	U	250	99	ug/Kg	☼	12/01/14 09:24	12/01/14 19:12	50
Vinyl chloride	250	U	250	120	ug/Kg	☼	12/01/14 09:24	12/01/14 19:12	50
Xylenes, Total	250	U	250	49	ug/Kg	☼	12/01/14 09:24	12/01/14 19:12	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*88*		*72 - 122*	*12/01/14 09:24*	*12/01/14 19:12*	*50*
Dibromofluoromethane	*102*		*79 - 123*	*12/01/14 09:24*	*12/01/14 19:12*	*50*
Toluene-d8 (Surr)	*97*		*80 - 120*	*12/01/14 09:24*	*12/01/14 19:12*	*50*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzaldehyde	400	U	400	70	ug/Kg	☼	11/20/14 17:57	11/24/14 17:56	1
Phenol	400	U	400	41	ug/Kg	☼	11/20/14 17:57	11/24/14 17:56	1
Bis(2-chloroethyl)ether	400	U	400	54	ug/Kg	☼	11/20/14 17:57	11/24/14 17:56	1
2-Chlorophenol	400	U	400	48	ug/Kg	☼	11/20/14 17:57	11/24/14 17:56	1
2-Methylphenol	400	U	400	33	ug/Kg	☼	11/20/14 17:57	11/24/14 17:56	1
bis (2-chloroisopropyl) ether	400	U	400	36	ug/Kg	☼	11/20/14 17:57	11/24/14 17:56	1
Acetophenone	400	U	400	34	ug/Kg	☼	11/20/14 17:57	11/24/14 17:56	1
3 & 4 Methylphenol	400	U	400	52	ug/Kg	☼	11/20/14 17:57	11/24/14 17:56	1
N-Nitrosodi-n-propylamine	400	U	400	39	ug/Kg	☼	11/20/14 17:57	11/24/14 17:56	1
Hexachloroethane	400	U	400	34	ug/Kg	☼	11/20/14 17:57	11/24/14 17:56	1
Nitrobenzene	400	U	400	31	ug/Kg	☼	11/20/14 17:57	11/24/14 17:56	1
Isophorone	400	U	400	40	ug/Kg	☼	11/20/14 17:57	11/24/14 17:56	1
2-Nitrophenol	400	U	400	50	ug/Kg	☼	11/20/14 17:57	11/24/14 17:56	1
2,4-Dimethylphenol	400	U	400	53	ug/Kg	☼	11/20/14 17:57	11/24/14 17:56	1
Bis(2-chloroethoxy)methane	400	U	400	47	ug/Kg	☼	11/20/14 17:57	11/24/14 17:56	1
2,4-Dichlorophenol	400	U	400	42	ug/Kg	☼	11/20/14 17:57	11/24/14 17:56	1
Naphthalene	400	U	400	36	ug/Kg	☼	11/20/14 17:57	11/24/14 17:56	1
4-Chloroaniline	800	U	800	63	ug/Kg	☼	11/20/14 17:57	11/24/14 17:56	1
Hexachlorobutadiene	400	U	400	44	ug/Kg	☼	11/20/14 17:57	11/24/14 17:56	1
Caprolactam	400	U	400	80	ug/Kg	☼	11/20/14 17:57	11/24/14 17:56	1
4-Chloro-3-methylphenol	400	U	400	42	ug/Kg	☼	11/20/14 17:57	11/24/14 17:56	1
2-Methylnaphthalene	400	U	400	46	ug/Kg	☼	11/20/14 17:57	11/24/14 17:56	1
Hexachlorocyclopentadiene	400	U	400	50	ug/Kg	☼	11/20/14 17:57	11/24/14 17:56	1
2,4,6-Trichlorophenol	400	U	400	35	ug/Kg	☼	11/20/14 17:57	11/24/14 17:56	1
2,4,5-Trichlorophenol	400	U	400	42	ug/Kg	☼	11/20/14 17:57	11/24/14 17:56	1
1,1'-Biphenyl	2100	U	2100	2100	ug/Kg	☼	11/20/14 17:57	11/24/14 17:56	1
2-Chloronaphthalene	400	U	400	42	ug/Kg	☼	11/20/14 17:57	11/24/14 17:56	1
2-Nitroaniline	2100	U	2100	54	ug/Kg	☼	11/20/14 17:57	11/24/14 17:56	1
Dimethyl phthalate	400	U	400	41	ug/Kg	☼	11/20/14 17:57	11/24/14 17:56	1
2,6-Dinitrotoluene	400	U	400	51	ug/Kg	☼	11/20/14 17:57	11/24/14 17:56	1
Acenaphthylene	400	U	400	44	ug/Kg	☼	11/20/14 17:57	11/24/14 17:56	1
3-Nitroaniline	2100	U	2100	56	ug/Kg	☼	11/20/14 17:57	11/24/14 17:56	1
Acenaphthene	**440**		400	50	ug/Kg	☼	11/20/14 17:57	11/24/14 17:56	1
2,4-Dinitrophenol	2100	U	2100	1000	ug/Kg	☼	11/20/14 17:57	11/24/14 17:56	1
4-Nitrophenol	2100	U	2100	400	ug/Kg	☼	11/20/14 17:57	11/24/14 17:56	1
Dibenzofuran	400	U	400	40	ug/Kg	☼	11/20/14 17:57	11/24/14 17:56	1
2,4-Dinitrotoluene	400	U	400	59	ug/Kg	☼	11/20/14 17:57	11/24/14 17:56	1
Diethyl phthalate	400	U	400	45	ug/Kg	☼	11/20/14 17:57	11/24/14 17:56	1

Client: ARCADIS U.S., Inc.
Project/Site: CSX C&O Canal Brunswick, MD

TestAmerica Job ID: 680-107453-1

Client Sample ID: GP-92(15.5-16.5)(111914)
Date Collected: 11/19/14 13:40
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-26
Matrix: Solid
Percent Solids: 82.5

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluorene	400	U	400	44	ug/Kg	☼	11/20/14 17:57	11/24/14 17:56	1
4-Chlorophenyl phenyl ether	400	U	400	53	ug/Kg	☼	11/20/14 17:57	11/24/14 17:56	1
4-Nitroaniline	2100	U	2100	59	ug/Kg	☼	11/20/14 17:57	11/24/14 17:56	1
4,6-Dinitro-2-methylphenol	2100	U	2100	210	ug/Kg	☼	11/20/14 17:57	11/24/14 17:56	1
N-Nitrosodiphenylamine	400	U	400	40	ug/Kg	☼	11/20/14 17:57	11/24/14 17:56	1
4-Bromophenyl phenyl ether	400	U	400	44	ug/Kg	☼	11/20/14 17:57	11/24/14 17:56	1
Hexachlorobenzene	400	U	400	47	ug/Kg	☼	11/20/14 17:57	11/24/14 17:56	1
Atrazine	400	U	400	28	ug/Kg	☼	11/20/14 17:57	11/24/14 17:56	1
Pentachlorophenol	2100	U	2100	400	ug/Kg	☼	11/20/14 17:57	11/24/14 17:56	1
Phenanthrene	**2100**		400	33	ug/Kg	☼	11/20/14 17:57	11/24/14 17:56	1
Anthracene	400	U	400	30	ug/Kg	☼	11/20/14 17:57	11/24/14 17:56	1
Carbazole	400	U	400	36	ug/Kg	☼	11/20/14 17:57	11/24/14 17:56	1
Di-n-butyl phthalate	400	U	400	36	ug/Kg	☼	11/20/14 17:57	11/24/14 17:56	1
Fluoranthene	**72**	**J**	400	39	ug/Kg	☼	11/20/14 17:57	11/24/14 17:56	1
Pyrene	**160**	**J**	400	33	ug/Kg	☼	11/20/14 17:57	11/24/14 17:56	1
Butyl benzyl phthalate	400	U	400	31	ug/Kg	☼	11/20/14 17:57	11/24/14 17:56	1
3,3'-Dichlorobenzidine	800	U	800	34	ug/Kg	☼	11/20/14 17:57	11/24/14 17:56	1
Benzo[a]anthracene	400	U	400	33	ug/Kg	☼	11/20/14 17:57	11/24/14 17:56	1
Chrysene	400	U	400	25	ug/Kg	☼	11/20/14 17:57	11/24/14 17:56	1
Bis(2-ethylhexyl) phthalate	400	U	400	35	ug/Kg	☼	11/20/14 17:57	11/24/14 17:56	1
Di-n-octyl phthalate	400	U	400	35	ug/Kg	☼	11/20/14 17:57	11/24/14 17:56	1
Benzo[b]fluoranthene	400	U	400	46	ug/Kg	☼	11/20/14 17:57	11/24/14 17:56	1
Benzo[k]fluoranthene	400	U	400	79	ug/Kg	☼	11/20/14 17:57	11/24/14 17:56	1
Benzo[a]pyrene	400	U	400	63	ug/Kg	☼	11/20/14 17:57	11/24/14 17:56	1
Indeno[1,2,3-cd]pyrene	400	U	400	34	ug/Kg	☼	11/20/14 17:57	11/24/14 17:56	1
Dibenz(a,h)anthracene	400	U	400	47	ug/Kg	☼	11/20/14 17:57	11/24/14 17:56	1
Benzo[g,h,i]perylene	400	U	400	27	ug/Kg	☼	11/20/14 17:57	11/24/14 17:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*24*	*X*	*37 - 115*	*11/20/14 17:57*	*11/24/14 17:56*	*1*
2-Fluorobiphenyl	*69*		*41 - 116*	*11/20/14 17:57*	*11/24/14 17:56*	*1*
Terphenyl-d14 (Surr)	*105*		*46 - 126*	*11/20/14 17:57*	*11/24/14 17:56*	*1*
Phenol-d5 (Surr)	*61*		*38 - 122*	*11/20/14 17:57*	*11/24/14 17:56*	*1*
2-Fluorophenol (Surr)	*64*		*39 - 114*	*11/20/14 17:57*	*11/24/14 17:56*	*1*
2,4,6-Tribromophenol (Surr)	*84*		*45 - 129*	*11/20/14 17:57*	*11/24/14 17:56*	*1*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Gasoline Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**60**	**B**	55	4.2	mg/Kg	☼	11/20/14 16:38	12/01/14 13:37	250

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*0*	*X*	*70 - 131*	*11/20/14 16:38*	*12/01/14 13:37*	*250*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**640**		40	25	mg/Kg	☼	11/20/14 17:57	11/24/14 21:08	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*0*	*D*	*45 - 130*	*11/20/14 17:57*	*11/24/14 21:08*	*10*

Client: ARCADIS U.S., Inc.
Project/Site: CSX C&O Canal Brunswick, MD

TestAmerica Job ID: 680-107453-1

Client Sample ID: GP-93(14-15)(111914)
Date Collected: 11/19/14 14:25
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-27
Matrix: Solid
Percent Solids: 83.1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	1200	U	1200	350	ug/Kg	☼	12/01/14 09:24	12/01/14 19:36	50
Benzene	240	U	240	53	ug/Kg	☼	12/01/14 09:24	12/01/14 19:36	50
Bromodichloromethane	240	U	240	120	ug/Kg	☼	12/01/14 09:24	12/01/14 19:36	50
Bromoform	240	U	240	120	ug/Kg	☼	12/01/14 09:24	12/01/14 19:36	50
Bromomethane	240	U	240	120	ug/Kg	☼	12/01/14 09:24	12/01/14 19:36	50
Carbon disulfide	240	U	240	120	ug/Kg	☼	12/01/14 09:24	12/01/14 19:36	50
Carbon tetrachloride	240	U	240	82	ug/Kg	☼	12/01/14 09:24	12/01/14 19:36	50
Chlorobenzene	240	U	240	25	ug/Kg	☼	12/01/14 09:24	12/01/14 19:36	50
Chloroethane	240	U	240	120	ug/Kg	☼	12/01/14 09:24	12/01/14 19:36	50
Chloroform	240	U	240	120	ug/Kg	☼	12/01/14 09:24	12/01/14 19:36	50
Chloromethane	240	U	240	49	ug/Kg	☼	12/01/14 09:24	12/01/14 19:36	50
cis-1,2-Dichloroethene	240	U	240	37	ug/Kg	☼	12/01/14 09:24	12/01/14 19:36	50
cis-1,3-Dichloropropene	240	U	240	58	ug/Kg	☼	12/01/14 09:24	12/01/14 19:36	50
Cyclohexane	240	U	240	46	ug/Kg	☼	12/01/14 09:24	12/01/14 19:36	50
Dibromochloromethane	240	U	240	120	ug/Kg	☼	12/01/14 09:24	12/01/14 19:36	50
1,2-Dibromo-3-Chloropropane	240	U	240	160	ug/Kg	☼	12/01/14 09:24	12/01/14 19:36	50
1,2-Dichlorobenzene	240	U	240	34	ug/Kg	☼	12/01/14 09:24	12/01/14 19:36	50
1,3-Dichlorobenzene	240	U	240	46	ug/Kg	☼	12/01/14 09:24	12/01/14 19:36	50
1,4-Dichlorobenzene	240	U	240	120	ug/Kg	☼	12/01/14 09:24	12/01/14 19:36	50
Dichlorodifluoromethane	240	U	240	63	ug/Kg	☼	12/01/14 09:24	12/01/14 19:36	50
1,1-Dichloroethane	240	U	240	40	ug/Kg	☼	12/01/14 09:24	12/01/14 19:36	50
1,2-Dichloroethane	240	U	240	40	ug/Kg	☼	12/01/14 09:24	12/01/14 19:36	50
1,1-Dichloroethene	240	U	240	120	ug/Kg	☼	12/01/14 09:24	12/01/14 19:36	50
1,2-Dichloropropane	240	U	240	120	ug/Kg	☼	12/01/14 09:24	12/01/14 19:36	50
Diisopropyl ether	240	U	240	27	ug/Kg	☼	12/01/14 09:24	12/01/14 19:36	50
Ethylbenzene	240	U	240	30	ug/Kg	☼	12/01/14 09:24	12/01/14 19:36	50
Ethylene Dibromide	240	U	240	49	ug/Kg	☼	12/01/14 09:24	12/01/14 19:36	50
Ethyl tert-butyl ether	240	U	240	120	ug/Kg	☼	12/01/14 09:24	12/01/14 19:36	50
2-Hexanone	1200	U	1200	240	ug/Kg	☼	12/01/14 09:24	12/01/14 19:36	50
Isopropylbenzene	**960**		240	33	ug/Kg	☼	12/01/14 09:24	12/01/14 19:36	50
Methyl acetate	240	U	240	220	ug/Kg	☼	12/01/14 09:24	12/01/14 19:36	50
Methylcyclohexane	**440**		240	73	ug/Kg	☼	12/01/14 09:24	12/01/14 19:36	50
Methylene Chloride	730	U	730	490	ug/Kg	☼	12/01/14 09:24	12/01/14 19:36	50
Methyl Ethyl Ketone	1200	U	1200	290	ug/Kg	☼	12/01/14 09:24	12/01/14 19:36	50
methyl isobutyl ketone	1200	U	1200	240	ug/Kg	☼	12/01/14 09:24	12/01/14 19:36	50
Methyl tert-butyl ether	240	U	240	49	ug/Kg	☼	12/01/14 09:24	12/01/14 19:36	50
Naphthalene	240	U	240	97	ug/Kg	☼	12/01/14 09:24	12/01/14 19:36	50
Styrene	240	U	240	49	ug/Kg	☼	12/01/14 09:24	12/01/14 19:36	50
Tert-amyl methyl ether	240	U	240	49	ug/Kg	☼	12/01/14 09:24	12/01/14 19:36	50
tert-Butyl alcohol	490	U	490	390	ug/Kg	☼	12/01/14 09:24	12/01/14 19:36	50
1,1,2,2-Tetrachloroethane	240	U	240	120	ug/Kg	☼	12/01/14 09:24	12/01/14 19:36	50
Tetrachloroethene	240	U	240	120	ug/Kg	☼	12/01/14 09:24	12/01/14 19:36	50
Toluene	240	U	240	49	ug/Kg	☼	12/01/14 09:24	12/01/14 19:36	50
trans-1,2-Dichloroethene	240	U	240	120	ug/Kg	☼	12/01/14 09:24	12/01/14 19:36	50
trans-1,3-Dichloropropene	240	U	240	120	ug/Kg	☼	12/01/14 09:24	12/01/14 19:36	50
1,2,4-Trichlorobenzene	240	U	240	97	ug/Kg	☼	12/01/14 09:24	12/01/14 19:36	50
1,1,1-Trichloroethane	240	U	240	53	ug/Kg	☼	12/01/14 09:24	12/01/14 19:36	50
1,1,2-Trichloroethane	240	U	240	120	ug/Kg	☼	12/01/14 09:24	12/01/14 19:36	50
Trichloroethene	240	U	240	49	ug/Kg	☼	12/01/14 09:24	12/01/14 19:36	50

Client Sample ID: GP-93(14-15)(111914)
Date Collected: 11/19/14 14:25
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-27
Matrix: Solid
Percent Solids: 83.1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichlorofluoromethane	240	U	240	120	ug/Kg	☼	12/01/14 09:24	12/01/14 19:36	50
1,1,2-Trichloro-1,2,2-trifluoroethane	240	U	240	97	ug/Kg	☼	12/01/14 09:24	12/01/14 19:36	50
Vinyl chloride	240	U	240	120	ug/Kg	☼	12/01/14 09:24	12/01/14 19:36	50
Xylenes, Total	240	U	240	49	ug/Kg	☼	12/01/14 09:24	12/01/14 19:36	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*84*		*72 - 122*	*12/01/14 09:24*	*12/01/14 19:36*	*50*
Dibromofluoromethane	*111*		*79 - 123*	*12/01/14 09:24*	*12/01/14 19:36*	*50*
Toluene-d8 (Surr)	*106*		*80 - 120*	*12/01/14 09:24*	*12/01/14 19:36*	*50*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzaldehyde	4000	U	4000	700	ug/Kg	☼	11/20/14 17:57	11/25/14 15:05	10
Phenol	4000	U	4000	410	ug/Kg	☼	11/20/14 17:57	11/25/14 15:05	10
Bis(2-chloroethyl)ether	4000	U	4000	540	ug/Kg	☼	11/20/14 17:57	11/25/14 15:05	10
2-Chlorophenol	4000	U	4000	480	ug/Kg	☼	11/20/14 17:57	11/25/14 15:05	10
2-Methylphenol	4000	U	4000	320	ug/Kg	☼	11/20/14 17:57	11/25/14 15:05	10
bis (2-chloroisopropyl) ether	4000	U	4000	360	ug/Kg	☼	11/20/14 17:57	11/25/14 15:05	10
Acetophenone	4000	U	4000	340	ug/Kg	☼	11/20/14 17:57	11/25/14 15:05	10
3 & 4 Methylphenol	4000	U	4000	520	ug/Kg	☼	11/20/14 17:57	11/25/14 15:05	10
N-Nitrosodi-n-propylamine	4000	U	4000	380	ug/Kg	☼	11/20/14 17:57	11/25/14 15:05	10
Hexachloroethane	4000	U	4000	340	ug/Kg	☼	11/20/14 17:57	11/25/14 15:05	10
Nitrobenzene	4000	U	4000	310	ug/Kg	☼	11/20/14 17:57	11/25/14 15:05	10
Isophorone	4000	U	4000	400	ug/Kg	☼	11/20/14 17:57	11/25/14 15:05	10
2-Nitrophenol	4000	U	4000	490	ug/Kg	☼	11/20/14 17:57	11/25/14 15:05	10
2,4-Dimethylphenol	4000	U	4000	530	ug/Kg	☼	11/20/14 17:57	11/25/14 15:05	10
Bis(2-chloroethoxy)methane	4000	U	4000	470	ug/Kg	☼	11/20/14 17:57	11/25/14 15:05	10
2,4-Dichlorophenol	4000	U	4000	420	ug/Kg	☼	11/20/14 17:57	11/25/14 15:05	10
Naphthalene	4000	U	4000	360	ug/Kg	☼	11/20/14 17:57	11/25/14 15:05	10
4-Chloroaniline	7900	U	7900	620	ug/Kg	☼	11/20/14 17:57	11/25/14 15:05	10
Hexachlorobutadiene	4000	U	4000	430	ug/Kg	☼	11/20/14 17:57	11/25/14 15:05	10
Caprolactam	4000	U	4000	790	ug/Kg	☼	11/20/14 17:57	11/25/14 15:05	10
4-Chloro-3-methylphenol	4000	U	4000	420	ug/Kg	☼	11/20/14 17:57	11/25/14 15:05	10
2-Methylnaphthalene	4000	U	4000	460	ug/Kg	☼	11/20/14 17:57	11/25/14 15:05	10
Hexachlorocyclopentadiene	4000	U	4000	490	ug/Kg	☼	11/20/14 17:57	11/25/14 15:05	10
2,4,6-Trichlorophenol	4000	U	4000	350	ug/Kg	☼	11/20/14 17:57	11/25/14 15:05	10
2,4,5-Trichlorophenol	4000	U	4000	420	ug/Kg	☼	11/20/14 17:57	11/25/14 15:05	10
1,1'-Biphenyl	20000	U	20000	20000	ug/Kg	☼	11/20/14 17:57	11/25/14 15:05	10
2-Chloronaphthalene	4000	U	4000	420	ug/Kg	☼	11/20/14 17:57	11/25/14 15:05	10
2-Nitroaniline	20000	U	20000	540	ug/Kg	☼	11/20/14 17:57	11/25/14 15:05	10
Dimethyl phthalate	4000	U	4000	410	ug/Kg	☼	11/20/14 17:57	11/25/14 15:05	10
2,6-Dinitrotoluene	4000	U	4000	500	ug/Kg	☼	11/20/14 17:57	11/25/14 15:05	10
Acenaphthylene	4000	U	4000	430	ug/Kg	☼	11/20/14 17:57	11/25/14 15:05	10
3-Nitroaniline	20000	U	20000	550	ug/Kg	☼	11/20/14 17:57	11/25/14 15:05	10
Acenaphthene	**1900**	**J**	4000	490	ug/Kg	☼	11/20/14 17:57	11/25/14 15:05	10
2,4-Dinitrophenol	20000	U	20000	10000	ug/Kg	☼	11/20/14 17:57	11/25/14 15:05	10
4-Nitrophenol	20000	U	20000	4000	ug/Kg	☼	11/20/14 17:57	11/25/14 15:05	10
Dibenzofuran	4000	U	4000	400	ug/Kg	☼	11/20/14 17:57	11/25/14 15:05	10
2,4-Dinitrotoluene	4000	U	4000	590	ug/Kg	☼	11/20/14 17:57	11/25/14 15:05	10
Diethyl phthalate	4000	U	4000	440	ug/Kg	☼	11/20/14 17:57	11/25/14 15:05	10

Client Sample ID: GP-93(14-15)(111914)
Date Collected: 11/19/14 14:25
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-27
Matrix: Solid
Percent Solids: 83.1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluorene	**3100**	**J**	4000	430	ug/Kg	☼	11/20/14 17:57	11/25/14 15:05	10
4-Chlorophenyl phenyl ether	4000	U	4000	530	ug/Kg	☼	11/20/14 17:57	11/25/14 15:05	10
4-Nitroaniline	20000	U	20000	590	ug/Kg	☼	11/20/14 17:57	11/25/14 15:05	10
4,6-Dinitro-2-methylphenol	20000	U	20000	2000	ug/Kg	☼	11/20/14 17:57	11/25/14 15:05	10
N-Nitrosodiphenylamine	4000	U	4000	400	ug/Kg	☼	11/20/14 17:57	11/25/14 15:05	10
4-Bromophenyl phenyl ether	4000	U	4000	430	ug/Kg	☼	11/20/14 17:57	11/25/14 15:05	10
Hexachlorobenzene	4000	U	4000	470	ug/Kg	☼	11/20/14 17:57	11/25/14 15:05	10
Atrazine	4000	U	4000	280	ug/Kg	☼	11/20/14 17:57	11/25/14 15:05	10
Pentachlorophenol	20000	U	20000	4000	ug/Kg	☼	11/20/14 17:57	11/25/14 15:05	10
Phenanthrene	**8300**		4000	320	ug/Kg	☼	11/20/14 17:57	11/25/14 15:05	10
Anthracene	4000	U	4000	300	ug/Kg	☼	11/20/14 17:57	11/25/14 15:05	10
Carbazole	4000	U	4000	360	ug/Kg	☼	11/20/14 17:57	11/25/14 15:05	10
Di-n-butyl phthalate	4000	U	4000	360	ug/Kg	☼	11/20/14 17:57	11/25/14 15:05	10
Fluoranthene	4000	U	4000	380	ug/Kg	☼	11/20/14 17:57	11/25/14 15:05	10
Pyrene	**630**	**J**	4000	320	ug/Kg	☼	11/20/14 17:57	11/25/14 15:05	10
Butyl benzyl phthalate	4000	U	4000	310	ug/Kg	☼	11/20/14 17:57	11/25/14 15:05	10
3,3'-Dichlorobenzidine	7900	U	7900	340	ug/Kg	☼	11/20/14 17:57	11/25/14 15:05	10
Benzo[a]anthracene	4000	U	4000	320	ug/Kg	☼	11/20/14 17:57	11/25/14 15:05	10
Chrysene	4000	U	4000	250	ug/Kg	☼	11/20/14 17:57	11/25/14 15:05	10
Bis(2-ethylhexyl) phthalate	4000	U	4000	350	ug/Kg	☼	11/20/14 17:57	11/25/14 15:05	10
Di-n-octyl phthalate	4000	U	4000	350	ug/Kg	☼	11/20/14 17:57	11/25/14 15:05	10
Benzo[b]fluoranthene	4000	U	4000	460	ug/Kg	☼	11/20/14 17:57	11/25/14 15:05	10
Benzo[k]fluoranthene	4000	U	4000	780	ug/Kg	☼	11/20/14 17:57	11/25/14 15:05	10
Benzo[a]pyrene	4000	U	4000	620	ug/Kg	☼	11/20/14 17:57	11/25/14 15:05	10
Indeno[1,2,3-cd]pyrene	4000	U	4000	340	ug/Kg	☼	11/20/14 17:57	11/25/14 15:05	10
Dibenz(a,h)anthracene	4000	U	4000	470	ug/Kg	☼	11/20/14 17:57	11/25/14 15:05	10
Benzo[g,h,i]perylene	4000	U	4000	260	ug/Kg	☼	11/20/14 17:57	11/25/14 15:05	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*0*	*D*	*37 - 115*	*11/20/14 17:57*	*11/25/14 15:05*	*10*
2-Fluorobiphenyl	*0*	*D*	*41 - 116*	*11/20/14 17:57*	*11/25/14 15:05*	*10*
Terphenyl-d14 (Surr)	*0*	*D*	*46 - 126*	*11/20/14 17:57*	*11/25/14 15:05*	*10*
Phenol-d5 (Surr)	*0*	*D*	*38 - 122*	*11/20/14 17:57*	*11/25/14 15:05*	*10*
2-Fluorophenol (Surr)	*0*	*D*	*39 - 114*	*11/20/14 17:57*	*11/25/14 15:05*	*10*
2,4,6-Tribromophenol (Surr)	*0*	*D*	*45 - 129*	*11/20/14 17:57*	*11/25/14 15:05*	*10*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Gasoline Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**440**	**B**	100	7.9	mg/Kg	☼	11/20/14 16:38	12/01/14 14:00	250

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*0*	*X*	*70 - 131*	*11/20/14 16:38*	*12/01/14 14:00*	*250*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**3000**		200	130	mg/Kg	☼	11/20/14 17:57	11/24/14 21:22	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*0*	*D*	*45 - 130*	*11/20/14 17:57*	*11/24/14 21:22*	*50*

Client: ARCADIS U.S., Inc.
Project/Site: CSX C&O Canal Brunswick, MD

TestAmerica Job ID: 680-107453-1

Client Sample ID: GP-93(15.5-16.5)(111914)
Date Collected: 11/19/14 14:30
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-28
Matrix: Solid
Percent Solids: 84.3

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	1200	U	1200	360	ug/Kg	☼	12/01/14 09:24	12/01/14 20:01	50
Benzene	240	U	240	54	ug/Kg	☼	12/01/14 09:24	12/01/14 20:01	50
Bromodichloromethane	240	U	240	120	ug/Kg	☼	12/01/14 09:24	12/01/14 20:01	50
Bromoform	240	U	240	120	ug/Kg	☼	12/01/14 09:24	12/01/14 20:01	50
Bromomethane	240	U	240	120	ug/Kg	☼	12/01/14 09:24	12/01/14 20:01	50
Carbon disulfide	240	U	240	120	ug/Kg	☼	12/01/14 09:24	12/01/14 20:01	50
Carbon tetrachloride	240	U	240	83	ug/Kg	☼	12/01/14 09:24	12/01/14 20:01	50
Chlorobenzene	240	U	240	25	ug/Kg	☼	12/01/14 09:24	12/01/14 20:01	50
Chloroethane	240	U	240	120	ug/Kg	☼	12/01/14 09:24	12/01/14 20:01	50
Chloroform	240	U	240	120	ug/Kg	☼	12/01/14 09:24	12/01/14 20:01	50
Chloromethane	240	U	240	49	ug/Kg	☼	12/01/14 09:24	12/01/14 20:01	50
cis-1,2-Dichloroethene	240	U	240	37	ug/Kg	☼	12/01/14 09:24	12/01/14 20:01	50
cis-1,3-Dichloropropene	240	U	240	59	ug/Kg	☼	12/01/14 09:24	12/01/14 20:01	50
Cyclohexane	240	U	240	46	ug/Kg	☼	12/01/14 09:24	12/01/14 20:01	50
Dibromochloromethane	240	U	240	120	ug/Kg	☼	12/01/14 09:24	12/01/14 20:01	50
1,2-Dibromo-3-Chloropropane	240	U	240	160	ug/Kg	☼	12/01/14 09:24	12/01/14 20:01	50
1,2-Dichlorobenzene	240	U	240	35	ug/Kg	☼	12/01/14 09:24	12/01/14 20:01	50
1,3-Dichlorobenzene	240	U	240	46	ug/Kg	☼	12/01/14 09:24	12/01/14 20:01	50
1,4-Dichlorobenzene	240	U	240	120	ug/Kg	☼	12/01/14 09:24	12/01/14 20:01	50
Dichlorodifluoromethane	240	U	240	64	ug/Kg	☼	12/01/14 09:24	12/01/14 20:01	50
1,1-Dichloroethane	240	U	240	41	ug/Kg	☼	12/01/14 09:24	12/01/14 20:01	50
1,2-Dichloroethane	240	U	240	40	ug/Kg	☼	12/01/14 09:24	12/01/14 20:01	50
1,1-Dichloroethene	240	U	240	120	ug/Kg	☼	12/01/14 09:24	12/01/14 20:01	50
1,2-Dichloropropane	240	U	240	120	ug/Kg	☼	12/01/14 09:24	12/01/14 20:01	50
Diisopropyl ether	240	U	240	27	ug/Kg	☼	12/01/14 09:24	12/01/14 20:01	50
Ethylbenzene	240	U	240	30	ug/Kg	☼	12/01/14 09:24	12/01/14 20:01	50
Ethylene Dibromide	240	U	240	49	ug/Kg	☼	12/01/14 09:24	12/01/14 20:01	50
Ethyl tert-butyl ether	240	U	240	120	ug/Kg	☼	12/01/14 09:24	12/01/14 20:01	50
2-Hexanone	1200	U	1200	240	ug/Kg	☼	12/01/14 09:24	12/01/14 20:01	50
Isopropylbenzene	**190**	**J**	240	33	ug/Kg	☼	12/01/14 09:24	12/01/14 20:01	50
Methyl acetate	240	U	240	220	ug/Kg	☼	12/01/14 09:24	12/01/14 20:01	50
Methylcyclohexane	240	U	240	73	ug/Kg	☼	12/01/14 09:24	12/01/14 20:01	50
Methylene Chloride	730	U	730	490	ug/Kg	☼	12/01/14 09:24	12/01/14 20:01	50
Methyl Ethyl Ketone	1200	U	1200	290	ug/Kg	☼	12/01/14 09:24	12/01/14 20:01	50
methyl isobutyl ketone	1200	U	1200	240	ug/Kg	☼	12/01/14 09:24	12/01/14 20:01	50
Methyl tert-butyl ether	240	U	240	49	ug/Kg	☼	12/01/14 09:24	12/01/14 20:01	50
Naphthalene	240	U	240	98	ug/Kg	☼	12/01/14 09:24	12/01/14 20:01	50
Styrene	240	U	240	49	ug/Kg	☼	12/01/14 09:24	12/01/14 20:01	50
Tert-amyl methyl ether	240	U	240	49	ug/Kg	☼	12/01/14 09:24	12/01/14 20:01	50
tert-Butyl alcohol	490	U	490	390	ug/Kg	☼	12/01/14 09:24	12/01/14 20:01	50
1,1,2,2-Tetrachloroethane	240	U	240	120	ug/Kg	☼	12/01/14 09:24	12/01/14 20:01	50
Tetrachloroethene	240	U	240	120	ug/Kg	☼	12/01/14 09:24	12/01/14 20:01	50
Toluene	240	U	240	49	ug/Kg	☼	12/01/14 09:24	12/01/14 20:01	50
trans-1,2-Dichloroethene	240	U	240	120	ug/Kg	☼	12/01/14 09:24	12/01/14 20:01	50
trans-1,3-Dichloropropene	240	U	240	120	ug/Kg	☼	12/01/14 09:24	12/01/14 20:01	50
1,2,4-Trichlorobenzene	240	U	240	98	ug/Kg	☼	12/01/14 09:24	12/01/14 20:01	50
1,1,1-Trichloroethane	240	U	240	54	ug/Kg	☼	12/01/14 09:24	12/01/14 20:01	50
1,1,2-Trichloroethane	240	U	240	120	ug/Kg	☼	12/01/14 09:24	12/01/14 20:01	50
Trichloroethene	240	U	240	49	ug/Kg	☼	12/01/14 09:24	12/01/14 20:01	50

Client Sample ID: GP-93(15.5-16.5)(111914)
Date Collected: 11/19/14 14:30
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-28
Matrix: Solid
Percent Solids: 84.3

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichlorofluoromethane	240	U	240	120	ug/Kg	☼	12/01/14 09:24	12/01/14 20:01	50
1,1,2-Trichloro-1,2,2-trifluoroethane	240	U	240	98	ug/Kg	☼	12/01/14 09:24	12/01/14 20:01	50
Vinyl chloride	240	U	240	120	ug/Kg	☼	12/01/14 09:24	12/01/14 20:01	50
Xylenes, Total	240	U	240	49	ug/Kg	☼	12/01/14 09:24	12/01/14 20:01	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*85*		*72 - 122*	*12/01/14 09:24*	*12/01/14 20:01*	*50*
Dibromofluoromethane	*96*		*79 - 123*	*12/01/14 09:24*	*12/01/14 20:01*	*50*
Toluene-d8 (Surr)	*101*		*80 - 120*	*12/01/14 09:24*	*12/01/14 20:01*	*50*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzaldehyde	390	U	390	69	ug/Kg	☼	11/20/14 17:57	11/24/14 18:41	1
Phenol	390	U	390	40	ug/Kg	☼	11/20/14 17:57	11/24/14 18:41	1
Bis(2-chloroethyl)ether	390	U	390	53	ug/Kg	☼	11/20/14 17:57	11/24/14 18:41	1
2-Chlorophenol	390	U	390	47	ug/Kg	☼	11/20/14 17:57	11/24/14 18:41	1
2-Methylphenol	390	U	390	32	ug/Kg	☼	11/20/14 17:57	11/24/14 18:41	1
bis (2-chloroisopropyl) ether	390	U	390	35	ug/Kg	☼	11/20/14 17:57	11/24/14 18:41	1
Acetophenone	390	U	390	33	ug/Kg	☼	11/20/14 17:57	11/24/14 18:41	1
3 & 4 Methylphenol	390	U	390	51	ug/Kg	☼	11/20/14 17:57	11/24/14 18:41	1
N-Nitrosodi-n-propylamine	390	U	390	38	ug/Kg	☼	11/20/14 17:57	11/24/14 18:41	1
Hexachloroethane	390	U	390	33	ug/Kg	☼	11/20/14 17:57	11/24/14 18:41	1
Nitrobenzene	390	U	390	31	ug/Kg	☼	11/20/14 17:57	11/24/14 18:41	1
Isophorone	390	U	390	39	ug/Kg	☼	11/20/14 17:57	11/24/14 18:41	1
2-Nitrophenol	390	U	390	49	ug/Kg	☼	11/20/14 17:57	11/24/14 18:41	1
2,4-Dimethylphenol	390	U	390	52	ug/Kg	☼	11/20/14 17:57	11/24/14 18:41	1
Bis(2-chloroethoxy)methane	390	U	390	46	ug/Kg	☼	11/20/14 17:57	11/24/14 18:41	1
2,4-Dichlorophenol	390	U	390	41	ug/Kg	☼	11/20/14 17:57	11/24/14 18:41	1
Naphthalene	390	U	390	35	ug/Kg	☼	11/20/14 17:57	11/24/14 18:41	1
4-Chloroaniline	780	U	780	62	ug/Kg	☼	11/20/14 17:57	11/24/14 18:41	1
Hexachlorobutadiene	390	U	390	43	ug/Kg	☼	11/20/14 17:57	11/24/14 18:41	1
Caprolactam	390	U	390	78	ug/Kg	☼	11/20/14 17:57	11/24/14 18:41	1
4-Chloro-3-methylphenol	390	U	390	41	ug/Kg	☼	11/20/14 17:57	11/24/14 18:41	1
2-Methylnaphthalene	390	U	390	45	ug/Kg	☼	11/20/14 17:57	11/24/14 18:41	1
Hexachlorocyclopentadiene	390	U	390	49	ug/Kg	☼	11/20/14 17:57	11/24/14 18:41	1
2,4,6-Trichlorophenol	390	U	390	34	ug/Kg	☼	11/20/14 17:57	11/24/14 18:41	1
2,4,5-Trichlorophenol	390	U	390	41	ug/Kg	☼	11/20/14 17:57	11/24/14 18:41	1
1,1'-Biphenyl	2000	U	2000	2000	ug/Kg	☼	11/20/14 17:57	11/24/14 18:41	1
2-Chloronaphthalene	390	U	390	41	ug/Kg	☼	11/20/14 17:57	11/24/14 18:41	1
2-Nitroaniline	2000	U	2000	53	ug/Kg	☼	11/20/14 17:57	11/24/14 18:41	1
Dimethyl phthalate	390	U	390	40	ug/Kg	☼	11/20/14 17:57	11/24/14 18:41	1
2,6-Dinitrotoluene	390	U	390	50	ug/Kg	☼	11/20/14 17:57	11/24/14 18:41	1
Acenaphthylene	390	U	390	43	ug/Kg	☼	11/20/14 17:57	11/24/14 18:41	1
3-Nitroaniline	2000	U	2000	54	ug/Kg	☼	11/20/14 17:57	11/24/14 18:41	1
Acenaphthene	390	U	390	49	ug/Kg	☼	11/20/14 17:57	11/24/14 18:41	1
2,4-Dinitrophenol	2000	U	2000	980	ug/Kg	☼	11/20/14 17:57	11/24/14 18:41	1
4-Nitrophenol	2000	U	2000	390	ug/Kg	☼	11/20/14 17:57	11/24/14 18:41	1
Dibenzofuran	390	U	390	39	ug/Kg	☼	11/20/14 17:57	11/24/14 18:41	1
2,4-Dinitrotoluene	390	U	390	58	ug/Kg	☼	11/20/14 17:57	11/24/14 18:41	1
Diethyl phthalate	390	U	390	44	ug/Kg	☼	11/20/14 17:57	11/24/14 18:41	1

Client: ARCADIS U.S., Inc.
Project/Site: CSX C&O Canal Brunswick, MD

TestAmerica Job ID: 680-107453-1

Client Sample ID: GP-93(15.5-16.5)(111914)
Date Collected: 11/19/14 14:30
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-28
Matrix: Solid
Percent Solids: 84.3

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluorene	390	U	390	43	ug/Kg	☼	11/20/14 17:57	11/24/14 18:41	1
4-Chlorophenyl phenyl ether	390	U	390	52	ug/Kg	☼	11/20/14 17:57	11/24/14 18:41	1
4-Nitroaniline	2000	U	2000	58	ug/Kg	☼	11/20/14 17:57	11/24/14 18:41	1
4,6-Dinitro-2-methylphenol	2000	U	2000	200	ug/Kg	☼	11/20/14 17:57	11/24/14 18:41	1
N-Nitrosodiphenylamine	390	U	390	39	ug/Kg	☼	11/20/14 17:57	11/24/14 18:41	1
4-Bromophenyl phenyl ether	390	U	390	43	ug/Kg	☼	11/20/14 17:57	11/24/14 18:41	1
Hexachlorobenzene	390	U	390	46	ug/Kg	☼	11/20/14 17:57	11/24/14 18:41	1
Atrazine	390	U	390	27	ug/Kg	☼	11/20/14 17:57	11/24/14 18:41	1
Pentachlorophenol	2000	U	2000	390	ug/Kg	☼	11/20/14 17:57	11/24/14 18:41	1
Phenanthrene	**1600**		390	32	ug/Kg	☼	11/20/14 17:57	11/24/14 18:41	1
Anthracene	**270**	**J**	390	30	ug/Kg	☼	11/20/14 17:57	11/24/14 18:41	1
Carbazole	390	U	390	35	ug/Kg	☼	11/20/14 17:57	11/24/14 18:41	1
Di-n-butyl phthalate	390	U	390	35	ug/Kg	☼	11/20/14 17:57	11/24/14 18:41	1
Fluoranthene	**71**	**J**	390	38	ug/Kg	☼	11/20/14 17:57	11/24/14 18:41	1
Pyrene	**150**	**J**	390	32	ug/Kg	☼	11/20/14 17:57	11/24/14 18:41	1
Butyl benzyl phthalate	390	U	390	31	ug/Kg	☼	11/20/14 17:57	11/24/14 18:41	1
3,3'-Dichlorobenzidine	780	U	780	33	ug/Kg	☼	11/20/14 17:57	11/24/14 18:41	1
Benzo[a]anthracene	390	U	390	32	ug/Kg	☼	11/20/14 17:57	11/24/14 18:41	1
Chrysene	**26**	**J**	390	25	ug/Kg	☼	11/20/14 17:57	11/24/14 18:41	1
Bis(2-ethylhexyl) phthalate	390	U	390	34	ug/Kg	☼	11/20/14 17:57	11/24/14 18:41	1
Di-n-octyl phthalate	390	U	390	34	ug/Kg	☼	11/20/14 17:57	11/24/14 18:41	1
Benzo[b]fluoranthene	390	U	390	45	ug/Kg	☼	11/20/14 17:57	11/24/14 18:41	1
Benzo[k]fluoranthene	390	U	390	77	ug/Kg	☼	11/20/14 17:57	11/24/14 18:41	1
Benzo[a]pyrene	390	U	390	62	ug/Kg	☼	11/20/14 17:57	11/24/14 18:41	1
Indeno[1,2,3-cd]pyrene	390	U	390	33	ug/Kg	☼	11/20/14 17:57	11/24/14 18:41	1
Dibenz(a,h)anthracene	390	U	390	46	ug/Kg	☼	11/20/14 17:57	11/24/14 18:41	1
Benzo[g,h,i]perylene	390	U	390	26	ug/Kg	☼	11/20/14 17:57	11/24/14 18:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*25*	*X*	*37 - 115*	*11/20/14 17:57*	*11/24/14 18:41*	*1*
2-Fluorobiphenyl	*63*		*41 - 116*	*11/20/14 17:57*	*11/24/14 18:41*	*1*
Terphenyl-d14 (Surr)	*92*		*46 - 126*	*11/20/14 17:57*	*11/24/14 18:41*	*1*
Phenol-d5 (Surr)	*57*		*38 - 122*	*11/20/14 17:57*	*11/24/14 18:41*	*1*
2-Fluorophenol (Surr)	*59*		*39 - 114*	*11/20/14 17:57*	*11/24/14 18:41*	*1*
2,4,6-Tribromophenol (Surr)	*76*		*45 - 129*	*11/20/14 17:57*	*11/24/14 18:41*	*1*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Gasoline Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**72**	**B**	5.9	0.45	mg/Kg	☼	11/20/14 16:38	11/28/14 16:21	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*128*		*70 - 131*	*11/20/14 16:38*	*11/28/14 16:21*	*20*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**1300**		39	25	mg/Kg	☼	11/20/14 17:57	11/24/14 21:37	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*0*	*D*	*45 - 130*	*11/20/14 17:57*	*11/24/14 21:37*	*10*

Client: ARCADIS U.S., Inc.
Project/Site: CSX C&O Canal Brunswick, MD

TestAmerica Job ID: 680-107453-1

Client Sample ID: GP-94(14-15)(111914)
Date Collected: 11/19/14 15:05
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-29
Matrix: Solid
Percent Solids: 82.0

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	**26**		23	6.6	ug/Kg	☼	11/23/14 10:00	11/23/14 17:52	1
Benzene	4.5	U	4.5	1.0	ug/Kg	☼	11/23/14 10:00	11/23/14 17:52	1
Bromodichloromethane	4.5	U	4.5	2.3	ug/Kg	☼	11/23/14 10:00	11/23/14 17:52	1
Bromoform	4.5	U	4.5	2.3	ug/Kg	☼	11/23/14 10:00	11/23/14 17:52	1
Bromomethane	4.5	U	4.5	2.3	ug/Kg	☼	11/23/14 10:00	11/23/14 17:52	1
Carbon disulfide	4.5	U	4.5	2.3	ug/Kg	☼	11/23/14 10:00	11/23/14 17:52	1
Carbon tetrachloride	4.5	U	4.5	1.5	ug/Kg	☼	11/23/14 10:00	11/23/14 17:52	1
Chlorobenzene	4.5	U	4.5	0.47	ug/Kg	☼	11/23/14 10:00	11/23/14 17:52	1
Chloroethane	4.5	U	4.5	2.3	ug/Kg	☼	11/23/14 10:00	11/23/14 17:52	1
Chloroform	4.5	U	4.5	2.3	ug/Kg	☼	11/23/14 10:00	11/23/14 17:52	1
Chloromethane	4.5	U	4.5	0.91	ug/Kg	☼	11/23/14 10:00	11/23/14 17:52	1
cis-1,2-Dichloroethene	4.5	U	4.5	0.69	ug/Kg	☼	11/23/14 10:00	11/23/14 17:52	1
cis-1,3-Dichloropropene	4.5	U	4.5	1.1	ug/Kg	☼	11/23/14 10:00	11/23/14 17:52	1
Cyclohexane	4.5	U	4.5	0.85	ug/Kg	☼	11/23/14 10:00	11/23/14 17:52	1
Dibromochloromethane	4.5	U	4.5	2.3	ug/Kg	☼	11/23/14 10:00	11/23/14 17:52	1
1,2-Dibromo-3-Chloropropane	4.5	U	4.5	3.0	ug/Kg	☼	11/23/14 10:00	11/23/14 17:52	1
1,2-Dichlorobenzene	4.5	U	4.5	0.64	ug/Kg	☼	11/23/14 10:00	11/23/14 17:52	1
1,3-Dichlorobenzene	4.5	U	4.5	0.86	ug/Kg	☼	11/23/14 10:00	11/23/14 17:52	1
1,4-Dichlorobenzene	4.5	U	4.5	2.3	ug/Kg	☼	11/23/14 10:00	11/23/14 17:52	1
Dichlorodifluoromethane	4.5	U	4.5	1.2	ug/Kg	☼	11/23/14 10:00	11/23/14 17:52	1
1,1-Dichloroethane	4.5	U	4.5	0.75	ug/Kg	☼	11/23/14 10:00	11/23/14 17:52	1
1,2-Dichloroethane	4.5	U	4.5	0.74	ug/Kg	☼	11/23/14 10:00	11/23/14 17:52	1
1,1-Dichloroethene	4.5	U	4.5	2.3	ug/Kg	☼	11/23/14 10:00	11/23/14 17:52	1
1,2-Dichloropropane	4.5	U	4.5	2.3	ug/Kg	☼	11/23/14 10:00	11/23/14 17:52	1
Diisopropyl ether	4.5	U	4.5	0.50	ug/Kg	☼	11/23/14 10:00	11/23/14 17:52	1
Ethylbenzene	4.5	U	4.5	0.55	ug/Kg	☼	11/23/14 10:00	11/23/14 17:52	1
Ethylene Dibromide	4.5	U	4.5	0.91	ug/Kg	☼	11/23/14 10:00	11/23/14 17:52	1
Ethyl tert-butyl ether	4.5	U	4.5	2.3	ug/Kg	☼	11/23/14 10:00	11/23/14 17:52	1
2-Hexanone	23	U	23	4.5	ug/Kg	☼	11/23/14 10:00	11/23/14 17:52	1
Isopropylbenzene	4.5	U	4.5	0.62	ug/Kg	☼	11/23/14 10:00	11/23/14 17:52	1
Methyl acetate	4.5	U	4.5	4.2	ug/Kg	☼	11/23/14 10:00	11/23/14 17:52	1
Methylcyclohexane	**5.9**		4.5	1.4	ug/Kg	☼	11/23/14 10:00	11/23/14 17:52	1
Methylene Chloride	14	U	14	9.1	ug/Kg	☼	11/23/14 10:00	11/23/14 17:52	1
Methyl Ethyl Ketone	23	U	23	5.4	ug/Kg	☼	11/23/14 10:00	11/23/14 17:52	1
methyl isobutyl ketone	23	U	23	4.5	ug/Kg	☼	11/23/14 10:00	11/23/14 17:52	1
Methyl tert-butyl ether	4.5	U	4.5	0.91	ug/Kg	☼	11/23/14 10:00	11/23/14 17:52	1
Naphthalene	4.5	U	4.5	1.8	ug/Kg	☼	11/23/14 10:00	11/23/14 17:52	1
Styrene	4.5	U	4.5	0.91	ug/Kg	☼	11/23/14 10:00	11/23/14 17:52	1
Tert-amyl methyl ether	4.5	U	4.5	0.91	ug/Kg	☼	11/23/14 10:00	11/23/14 17:52	1
tert-Butyl alcohol	9.1	U	9.1	7.3	ug/Kg	☼	11/23/14 10:00	11/23/14 17:52	1
1,1,2,2-Tetrachloroethane	4.5	U	4.5	2.3	ug/Kg	☼	11/23/14 10:00	11/23/14 17:52	1
Tetrachloroethene	4.5	U	4.5	2.3	ug/Kg	☼	11/23/14 10:00	11/23/14 17:52	1
Toluene	4.5	U	4.5	0.91	ug/Kg	☼	11/23/14 10:00	11/23/14 17:52	1
trans-1,2-Dichloroethene	4.5	U	4.5	2.3	ug/Kg	☼	11/23/14 10:00	11/23/14 17:52	1
trans-1,3-Dichloropropene	4.5	U	4.5	2.3	ug/Kg	☼	11/23/14 10:00	11/23/14 17:52	1
1,2,4-Trichlorobenzene	4.5	U	4.5	1.8	ug/Kg	☼	11/23/14 10:00	11/23/14 17:52	1
1,1,1-Trichloroethane	4.5	U	4.5	1.0	ug/Kg	☼	11/23/14 10:00	11/23/14 17:52	1
1,1,2-Trichloroethane	4.5	U	4.5	2.3	ug/Kg	☼	11/23/14 10:00	11/23/14 17:52	1
Trichloroethene	4.5	U	4.5	0.91	ug/Kg	☼	11/23/14 10:00	11/23/14 17:52	1

Client Sample ID: GP-94(14-15)(111914)
Date Collected: 11/19/14 15:05
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-29
Matrix: Solid
Percent Solids: 82.0

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichlorofluoromethane	4.5	U	4.5	2.3	ug/Kg	☼	11/23/14 10:00	11/23/14 17:52	1
1,1,2-Trichloro-1,2,2-trifluoroethane	4.5	U	4.5	1.8	ug/Kg	☼	11/23/14 10:00	11/23/14 17:52	1
Vinyl chloride	4.5	U	4.5	2.3	ug/Kg	☼	11/23/14 10:00	11/23/14 17:52	1
Xylenes, Total	4.5	U	4.5	0.91	ug/Kg	☼	11/23/14 10:00	11/23/14 17:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*91*		*72 - 122*	*11/23/14 10:00*	*11/23/14 17:52*	*1*
Dibromofluoromethane	*99*		*79 - 123*	*11/23/14 10:00*	*11/23/14 17:52*	*1*
Toluene-d8 (Surr)	*91*		*80 - 120*	*11/23/14 10:00*	*11/23/14 17:52*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzaldehyde	400	U	400	71	ug/Kg	☼	11/20/14 17:57	11/24/14 19:04	1
Phenol	400	U	400	41	ug/Kg	☼	11/20/14 17:57	11/24/14 19:04	1
Bis(2-chloroethyl)ether	400	U	400	55	ug/Kg	☼	11/20/14 17:57	11/24/14 19:04	1
2-Chlorophenol	400	U	400	49	ug/Kg	☼	11/20/14 17:57	11/24/14 19:04	1
2-Methylphenol	400	U	400	33	ug/Kg	☼	11/20/14 17:57	11/24/14 19:04	1
bis (2-chloroisopropyl) ether	400	U	400	37	ug/Kg	☼	11/20/14 17:57	11/24/14 19:04	1
Acetophenone	400	U	400	34	ug/Kg	☼	11/20/14 17:57	11/24/14 19:04	1
3 & 4 Methylphenol	400	U	400	52	ug/Kg	☼	11/20/14 17:57	11/24/14 19:04	1
N-Nitrosodi-n-propylamine	400	U	400	39	ug/Kg	☼	11/20/14 17:57	11/24/14 19:04	1
Hexachloroethane	400	U	400	34	ug/Kg	☼	11/20/14 17:57	11/24/14 19:04	1
Nitrobenzene	400	U	400	32	ug/Kg	☼	11/20/14 17:57	11/24/14 19:04	1
Isophorone	400	U	400	40	ug/Kg	☼	11/20/14 17:57	11/24/14 19:04	1
2-Nitrophenol	400	U	400	50	ug/Kg	☼	11/20/14 17:57	11/24/14 19:04	1
2,4-Dimethylphenol	400	U	400	54	ug/Kg	☼	11/20/14 17:57	11/24/14 19:04	1
Bis(2-chloroethoxy)methane	400	U	400	48	ug/Kg	☼	11/20/14 17:57	11/24/14 19:04	1
2,4-Dichlorophenol	400	U	400	43	ug/Kg	☼	11/20/14 17:57	11/24/14 19:04	1
Naphthalene	400	U	400	37	ug/Kg	☼	11/20/14 17:57	11/24/14 19:04	1
4-Chloroaniline	810	U	810	63	ug/Kg	☼	11/20/14 17:57	11/24/14 19:04	1
Hexachlorobutadiene	400	U	400	44	ug/Kg	☼	11/20/14 17:57	11/24/14 19:04	1
Caprolactam	400	U	400	81	ug/Kg	☼	11/20/14 17:57	11/24/14 19:04	1
4-Chloro-3-methylphenol	400	U	400	43	ug/Kg	☼	11/20/14 17:57	11/24/14 19:04	1
2-Methylnaphthalene	400	U	400	46	ug/Kg	☼	11/20/14 17:57	11/24/14 19:04	1
Hexachlorocyclopentadiene	400	U	400	50	ug/Kg	☼	11/20/14 17:57	11/24/14 19:04	1
2,4,6-Trichlorophenol	400	U	400	35	ug/Kg	☼	11/20/14 17:57	11/24/14 19:04	1
2,4,5-Trichlorophenol	400	U	400	43	ug/Kg	☼	11/20/14 17:57	11/24/14 19:04	1
1,1'-Biphenyl	2100	U	2100	2100	ug/Kg	☼	11/20/14 17:57	11/24/14 19:04	1
2-Chloronaphthalene	400	U	400	43	ug/Kg	☼	11/20/14 17:57	11/24/14 19:04	1
2-Nitroaniline	2100	U	2100	55	ug/Kg	☼	11/20/14 17:57	11/24/14 19:04	1
Dimethyl phthalate	400	U	400	41	ug/Kg	☼	11/20/14 17:57	11/24/14 19:04	1
2,6-Dinitrotoluene	400	U	400	51	ug/Kg	☼	11/20/14 17:57	11/24/14 19:04	1
Acenaphthylene	400	U	400	44	ug/Kg	☼	11/20/14 17:57	11/24/14 19:04	1
3-Nitroaniline	2100	U	2100	56	ug/Kg	☼	11/20/14 17:57	11/24/14 19:04	1
Acenaphthene	400	U	400	50	ug/Kg	☼	11/20/14 17:57	11/24/14 19:04	1
2,4-Dinitrophenol	2100	U	2100	1000	ug/Kg	☼	11/20/14 17:57	11/24/14 19:04	1
4-Nitrophenol	2100	U	2100	400	ug/Kg	☼	11/20/14 17:57	11/24/14 19:04	1
Dibenzofuran	400	U	400	40	ug/Kg	☼	11/20/14 17:57	11/24/14 19:04	1
2,4-Dinitrotoluene	400	U	400	60	ug/Kg	☼	11/20/14 17:57	11/24/14 19:04	1
Diethyl phthalate	400	U	400	45	ug/Kg	☼	11/20/14 17:57	11/24/14 19:04	1

Client Sample ID: GP-94(14-15)(111914)
Date Collected: 11/19/14 15:05
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-29
Matrix: Solid
Percent Solids: 82.0

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluorene	400	U	400	44	ug/Kg	☼	11/20/14 17:57	11/24/14 19:04	1
4-Chlorophenyl phenyl ether	400	U	400	54	ug/Kg	☼	11/20/14 17:57	11/24/14 19:04	1
4-Nitroaniline	2100	U	2100	60	ug/Kg	☼	11/20/14 17:57	11/24/14 19:04	1
4,6-Dinitro-2-methylphenol	2100	U	2100	210	ug/Kg	☼	11/20/14 17:57	11/24/14 19:04	1
N-Nitrosodiphenylamine	400	U	400	40	ug/Kg	☼	11/20/14 17:57	11/24/14 19:04	1
4-Bromophenyl phenyl ether	400	U	400	44	ug/Kg	☼	11/20/14 17:57	11/24/14 19:04	1
Hexachlorobenzene	400	U	400	48	ug/Kg	☼	11/20/14 17:57	11/24/14 19:04	1
Atrazine	400	U	400	28	ug/Kg	☼	11/20/14 17:57	11/24/14 19:04	1
Pentachlorophenol	2100	U	2100	400	ug/Kg	☼	11/20/14 17:57	11/24/14 19:04	1
Phenanthrene	**320**	**J**	400	33	ug/Kg	☼	11/20/14 17:57	11/24/14 19:04	1
Anthracene	**220**	**J**	400	31	ug/Kg	☼	11/20/14 17:57	11/24/14 19:04	1
Carbazole	400	U	400	37	ug/Kg	☼	11/20/14 17:57	11/24/14 19:04	1
Di-n-butyl phthalate	400	U	400	37	ug/Kg	☼	11/20/14 17:57	11/24/14 19:04	1
Fluoranthene	**340**	**J**	400	39	ug/Kg	☼	11/20/14 17:57	11/24/14 19:04	1
Pyrene	**350**	**J**	400	33	ug/Kg	☼	11/20/14 17:57	11/24/14 19:04	1
Butyl benzyl phthalate	400	U	400	32	ug/Kg	☼	11/20/14 17:57	11/24/14 19:04	1
3,3'-Dichlorobenzidine	810	U	810	34	ug/Kg	☼	11/20/14 17:57	11/24/14 19:04	1
Benzo[a]anthracene	**74**	**J**	400	33	ug/Kg	☼	11/20/14 17:57	11/24/14 19:04	1
Chrysene	**89**	**J**	400	26	ug/Kg	☼	11/20/14 17:57	11/24/14 19:04	1
Bis(2-ethylhexyl) phthalate	400	U	400	35	ug/Kg	☼	11/20/14 17:57	11/24/14 19:04	1
Di-n-octyl phthalate	400	U	400	35	ug/Kg	☼	11/20/14 17:57	11/24/14 19:04	1
Benzo[b]fluoranthene	**64**	**J**	400	46	ug/Kg	☼	11/20/14 17:57	11/24/14 19:04	1
Benzo[k]fluoranthene	400	U	400	79	ug/Kg	☼	11/20/14 17:57	11/24/14 19:04	1
Benzo[a]pyrene	400	U	400	63	ug/Kg	☼	11/20/14 17:57	11/24/14 19:04	1
Indeno[1,2,3-cd]pyrene	400	U	400	34	ug/Kg	☼	11/20/14 17:57	11/24/14 19:04	1
Dibenz(a,h)anthracene	400	U	400	48	ug/Kg	☼	11/20/14 17:57	11/24/14 19:04	1
Benzo[g,h,i]perylene	400	U	400	27	ug/Kg	☼	11/20/14 17:57	11/24/14 19:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*29*	*X*	*37 - 115*	*11/20/14 17:57*	*11/24/14 19:04*	*1*
2-Fluorobiphenyl	*73*		*41 - 116*	*11/20/14 17:57*	*11/24/14 19:04*	*1*
Terphenyl-d14 (Surr)	*107*		*46 - 126*	*11/20/14 17:57*	*11/24/14 19:04*	*1*
Phenol-d5 (Surr)	*61*		*38 - 122*	*11/20/14 17:57*	*11/24/14 19:04*	*1*
2-Fluorophenol (Surr)	*61*		*39 - 114*	*11/20/14 17:57*	*11/24/14 19:04*	*1*
2,4,6-Tribromophenol (Surr)	*96*		*45 - 129*	*11/20/14 17:57*	*11/24/14 19:04*	*1*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Gasoline Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**230**	**B**	130	9.6	mg/Kg	☼	11/20/14 16:38	12/01/14 16:34	100

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*56*	*X*	*70 - 131*	*11/20/14 16:38*	*12/01/14 16:34*	*100*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**1400**		40	26	mg/Kg	☼	11/20/14 17:57	11/24/14 21:51	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*0*	*D*	*45 - 130*	*11/20/14 17:57*	*11/24/14 21:51*	*10*

Client: ARCADIS U.S., Inc.
Project/Site: CSX C&O Canal Brunswick, MD

TestAmerica Job ID: 680-107453-1

Client Sample ID: GP-94(13-14)(111914)
Date Collected: 11/19/14 15:10
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-30
Matrix: Solid
Percent Solids: 83.5

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	17	J	22	6.6	ug/Kg	☼	11/23/14 10:00	11/23/14 18:16	1
Benzene	4.5	U	4.5	0.99	ug/Kg	☼	11/23/14 10:00	11/23/14 18:16	1
Bromodichloromethane	4.5	U	4.5	2.2	ug/Kg	☼	11/23/14 10:00	11/23/14 18:16	1
Bromoform	4.5	U	4.5	2.2	ug/Kg	☼	11/23/14 10:00	11/23/14 18:16	1
Bromomethane	4.5	U	4.5	2.2	ug/Kg	☼	11/23/14 10:00	11/23/14 18:16	1
Carbon disulfide	4.5	U	4.5	2.2	ug/Kg	☼	11/23/14 10:00	11/23/14 18:16	1
Carbon tetrachloride	4.5	U	4.5	1.5	ug/Kg	☼	11/23/14 10:00	11/23/14 18:16	1
Chlorobenzene	4.5	U	4.5	0.47	ug/Kg	☼	11/23/14 10:00	11/23/14 18:16	1
Chloroethane	4.5	U	4.5	2.2	ug/Kg	☼	11/23/14 10:00	11/23/14 18:16	1
Chloroform	4.5	U	4.5	2.2	ug/Kg	☼	11/23/14 10:00	11/23/14 18:16	1
Chloromethane	4.5	U	4.5	0.90	ug/Kg	☼	11/23/14 10:00	11/23/14 18:16	1
cis-1,2-Dichloroethene	4.5	U	4.5	0.68	ug/Kg	☼	11/23/14 10:00	11/23/14 18:16	1
cis-1,3-Dichloropropene	4.5	U	4.5	1.1	ug/Kg	☼	11/23/14 10:00	11/23/14 18:16	1
Cyclohexane	4.5	U	4.5	0.84	ug/Kg	☼	11/23/14 10:00	11/23/14 18:16	1
Dibromochloromethane	4.5	U	4.5	2.2	ug/Kg	☼	11/23/14 10:00	11/23/14 18:16	1
1,2-Dibromo-3-Chloropropane	4.5	U	4.5	3.0	ug/Kg	☼	11/23/14 10:00	11/23/14 18:16	1
1,2-Dichlorobenzene	4.5	U	4.5	0.64	ug/Kg	☼	11/23/14 10:00	11/23/14 18:16	1
1,3-Dichlorobenzene	4.5	U	4.5	0.85	ug/Kg	☼	11/23/14 10:00	11/23/14 18:16	1
1,4-Dichlorobenzene	4.5	U	4.5	2.2	ug/Kg	☼	11/23/14 10:00	11/23/14 18:16	1
Dichlorodifluoromethane	4.5	U	4.5	1.2	ug/Kg	☼	11/23/14 10:00	11/23/14 18:16	1
1,1-Dichloroethane	4.5	U	4.5	0.75	ug/Kg	☼	11/23/14 10:00	11/23/14 18:16	1
1,2-Dichloroethane	4.5	U	4.5	0.74	ug/Kg	☼	11/23/14 10:00	11/23/14 18:16	1
1,1-Dichloroethene	4.5	U	4.5	2.2	ug/Kg	☼	11/23/14 10:00	11/23/14 18:16	1
1,2-Dichloropropane	4.5	U	4.5	2.2	ug/Kg	☼	11/23/14 10:00	11/23/14 18:16	1
Diisopropyl ether	4.5	U	4.5	0.49	ug/Kg	☼	11/23/14 10:00	11/23/14 18:16	1
Ethylbenzene	4.5	U	4.5	0.55	ug/Kg	☼	11/23/14 10:00	11/23/14 18:16	1
Ethylene Dibromide	4.5	U	4.5	0.90	ug/Kg	☼	11/23/14 10:00	11/23/14 18:16	1
Ethyl tert-butyl ether	4.5	U	4.5	2.2	ug/Kg	☼	11/23/14 10:00	11/23/14 18:16	1
2-Hexanone	22	U	22	4.5	ug/Kg	☼	11/23/14 10:00	11/23/14 18:16	1
Isopropylbenzene	4.5	U	4.5	0.61	ug/Kg	☼	11/23/14 10:00	11/23/14 18:16	1
Methyl acetate	4.5	U	4.5	4.1	ug/Kg	☼	11/23/14 10:00	11/23/14 18:16	1
Methylcyclohexane	4.5	U	4.5	1.3	ug/Kg	☼	11/23/14 10:00	11/23/14 18:16	1
Methylene Chloride	13	U	13	9.0	ug/Kg	☼	11/23/14 10:00	11/23/14 18:16	1
Methyl Ethyl Ketone	22	U	22	5.4	ug/Kg	☼	11/23/14 10:00	11/23/14 18:16	1
methyl isobutyl ketone	22	U	22	4.5	ug/Kg	☼	11/23/14 10:00	11/23/14 18:16	1
Methyl tert-butyl ether	4.5	U	4.5	0.90	ug/Kg	☼	11/23/14 10:00	11/23/14 18:16	1
Naphthalene	4.5	U	4.5	1.8	ug/Kg	☼	11/23/14 10:00	11/23/14 18:16	1
Styrene	4.5	U	4.5	0.90	ug/Kg	☼	11/23/14 10:00	11/23/14 18:16	1
Tert-amyl methyl ether	4.5	U	4.5	0.90	ug/Kg	☼	11/23/14 10:00	11/23/14 18:16	1
tert-Butyl alcohol	9.0	U	9.0	7.2	ug/Kg	☼	11/23/14 10:00	11/23/14 18:16	1
1,1,2,2-Tetrachloroethane	4.5	U	4.5	2.2	ug/Kg	☼	11/23/14 10:00	11/23/14 18:16	1
Tetrachloroethene	4.5	U	4.5	2.2	ug/Kg	☼	11/23/14 10:00	11/23/14 18:16	1
Toluene	4.5	U	4.5	0.90	ug/Kg	☼	11/23/14 10:00	11/23/14 18:16	1
trans-1,2-Dichloroethene	4.5	U	4.5	2.2	ug/Kg	☼	11/23/14 10:00	11/23/14 18:16	1
trans-1,3-Dichloropropene	4.5	U	4.5	2.2	ug/Kg	☼	11/23/14 10:00	11/23/14 18:16	1
1,2,4-Trichlorobenzene	4.5	U	4.5	1.8	ug/Kg	☼	11/23/14 10:00	11/23/14 18:16	1
1,1,1-Trichloroethane	4.5	U	4.5	0.99	ug/Kg	☼	11/23/14 10:00	11/23/14 18:16	1
1,1,2-Trichloroethane	4.5	U	4.5	2.2	ug/Kg	☼	11/23/14 10:00	11/23/14 18:16	1
Trichloroethene	4.5	U	4.5	0.90	ug/Kg	☼	11/23/14 10:00	11/23/14 18:16	1

Client Sample ID: GP-94(13-14)(111914)
Date Collected: 11/19/14 15:10
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-30
Matrix: Solid
Percent Solids: 83.5

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichlorofluoromethane	4.5	U	4.5	2.2	ug/Kg	☼	11/23/14 10:00	11/23/14 18:16	1
1,1,2-Trichloro-1,2,2-trifluoroethane	4.5	U	4.5	1.8	ug/Kg	☼	11/23/14 10:00	11/23/14 18:16	1
Vinyl chloride	4.5	U	4.5	2.2	ug/Kg	☼	11/23/14 10:00	11/23/14 18:16	1
Xylenes, Total	4.5	U	4.5	0.90	ug/Kg	☼	11/23/14 10:00	11/23/14 18:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*85*		*72 - 122*	*11/23/14 10:00*	*11/23/14 18:16*	*1*
Dibromofluoromethane	*96*		*79 - 123*	*11/23/14 10:00*	*11/23/14 18:16*	*1*
Toluene-d8 (Surr)	*95*		*80 - 120*	*11/23/14 10:00*	*11/23/14 18:16*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzaldehyde	390	U	390	69	ug/Kg	☼	11/20/14 17:57	11/24/14 19:27	1
Phenol	390	U	390	41	ug/Kg	☼	11/20/14 17:57	11/24/14 19:27	1
Bis(2-chloroethyl)ether	390	U	390	54	ug/Kg	☼	11/20/14 17:57	11/24/14 19:27	1
2-Chlorophenol	390	U	390	48	ug/Kg	☼	11/20/14 17:57	11/24/14 19:27	1
2-Methylphenol	390	U	390	32	ug/Kg	☼	11/20/14 17:57	11/24/14 19:27	1
bis (2-chloroisopropyl) ether	390	U	390	36	ug/Kg	☼	11/20/14 17:57	11/24/14 19:27	1
Acetophenone	390	U	390	33	ug/Kg	☼	11/20/14 17:57	11/24/14 19:27	1
3 & 4 Methylphenol	390	U	390	51	ug/Kg	☼	11/20/14 17:57	11/24/14 19:27	1
N-Nitrosodi-n-propylamine	390	U	390	38	ug/Kg	☼	11/20/14 17:57	11/24/14 19:27	1
Hexachloroethane	390	U	390	33	ug/Kg	☼	11/20/14 17:57	11/24/14 19:27	1
Nitrobenzene	390	U	390	31	ug/Kg	☼	11/20/14 17:57	11/24/14 19:27	1
Isophorone	390	U	390	39	ug/Kg	☼	11/20/14 17:57	11/24/14 19:27	1
2-Nitrophenol	390	U	390	49	ug/Kg	☼	11/20/14 17:57	11/24/14 19:27	1
2,4-Dimethylphenol	390	U	390	53	ug/Kg	☼	11/20/14 17:57	11/24/14 19:27	1
Bis(2-chloroethoxy)methane	390	U	390	47	ug/Kg	☼	11/20/14 17:57	11/24/14 19:27	1
2,4-Dichlorophenol	390	U	390	42	ug/Kg	☼	11/20/14 17:57	11/24/14 19:27	1
Naphthalene	390	U	390	36	ug/Kg	☼	11/20/14 17:57	11/24/14 19:27	1
4-Chloroaniline	790	U	790	62	ug/Kg	☼	11/20/14 17:57	11/24/14 19:27	1
Hexachlorobutadiene	390	U	390	43	ug/Kg	☼	11/20/14 17:57	11/24/14 19:27	1
Caprolactam	390	U	390	79	ug/Kg	☼	11/20/14 17:57	11/24/14 19:27	1
4-Chloro-3-methylphenol	390	U	390	42	ug/Kg	☼	11/20/14 17:57	11/24/14 19:27	1
2-Methylnaphthalene	390	U	390	45	ug/Kg	☼	11/20/14 17:57	11/24/14 19:27	1
Hexachlorocyclopentadiene	390	U	390	49	ug/Kg	☼	11/20/14 17:57	11/24/14 19:27	1
2,4,6-Trichlorophenol	390	U	390	35	ug/Kg	☼	11/20/14 17:57	11/24/14 19:27	1
2,4,5-Trichlorophenol	390	U	390	42	ug/Kg	☼	11/20/14 17:57	11/24/14 19:27	1
1,1'-Biphenyl	2000	U	2000	2000	ug/Kg	☼	11/20/14 17:57	11/24/14 19:27	1
2-Chloronaphthalene	390	U	390	42	ug/Kg	☼	11/20/14 17:57	11/24/14 19:27	1
2-Nitroaniline	2000	U	2000	54	ug/Kg	☼	11/20/14 17:57	11/24/14 19:27	1
Dimethyl phthalate	390	U	390	41	ug/Kg	☼	11/20/14 17:57	11/24/14 19:27	1
2,6-Dinitrotoluene	390	U	390	50	ug/Kg	☼	11/20/14 17:57	11/24/14 19:27	1
Acenaphthylene	390	U	390	43	ug/Kg	☼	11/20/14 17:57	11/24/14 19:27	1
3-Nitroaniline	2000	U	2000	55	ug/Kg	☼	11/20/14 17:57	11/24/14 19:27	1
Acenaphthene	390	U	390	49	ug/Kg	☼	11/20/14 17:57	11/24/14 19:27	1
2,4-Dinitrophenol	2000	U	2000	990	ug/Kg	☼	11/20/14 17:57	11/24/14 19:27	1
4-Nitrophenol	2000	U	2000	390	ug/Kg	☼	11/20/14 17:57	11/24/14 19:27	1
Dibenzofuran	390	U	390	39	ug/Kg	☼	11/20/14 17:57	11/24/14 19:27	1
2,4-Dinitrotoluene	390	U	390	59	ug/Kg	☼	11/20/14 17:57	11/24/14 19:27	1
Diethyl phthalate	390	U	390	44	ug/Kg	☼	11/20/14 17:57	11/24/14 19:27	1

Client Sample ID: GP-94(13-14)(111914)
Date Collected: 11/19/14 15:10
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-30
Matrix: Solid
Percent Solids: 83.5

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluorene	390	U	390	43	ug/Kg	☼	11/20/14 17:57	11/24/14 19:27	1
4-Chlorophenyl phenyl ether	390	U	390	53	ug/Kg	☼	11/20/14 17:57	11/24/14 19:27	1
4-Nitroaniline	2000	U	2000	59	ug/Kg	☼	11/20/14 17:57	11/24/14 19:27	1
4,6-Dinitro-2-methylphenol	2000	U	2000	200	ug/Kg	☼	11/20/14 17:57	11/24/14 19:27	1
N-Nitrosodiphenylamine	390	U	390	39	ug/Kg	☼	11/20/14 17:57	11/24/14 19:27	1
4-Bromophenyl phenyl ether	390	U	390	43	ug/Kg	☼	11/20/14 17:57	11/24/14 19:27	1
Hexachlorobenzene	390	U	390	47	ug/Kg	☼	11/20/14 17:57	11/24/14 19:27	1
Atrazine	390	U	390	27	ug/Kg	☼	11/20/14 17:57	11/24/14 19:27	1
Pentachlorophenol	2000	U	2000	390	ug/Kg	☼	11/20/14 17:57	11/24/14 19:27	1
Phenanthrene	**170**	**J**	390	32	ug/Kg	☼	11/20/14 17:57	11/24/14 19:27	1
Anthracene	**170**	**J**	390	30	ug/Kg	☼	11/20/14 17:57	11/24/14 19:27	1
Carbazole	390	U	390	36	ug/Kg	☼	11/20/14 17:57	11/24/14 19:27	1
Di-n-butyl phthalate	390	U	390	36	ug/Kg	☼	11/20/14 17:57	11/24/14 19:27	1
Fluoranthene	**230**	**J**	390	38	ug/Kg	☼	11/20/14 17:57	11/24/14 19:27	1
Pyrene	**260**	**J**	390	32	ug/Kg	☼	11/20/14 17:57	11/24/14 19:27	1
Butyl benzyl phthalate	390	U	390	31	ug/Kg	☼	11/20/14 17:57	11/24/14 19:27	1
3,3'-Dichlorobenzidine	790	U	790	33	ug/Kg	☼	11/20/14 17:57	11/24/14 19:27	1
Benzo[a]anthracene	**57**	**J**	390	32	ug/Kg	☼	11/20/14 17:57	11/24/14 19:27	1
Chrysene	**64**	**J**	390	25	ug/Kg	☼	11/20/14 17:57	11/24/14 19:27	1
Bis(2-ethylhexyl) phthalate	390	U	390	35	ug/Kg	☼	11/20/14 17:57	11/24/14 19:27	1
Di-n-octyl phthalate	390	U	390	35	ug/Kg	☼	11/20/14 17:57	11/24/14 19:27	1
Benzo[b]fluoranthene	**46**	**J**	390	45	ug/Kg	☼	11/20/14 17:57	11/24/14 19:27	1
Benzo[k]fluoranthene	390	U	390	78	ug/Kg	☼	11/20/14 17:57	11/24/14 19:27	1
Benzo[a]pyrene	390	U	390	62	ug/Kg	☼	11/20/14 17:57	11/24/14 19:27	1
Indeno[1,2,3-cd]pyrene	390	U	390	33	ug/Kg	☼	11/20/14 17:57	11/24/14 19:27	1
Dibenz(a,h)anthracene	390	U	390	47	ug/Kg	☼	11/20/14 17:57	11/24/14 19:27	1
Benzo[g,h,i]perylene	390	U	390	26	ug/Kg	☼	11/20/14 17:57	11/24/14 19:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*27*	*X*	*37 - 115*	*11/20/14 17:57*	*11/24/14 19:27*	*1*
2-Fluorobiphenyl	*78*		*41 - 116*	*11/20/14 17:57*	*11/24/14 19:27*	*1*
Terphenyl-d14 (Surr)	*117*		*46 - 126*	*11/20/14 17:57*	*11/24/14 19:27*	*1*
Phenol-d5 (Surr)	*66*		*38 - 122*	*11/20/14 17:57*	*11/24/14 19:27*	*1*
2-Fluorophenol (Surr)	*66*		*39 - 114*	*11/20/14 17:57*	*11/24/14 19:27*	*1*
2,4,6-Tribromophenol (Surr)	*99*		*45 - 129*	*11/20/14 17:57*	*11/24/14 19:27*	*1*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Gasoline Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**63**	**B**	17	1.3	mg/Kg	☼	11/20/14 16:38	11/28/14 21:53	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*39*	*X*	*70 - 131*	*11/20/14 16:38*	*11/28/14 21:53*	*20*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**210**		3.9	2.5	mg/Kg	☼	11/20/14 17:57	11/22/14 05:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*81*		*45 - 130*	*11/20/14 17:57*	*11/22/14 05:21*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: CSX C&O Canal Brunswick, MD

TestAmerica Job ID: 680-107453-1

Client Sample ID: GP-95(12-13)(111914)
Date Collected: 11/19/14 15:55
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-31
Matrix: Solid
Percent Solids: 84.0

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	**31**		22	6.3	ug/Kg	☼	11/23/14 10:00	11/23/14 18:41	1
Benzene	4.3	U	4.3	0.95	ug/Kg	☼	11/23/14 10:00	11/23/14 18:41	1
Bromodichloromethane	4.3	U	4.3	2.2	ug/Kg	☼	11/23/14 10:00	11/23/14 18:41	1
Bromoform	4.3	U	4.3	2.2	ug/Kg	☼	11/23/14 10:00	11/23/14 18:41	1
Bromomethane	4.3	U	4.3	2.2	ug/Kg	☼	11/23/14 10:00	11/23/14 18:41	1
Carbon disulfide	4.3	U	4.3	2.2	ug/Kg	☼	11/23/14 10:00	11/23/14 18:41	1
Carbon tetrachloride	4.3	U	4.3	1.5	ug/Kg	☼	11/23/14 10:00	11/23/14 18:41	1
Chlorobenzene	4.3	U	4.3	0.45	ug/Kg	☼	11/23/14 10:00	11/23/14 18:41	1
Chloroethane	4.3	U	4.3	2.2	ug/Kg	☼	11/23/14 10:00	11/23/14 18:41	1
Chloroform	4.3	U	4.3	2.2	ug/Kg	☼	11/23/14 10:00	11/23/14 18:41	1
Chloromethane	4.3	U	4.3	0.87	ug/Kg	☼	11/23/14 10:00	11/23/14 18:41	1
cis-1,2-Dichloroethene	4.3	U	4.3	0.66	ug/Kg	☼	11/23/14 10:00	11/23/14 18:41	1
cis-1,3-Dichloropropene	4.3	U	4.3	1.0	ug/Kg	☼	11/23/14 10:00	11/23/14 18:41	1
Cyclohexane	**11**		4.3	0.82	ug/Kg	☼	11/23/14 10:00	11/23/14 18:41	1
Dibromochloromethane	4.3	U	4.3	2.2	ug/Kg	☼	11/23/14 10:00	11/23/14 18:41	1
1,2-Dibromo-3-Chloropropane	4.3	U	4.3	2.9	ug/Kg	☼	11/23/14 10:00	11/23/14 18:41	1
1,2-Dichlorobenzene	4.3	U	4.3	0.62	ug/Kg	☼	11/23/14 10:00	11/23/14 18:41	1
1,3-Dichlorobenzene	4.3	U	4.3	0.82	ug/Kg	☼	11/23/14 10:00	11/23/14 18:41	1
1,4-Dichlorobenzene	4.3	U	4.3	2.2	ug/Kg	☼	11/23/14 10:00	11/23/14 18:41	1
Dichlorodifluoromethane	4.3	U	4.3	1.1	ug/Kg	☼	11/23/14 10:00	11/23/14 18:41	1
1,1-Dichloroethane	4.3	U	4.3	0.72	ug/Kg	☼	11/23/14 10:00	11/23/14 18:41	1
1,2-Dichloroethane	4.3	U	4.3	0.71	ug/Kg	☼	11/23/14 10:00	11/23/14 18:41	1
1,1-Dichloroethene	4.3	U	4.3	2.2	ug/Kg	☼	11/23/14 10:00	11/23/14 18:41	1
1,2-Dichloropropane	4.3	U	4.3	2.2	ug/Kg	☼	11/23/14 10:00	11/23/14 18:41	1
Diisopropyl ether	4.3	U	4.3	0.48	ug/Kg	☼	11/23/14 10:00	11/23/14 18:41	1
Ethylbenzene	4.3	U	4.3	0.53	ug/Kg	☼	11/23/14 10:00	11/23/14 18:41	1
Ethylene Dibromide	4.3	U	4.3	0.87	ug/Kg	☼	11/23/14 10:00	11/23/14 18:41	1
Ethyl tert-butyl ether	4.3	U	4.3	2.2	ug/Kg	☼	11/23/14 10:00	11/23/14 18:41	1
2-Hexanone	22	U	22	4.3	ug/Kg	☼	11/23/14 10:00	11/23/14 18:41	1
Isopropylbenzene	**3.5**	**J**	4.3	0.59	ug/Kg	☼	11/23/14 10:00	11/23/14 18:41	1
Methyl acetate	4.3	U	4.3	4.0	ug/Kg	☼	11/23/14 10:00	11/23/14 18:41	1
Methylcyclohexane	**110**		4.3	1.3	ug/Kg	☼	11/23/14 10:00	11/23/14 18:41	1
Methylene Chloride	13	U	13	8.7	ug/Kg	☼	11/23/14 10:00	11/23/14 18:41	1
Methyl Ethyl Ketone	22	U	22	5.2	ug/Kg	☼	11/23/14 10:00	11/23/14 18:41	1
methyl isobutyl ketone	22	U	22	4.3	ug/Kg	☼	11/23/14 10:00	11/23/14 18:41	1
Methyl tert-butyl ether	4.3	U	4.3	0.87	ug/Kg	☼	11/23/14 10:00	11/23/14 18:41	1
Naphthalene	4.3	U	4.3	1.7	ug/Kg	☼	11/23/14 10:00	11/23/14 18:41	1
Styrene	4.3	U	4.3	0.87	ug/Kg	☼	11/23/14 10:00	11/23/14 18:41	1
Tert-amyl methyl ether	4.3	U	4.3	0.87	ug/Kg	☼	11/23/14 10:00	11/23/14 18:41	1
tert-Butyl alcohol	8.7	U	8.7	6.9	ug/Kg	☼	11/23/14 10:00	11/23/14 18:41	1
1,1,2,2-Tetrachloroethane	4.3	U	4.3	2.2	ug/Kg	☼	11/23/14 10:00	11/23/14 18:41	1
Tetrachloroethene	4.3	U	4.3	2.2	ug/Kg	☼	11/23/14 10:00	11/23/14 18:41	1
Toluene	4.3	U	4.3	0.87	ug/Kg	☼	11/23/14 10:00	11/23/14 18:41	1
trans-1,2-Dichloroethene	4.3	U	4.3	2.2	ug/Kg	☼	11/23/14 10:00	11/23/14 18:41	1
trans-1,3-Dichloropropene	4.3	U	4.3	2.2	ug/Kg	☼	11/23/14 10:00	11/23/14 18:41	1
1,2,4-Trichlorobenzene	4.3	U	4.3	1.7	ug/Kg	☼	11/23/14 10:00	11/23/14 18:41	1
1,1,1-Trichloroethane	4.3	U	4.3	0.95	ug/Kg	☼	11/23/14 10:00	11/23/14 18:41	1
1,1,2-Trichloroethane	4.3	U	4.3	2.2	ug/Kg	☼	11/23/14 10:00	11/23/14 18:41	1
Trichloroethene	4.3	U	4.3	0.87	ug/Kg	☼	11/23/14 10:00	11/23/14 18:41	1

Client Sample ID: GP-95(12-13)(111914)
Date Collected: 11/19/14 15:55
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-31
Matrix: Solid
Percent Solids: 84.0

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichlorofluoromethane	4.3	U	4.3	2.2	ug/Kg	☼	11/23/14 10:00	11/23/14 18:41	1
1,1,2-Trichloro-1,2,2-trifluoroethane	4.3	U	4.3	1.7	ug/Kg	☼	11/23/14 10:00	11/23/14 18:41	1
Vinyl chloride	4.3	U	4.3	2.2	ug/Kg	☼	11/23/14 10:00	11/23/14 18:41	1
Xylenes, Total	4.3	U	4.3	0.87	ug/Kg	☼	11/23/14 10:00	11/23/14 18:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*62*	*X*	*72 - 122*	*11/23/14 10:00*	*11/23/14 18:41*	*1*
Dibromofluoromethane	*90*		*79 - 123*	*11/23/14 10:00*	*11/23/14 18:41*	*1*
Toluene-d8 (Surr)	*106*		*80 - 120*	*11/23/14 10:00*	*11/23/14 18:41*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzaldehyde	390	U	390	69	ug/Kg	☼	11/20/14 17:57	11/24/14 19:50	1
Phenol	390	U	390	40	ug/Kg	☼	11/20/14 17:57	11/24/14 19:50	1
Bis(2-chloroethyl)ether	390	U	390	54	ug/Kg	☼	11/20/14 17:57	11/24/14 19:50	1
2-Chlorophenol	390	U	390	48	ug/Kg	☼	11/20/14 17:57	11/24/14 19:50	1
2-Methylphenol	390	U	390	32	ug/Kg	☼	11/20/14 17:57	11/24/14 19:50	1
bis (2-chloroisopropyl) ether	390	U	390	36	ug/Kg	☼	11/20/14 17:57	11/24/14 19:50	1
Acetophenone	390	U	390	33	ug/Kg	☼	11/20/14 17:57	11/24/14 19:50	1
3 & 4 Methylphenol	390	U	390	51	ug/Kg	☼	11/20/14 17:57	11/24/14 19:50	1
N-Nitrosodi-n-propylamine	390	U	390	38	ug/Kg	☼	11/20/14 17:57	11/24/14 19:50	1
Hexachloroethane	390	U	390	33	ug/Kg	☼	11/20/14 17:57	11/24/14 19:50	1
Nitrobenzene	390	U	390	31	ug/Kg	☼	11/20/14 17:57	11/24/14 19:50	1
Isophorone	390	U	390	39	ug/Kg	☼	11/20/14 17:57	11/24/14 19:50	1
2-Nitrophenol	390	U	390	49	ug/Kg	☼	11/20/14 17:57	11/24/14 19:50	1
2,4-Dimethylphenol	390	U	390	52	ug/Kg	☼	11/20/14 17:57	11/24/14 19:50	1
Bis(2-chloroethoxy)methane	390	U	390	46	ug/Kg	☼	11/20/14 17:57	11/24/14 19:50	1
2,4-Dichlorophenol	390	U	390	42	ug/Kg	☼	11/20/14 17:57	11/24/14 19:50	1
Naphthalene	390	U	390	36	ug/Kg	☼	11/20/14 17:57	11/24/14 19:50	1
4-Chloroaniline	780	U	780	62	ug/Kg	☼	11/20/14 17:57	11/24/14 19:50	1
Hexachlorobutadiene	390	U	390	43	ug/Kg	☼	11/20/14 17:57	11/24/14 19:50	1
Caprolactam	390	U	390	78	ug/Kg	☼	11/20/14 17:57	11/24/14 19:50	1
4-Chloro-3-methylphenol	390	U	390	42	ug/Kg	☼	11/20/14 17:57	11/24/14 19:50	1
2-Methylnaphthalene	390	U	390	45	ug/Kg	☼	11/20/14 17:57	11/24/14 19:50	1
Hexachlorocyclopentadiene	390	U	390	49	ug/Kg	☼	11/20/14 17:57	11/24/14 19:50	1
2,4,6-Trichlorophenol	390	U	390	34	ug/Kg	☼	11/20/14 17:57	11/24/14 19:50	1
2,4,5-Trichlorophenol	390	U	390	42	ug/Kg	☼	11/20/14 17:57	11/24/14 19:50	1
1,1'-Biphenyl	2000	U	2000	2000	ug/Kg	☼	11/20/14 17:57	11/24/14 19:50	1
2-Chloronaphthalene	390	U	390	42	ug/Kg	☼	11/20/14 17:57	11/24/14 19:50	1
2-Nitroaniline	2000	U	2000	54	ug/Kg	☼	11/20/14 17:57	11/24/14 19:50	1
Dimethyl phthalate	390	U	390	40	ug/Kg	☼	11/20/14 17:57	11/24/14 19:50	1
2,6-Dinitrotoluene	390	U	390	50	ug/Kg	☼	11/20/14 17:57	11/24/14 19:50	1
Acenaphthylene	390	U	390	43	ug/Kg	☼	11/20/14 17:57	11/24/14 19:50	1
3-Nitroaniline	2000	U	2000	55	ug/Kg	☼	11/20/14 17:57	11/24/14 19:50	1
Acenaphthene	390	U	390	49	ug/Kg	☼	11/20/14 17:57	11/24/14 19:50	1
2,4-Dinitrophenol	2000	U	2000	990	ug/Kg	☼	11/20/14 17:57	11/24/14 19:50	1
4-Nitrophenol	2000	U	2000	390	ug/Kg	☼	11/20/14 17:57	11/24/14 19:50	1
Dibenzofuran	390	U	390	39	ug/Kg	☼	11/20/14 17:57	11/24/14 19:50	1
2,4-Dinitrotoluene	390	U	390	58	ug/Kg	☼	11/20/14 17:57	11/24/14 19:50	1
Diethyl phthalate	390	U	390	44	ug/Kg	☼	11/20/14 17:57	11/24/14 19:50	1

Client Sample ID: GP-95(12-13)(111914)
Date Collected: 11/19/14 15:55
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-31
Matrix: Solid
Percent Solids: 84.0

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluorene	390	U	390	43	ug/Kg	☼	11/20/14 17:57	11/24/14 19:50	1
4-Chlorophenyl phenyl ether	390	U	390	52	ug/Kg	☼	11/20/14 17:57	11/24/14 19:50	1
4-Nitroaniline	2000	U	2000	58	ug/Kg	☼	11/20/14 17:57	11/24/14 19:50	1
4,6-Dinitro-2-methylphenol	2000	U	2000	200	ug/Kg	☼	11/20/14 17:57	11/24/14 19:50	1
N-Nitrosodiphenylamine	390	U	390	39	ug/Kg	☼	11/20/14 17:57	11/24/14 19:50	1
4-Bromophenyl phenyl ether	390	U	390	43	ug/Kg	☼	11/20/14 17:57	11/24/14 19:50	1
Hexachlorobenzene	390	U	390	46	ug/Kg	☼	11/20/14 17:57	11/24/14 19:50	1
Atrazine	390	U	390	27	ug/Kg	☼	11/20/14 17:57	11/24/14 19:50	1
Pentachlorophenol	2000	U	2000	390	ug/Kg	☼	11/20/14 17:57	11/24/14 19:50	1
Phenanthrene	**560**		390	32	ug/Kg	☼	11/20/14 17:57	11/24/14 19:50	1
Anthracene	**110**	**J**	390	30	ug/Kg	☼	11/20/14 17:57	11/24/14 19:50	1
Carbazole	390	U	390	36	ug/Kg	☼	11/20/14 17:57	11/24/14 19:50	1
Di-n-butyl phthalate	390	U	390	36	ug/Kg	☼	11/20/14 17:57	11/24/14 19:50	1
Fluoranthene	390	U	390	38	ug/Kg	☼	11/20/14 17:57	11/24/14 19:50	1
Pyrene	**66**	**J**	390	32	ug/Kg	☼	11/20/14 17:57	11/24/14 19:50	1
Butyl benzyl phthalate	390	U	390	31	ug/Kg	☼	11/20/14 17:57	11/24/14 19:50	1
3,3'-Dichlorobenzidine	780	U	780	33	ug/Kg	☼	11/20/14 17:57	11/24/14 19:50	1
Benzo[a]anthracene	390	U	390	32	ug/Kg	☼	11/20/14 17:57	11/24/14 19:50	1
Chrysene	390	U	390	25	ug/Kg	☼	11/20/14 17:57	11/24/14 19:50	1
Bis(2-ethylhexyl) phthalate	390	U	390	34	ug/Kg	☼	11/20/14 17:57	11/24/14 19:50	1
Di-n-octyl phthalate	390	U	390	34	ug/Kg	☼	11/20/14 17:57	11/24/14 19:50	1
Benzo[b]fluoranthene	390	U	390	45	ug/Kg	☼	11/20/14 17:57	11/24/14 19:50	1
Benzo[k]fluoranthene	390	U	390	77	ug/Kg	☼	11/20/14 17:57	11/24/14 19:50	1
Benzo[a]pyrene	390	U	390	62	ug/Kg	☼	11/20/14 17:57	11/24/14 19:50	1
Indeno[1,2,3-cd]pyrene	390	U	390	33	ug/Kg	☼	11/20/14 17:57	11/24/14 19:50	1
Dibenz(a,h)anthracene	390	U	390	46	ug/Kg	☼	11/20/14 17:57	11/24/14 19:50	1
Benzo[g,h,i]perylene	390	U	390	26	ug/Kg	☼	11/20/14 17:57	11/24/14 19:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*18*	*X*	*37 - 115*	*11/20/14 17:57*	*11/24/14 19:50*	*1*
2-Fluorobiphenyl	*50*		*41 - 116*	*11/20/14 17:57*	*11/24/14 19:50*	*1*
Terphenyl-d14 (Surr)	*73*		*46 - 126*	*11/20/14 17:57*	*11/24/14 19:50*	*1*
Phenol-d5 (Surr)	*45*		*38 - 122*	*11/20/14 17:57*	*11/24/14 19:50*	*1*
2-Fluorophenol (Surr)	*45*		*39 - 114*	*11/20/14 17:57*	*11/24/14 19:50*	*1*
2,4,6-Tribromophenol (Surr)	*63*		*45 - 129*	*11/20/14 17:57*	*11/24/14 19:50*	*1*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Gasoline Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**30**	**B**	5.1	0.39	mg/Kg	☼	11/20/14 16:38	11/28/14 22:15	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*71*		*70 - 131*	*11/20/14 16:38*	*11/28/14 22:15*	*20*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**2500**		200	130	mg/Kg	☼	11/20/14 17:57	11/24/14 22:06	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*0*	*D*	*45 - 130*	*11/20/14 17:57*	*11/24/14 22:06*	*50*

Client: ARCADIS U.S., Inc.
Project/Site: CSX C&O Canal Brunswick, MD

TestAmerica Job ID: 680-107453-1

Client Sample ID: GP-95(15-16)(111914)
Date Collected: 11/19/14 16:00
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-32
Matrix: Solid
Percent Solids: 83.5

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	**22**		21	6.2	ug/Kg	☼	11/23/14 10:00	11/23/14 19:05	1
Benzene	4.3	U	4.3	0.94	ug/Kg	☼	11/23/14 10:00	11/23/14 19:05	1
Bromodichloromethane	4.3	U	4.3	2.1	ug/Kg	☼	11/23/14 10:00	11/23/14 19:05	1
Bromoform	4.3	U	4.3	2.1	ug/Kg	☼	11/23/14 10:00	11/23/14 19:05	1
Bromomethane	4.3	U	4.3	2.1	ug/Kg	☼	11/23/14 10:00	11/23/14 19:05	1
Carbon disulfide	4.3	U	4.3	2.1	ug/Kg	☼	11/23/14 10:00	11/23/14 19:05	1
Carbon tetrachloride	4.3	U	4.3	1.5	ug/Kg	☼	11/23/14 10:00	11/23/14 19:05	1
Chlorobenzene	4.3	U	4.3	0.44	ug/Kg	☼	11/23/14 10:00	11/23/14 19:05	1
Chloroethane	4.3	U	4.3	2.1	ug/Kg	☼	11/23/14 10:00	11/23/14 19:05	1
Chloroform	4.3	U	4.3	2.1	ug/Kg	☼	11/23/14 10:00	11/23/14 19:05	1
Chloromethane	4.3	U	4.3	0.86	ug/Kg	☼	11/23/14 10:00	11/23/14 19:05	1
cis-1,2-Dichloroethene	4.3	U	4.3	0.65	ug/Kg	☼	11/23/14 10:00	11/23/14 19:05	1
cis-1,3-Dichloropropene	4.3	U	4.3	1.0	ug/Kg	☼	11/23/14 10:00	11/23/14 19:05	1
Cyclohexane	**13**		4.3	0.80	ug/Kg	☼	11/23/14 10:00	11/23/14 19:05	1
Dibromochloromethane	4.3	U	4.3	2.1	ug/Kg	☼	11/23/14 10:00	11/23/14 19:05	1
1,2-Dibromo-3-Chloropropane	4.3	U	4.3	2.8	ug/Kg	☼	11/23/14 10:00	11/23/14 19:05	1
1,2-Dichlorobenzene	4.3	U	4.3	0.61	ug/Kg	☼	11/23/14 10:00	11/23/14 19:05	1
1,3-Dichlorobenzene	4.3	U	4.3	0.81	ug/Kg	☼	11/23/14 10:00	11/23/14 19:05	1
1,4-Dichlorobenzene	4.3	U	4.3	2.1	ug/Kg	☼	11/23/14 10:00	11/23/14 19:05	1
Dichlorodifluoromethane	4.3	U	4.3	1.1	ug/Kg	☼	11/23/14 10:00	11/23/14 19:05	1
1,1-Dichloroethane	4.3	U	4.3	0.71	ug/Kg	☼	11/23/14 10:00	11/23/14 19:05	1
1,2-Dichloroethane	4.3	U	4.3	0.70	ug/Kg	☼	11/23/14 10:00	11/23/14 19:05	1
1,1-Dichloroethene	4.3	U	4.3	2.1	ug/Kg	☼	11/23/14 10:00	11/23/14 19:05	1
1,2-Dichloropropane	4.3	U	4.3	2.1	ug/Kg	☼	11/23/14 10:00	11/23/14 19:05	1
Diisopropyl ether	4.3	U	4.3	0.47	ug/Kg	☼	11/23/14 10:00	11/23/14 19:05	1
Ethylbenzene	4.3	U	4.3	0.52	ug/Kg	☼	11/23/14 10:00	11/23/14 19:05	1
Ethylene Dibromide	4.3	U	4.3	0.86	ug/Kg	☼	11/23/14 10:00	11/23/14 19:05	1
Ethyl tert-butyl ether	4.3	U	4.3	2.1	ug/Kg	☼	11/23/14 10:00	11/23/14 19:05	1
2-Hexanone	21	U	21	4.3	ug/Kg	☼	11/23/14 10:00	11/23/14 19:05	1
Isopropylbenzene	**29**		4.3	0.58	ug/Kg	☼	11/23/14 10:00	11/23/14 19:05	1
Methyl acetate	4.3	U	4.3	3.9	ug/Kg	☼	11/23/14 10:00	11/23/14 19:05	1
Methylcyclohexane	**120**		4.3	1.3	ug/Kg	☼	11/23/14 10:00	11/23/14 19:05	1
Methylene Chloride	13	U	13	8.6	ug/Kg	☼	11/23/14 10:00	11/23/14 19:05	1
Methyl Ethyl Ketone	21	U	21	5.1	ug/Kg	☼	11/23/14 10:00	11/23/14 19:05	1
methyl isobutyl ketone	21	U	21	4.3	ug/Kg	☼	11/23/14 10:00	11/23/14 19:05	1
Methyl tert-butyl ether	4.3	U	4.3	0.86	ug/Kg	☼	11/23/14 10:00	11/23/14 19:05	1
Naphthalene	4.3	U	4.3	1.7	ug/Kg	☼	11/23/14 10:00	11/23/14 19:05	1
Styrene	4.3	U	4.3	0.86	ug/Kg	☼	11/23/14 10:00	11/23/14 19:05	1
Tert-amyl methyl ether	4.3	U	4.3	0.86	ug/Kg	☼	11/23/14 10:00	11/23/14 19:05	1
tert-Butyl alcohol	8.6	U	8.6	6.8	ug/Kg	☼	11/23/14 10:00	11/23/14 19:05	1
1,1,2,2-Tetrachloroethane	4.3	U	4.3	2.1	ug/Kg	☼	11/23/14 10:00	11/23/14 19:05	1
Tetrachloroethene	4.3	U	4.3	2.1	ug/Kg	☼	11/23/14 10:00	11/23/14 19:05	1
Toluene	4.3	U	4.3	0.86	ug/Kg	☼	11/23/14 10:00	11/23/14 19:05	1
trans-1,2-Dichloroethene	4.3	U	4.3	2.1	ug/Kg	☼	11/23/14 10:00	11/23/14 19:05	1
trans-1,3-Dichloropropene	4.3	U	4.3	2.1	ug/Kg	☼	11/23/14 10:00	11/23/14 19:05	1
1,2,4-Trichlorobenzene	4.3	U	4.3	1.7	ug/Kg	☼	11/23/14 10:00	11/23/14 19:05	1
1,1,1-Trichloroethane	4.3	U	4.3	0.94	ug/Kg	☼	11/23/14 10:00	11/23/14 19:05	1
1,1,2-Trichloroethane	4.3	U	4.3	2.1	ug/Kg	☼	11/23/14 10:00	11/23/14 19:05	1
Trichloroethene	4.3	U	4.3	0.86	ug/Kg	☼	11/23/14 10:00	11/23/14 19:05	1

Client Sample ID: GP-95(15-16)(111914)
Date Collected: 11/19/14 16:00
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-32
Matrix: Solid
Percent Solids: 83.5

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichlorofluoromethane	4.3	U	4.3	2.1	ug/Kg	☼	11/23/14 10:00	11/23/14 19:05	1
1,1,2-Trichloro-1,2,2-trifluoroethane	4.3	U	4.3	1.7	ug/Kg	☼	11/23/14 10:00	11/23/14 19:05	1
Vinyl chloride	4.3	U	4.3	2.1	ug/Kg	☼	11/23/14 10:00	11/23/14 19:05	1
Xylenes, Total	4.3	U	4.3	0.86	ug/Kg	☼	11/23/14 10:00	11/23/14 19:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*56*	*X*	*72 - 122*	*11/23/14 10:00*	*11/23/14 19:05*	*1*
Dibromofluoromethane	*94*		*79 - 123*	*11/23/14 10:00*	*11/23/14 19:05*	*1*
Toluene-d8 (Surr)	*105*		*80 - 120*	*11/23/14 10:00*	*11/23/14 19:05*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzaldehyde	390	U	390	69	ug/Kg	☼	11/20/14 17:57	11/24/14 20:13	1
Phenol	390	U	390	41	ug/Kg	☼	11/20/14 17:57	11/24/14 20:13	1
Bis(2-chloroethyl)ether	390	U	390	54	ug/Kg	☼	11/20/14 17:57	11/24/14 20:13	1
2-Chlorophenol	390	U	390	48	ug/Kg	☼	11/20/14 17:57	11/24/14 20:13	1
2-Methylphenol	390	U	390	32	ug/Kg	☼	11/20/14 17:57	11/24/14 20:13	1
bis (2-chloroisopropyl) ether	390	U	390	36	ug/Kg	☼	11/20/14 17:57	11/24/14 20:13	1
Acetophenone	390	U	390	33	ug/Kg	☼	11/20/14 17:57	11/24/14 20:13	1
3 & 4 Methylphenol	390	U	390	51	ug/Kg	☼	11/20/14 17:57	11/24/14 20:13	1
N-Nitrosodi-n-propylamine	390	U	390	38	ug/Kg	☼	11/20/14 17:57	11/24/14 20:13	1
Hexachloroethane	390	U	390	33	ug/Kg	☼	11/20/14 17:57	11/24/14 20:13	1
Nitrobenzene	390	U	390	31	ug/Kg	☼	11/20/14 17:57	11/24/14 20:13	1
Isophorone	390	U	390	39	ug/Kg	☼	11/20/14 17:57	11/24/14 20:13	1
2-Nitrophenol	390	U	390	49	ug/Kg	☼	11/20/14 17:57	11/24/14 20:13	1
2,4-Dimethylphenol	390	U	390	53	ug/Kg	☼	11/20/14 17:57	11/24/14 20:13	1
Bis(2-chloroethoxy)methane	390	U	390	47	ug/Kg	☼	11/20/14 17:57	11/24/14 20:13	1
2,4-Dichlorophenol	390	U	390	42	ug/Kg	☼	11/20/14 17:57	11/24/14 20:13	1
Naphthalene	390	U	390	36	ug/Kg	☼	11/20/14 17:57	11/24/14 20:13	1
4-Chloroaniline	790	U	790	62	ug/Kg	☼	11/20/14 17:57	11/24/14 20:13	1
Hexachlorobutadiene	390	U	390	43	ug/Kg	☼	11/20/14 17:57	11/24/14 20:13	1
Caprolactam	390	U	390	79	ug/Kg	☼	11/20/14 17:57	11/24/14 20:13	1
4-Chloro-3-methylphenol	390	U	390	42	ug/Kg	☼	11/20/14 17:57	11/24/14 20:13	1
2-Methylnaphthalene	390	U	390	45	ug/Kg	☼	11/20/14 17:57	11/24/14 20:13	1
Hexachlorocyclopentadiene	390	U	390	49	ug/Kg	☼	11/20/14 17:57	11/24/14 20:13	1
2,4,6-Trichlorophenol	390	U	390	35	ug/Kg	☼	11/20/14 17:57	11/24/14 20:13	1
2,4,5-Trichlorophenol	390	U	390	42	ug/Kg	☼	11/20/14 17:57	11/24/14 20:13	1
1,1'-Biphenyl	2000	U	2000	2000	ug/Kg	☼	11/20/14 17:57	11/24/14 20:13	1
2-Chloronaphthalene	390	U	390	42	ug/Kg	☼	11/20/14 17:57	11/24/14 20:13	1
2-Nitroaniline	2000	U	2000	54	ug/Kg	☼	11/20/14 17:57	11/24/14 20:13	1
Dimethyl phthalate	390	U	390	41	ug/Kg	☼	11/20/14 17:57	11/24/14 20:13	1
2,6-Dinitrotoluene	390	U	390	50	ug/Kg	☼	11/20/14 17:57	11/24/14 20:13	1
Acenaphthylene	390	U	390	43	ug/Kg	☼	11/20/14 17:57	11/24/14 20:13	1
3-Nitroaniline	2000	U	2000	55	ug/Kg	☼	11/20/14 17:57	11/24/14 20:13	1
Acenaphthene	390	U	390	49	ug/Kg	☼	11/20/14 17:57	11/24/14 20:13	1
2,4-Dinitrophenol	2000	U	2000	990	ug/Kg	☼	11/20/14 17:57	11/24/14 20:13	1
4-Nitrophenol	2000	U	2000	390	ug/Kg	☼	11/20/14 17:57	11/24/14 20:13	1
Dibenzofuran	390	U	390	39	ug/Kg	☼	11/20/14 17:57	11/24/14 20:13	1
2,4-Dinitrotoluene	390	U	390	59	ug/Kg	☼	11/20/14 17:57	11/24/14 20:13	1
Diethyl phthalate	390	U	390	44	ug/Kg	☼	11/20/14 17:57	11/24/14 20:13	1

Client Sample ID: GP-95(15-16)(111914)
Date Collected: 11/19/14 16:00
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-32
Matrix: Solid
Percent Solids: 83.5

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluorene	390	U	390	43	ug/Kg	☼	11/20/14 17:57	11/24/14 20:13	1
4-Chlorophenyl phenyl ether	390	U	390	53	ug/Kg	☼	11/20/14 17:57	11/24/14 20:13	1
4-Nitroaniline	2000	U	2000	59	ug/Kg	☼	11/20/14 17:57	11/24/14 20:13	1
4,6-Dinitro-2-methylphenol	2000	U	2000	200	ug/Kg	☼	11/20/14 17:57	11/24/14 20:13	1
N-Nitrosodiphenylamine	390	U	390	39	ug/Kg	☼	11/20/14 17:57	11/24/14 20:13	1
4-Bromophenyl phenyl ether	390	U	390	43	ug/Kg	☼	11/20/14 17:57	11/24/14 20:13	1
Hexachlorobenzene	390	U	390	47	ug/Kg	☼	11/20/14 17:57	11/24/14 20:13	1
Atrazine	390	U	390	27	ug/Kg	☼	11/20/14 17:57	11/24/14 20:13	1
Pentachlorophenol	2000	U	2000	390	ug/Kg	☼	11/20/14 17:57	11/24/14 20:13	1
Phenanthrene	**1900**		390	32	ug/Kg	☼	11/20/14 17:57	11/24/14 20:13	1
Anthracene	390	U	390	30	ug/Kg	☼	11/20/14 17:57	11/24/14 20:13	1
Carbazole	390	U	390	36	ug/Kg	☼	11/20/14 17:57	11/24/14 20:13	1
Di-n-butyl phthalate	390	U	390	36	ug/Kg	☼	11/20/14 17:57	11/24/14 20:13	1
Fluoranthene	**79**	**J**	390	38	ug/Kg	☼	11/20/14 17:57	11/24/14 20:13	1
Pyrene	**190**	**J**	390	32	ug/Kg	☼	11/20/14 17:57	11/24/14 20:13	1
Butyl benzyl phthalate	390	U	390	31	ug/Kg	☼	11/20/14 17:57	11/24/14 20:13	1
3,3'-Dichlorobenzidine	790	U	790	33	ug/Kg	☼	11/20/14 17:57	11/24/14 20:13	1
Benzo[a]anthracene	390	U	390	32	ug/Kg	☼	11/20/14 17:57	11/24/14 20:13	1
Chrysene	390	U	390	25	ug/Kg	☼	11/20/14 17:57	11/24/14 20:13	1
Bis(2-ethylhexyl) phthalate	390	U	390	35	ug/Kg	☼	11/20/14 17:57	11/24/14 20:13	1
Di-n-octyl phthalate	390	U	390	35	ug/Kg	☼	11/20/14 17:57	11/24/14 20:13	1
Benzo[b]fluoranthene	390	U	390	45	ug/Kg	☼	11/20/14 17:57	11/24/14 20:13	1
Benzo[k]fluoranthene	390	U	390	78	ug/Kg	☼	11/20/14 17:57	11/24/14 20:13	1
Benzo[a]pyrene	390	U	390	62	ug/Kg	☼	11/20/14 17:57	11/24/14 20:13	1
Indeno[1,2,3-cd]pyrene	390	U	390	33	ug/Kg	☼	11/20/14 17:57	11/24/14 20:13	1
Dibenz(a,h)anthracene	390	U	390	47	ug/Kg	☼	11/20/14 17:57	11/24/14 20:13	1
Benzo[g,h,i]perylene	390	U	390	26	ug/Kg	☼	11/20/14 17:57	11/24/14 20:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*19*	*X*	*37 - 115*	*11/20/14 17:57*	*11/24/14 20:13*	*1*
2-Fluorobiphenyl	*75*		*41 - 116*	*11/20/14 17:57*	*11/24/14 20:13*	*1*
Terphenyl-d14 (Surr)	*115*		*46 - 126*	*11/20/14 17:57*	*11/24/14 20:13*	*1*
Phenol-d5 (Surr)	*66*		*38 - 122*	*11/20/14 17:57*	*11/24/14 20:13*	*1*
2-Fluorophenol (Surr)	*68*		*39 - 114*	*11/20/14 17:57*	*11/24/14 20:13*	*1*
2,4,6-Tribromophenol (Surr)	*100*		*45 - 129*	*11/20/14 17:57*	*11/24/14 20:13*	*1*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Gasoline Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**88**	**B**	56	4.2	mg/Kg	☼	11/20/14 17:44	12/01/14 12:53	250

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*0*	*X*	*70 - 131*	*11/20/14 17:44*	*12/01/14 12:53*	*250*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**530**		39	25	mg/Kg	☼	11/20/14 17:57	11/24/14 22:20	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*0*	*D*	*45 - 130*	*11/20/14 17:57*	*11/24/14 22:20*	*10*

Client: ARCADIS U.S., Inc.
Project/Site: CSX C&O Canal Brunswick, MD

TestAmerica Job ID: 680-107453-1

Client Sample ID: GP-96(7-8)(111914)
Date Collected: 11/19/14 16:20
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-33
Matrix: Solid
Percent Solids: 82.2

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	31		23	6.7	ug/Kg	☼	11/23/14 10:00	11/23/14 19:30	1
Benzene	4.6	U	4.6	1.0	ug/Kg	☼	11/23/14 10:00	11/23/14 19:30	1
Bromodichloromethane	4.6	U	4.6	2.3	ug/Kg	☼	11/23/14 10:00	11/23/14 19:30	1
Bromoform	4.6	U	4.6	2.3	ug/Kg	☼	11/23/14 10:00	11/23/14 19:30	1
Bromomethane	4.6	U	4.6	2.3	ug/Kg	☼	11/23/14 10:00	11/23/14 19:30	1
Carbon disulfide	4.6	U	4.6	2.3	ug/Kg	☼	11/23/14 10:00	11/23/14 19:30	1
Carbon tetrachloride	4.6	U	4.6	1.5	ug/Kg	☼	11/23/14 10:00	11/23/14 19:30	1
Chlorobenzene	4.6	U	4.6	0.47	ug/Kg	☼	11/23/14 10:00	11/23/14 19:30	1
Chloroethane	4.6	U	4.6	2.3	ug/Kg	☼	11/23/14 10:00	11/23/14 19:30	1
Chloroform	4.6	U	4.6	2.3	ug/Kg	☼	11/23/14 10:00	11/23/14 19:30	1
Chloromethane	4.6	U	4.6	0.91	ug/Kg	☼	11/23/14 10:00	11/23/14 19:30	1
cis-1,2-Dichloroethene	4.6	U	4.6	0.69	ug/Kg	☼	11/23/14 10:00	11/23/14 19:30	1
cis-1,3-Dichloropropene	4.6	U	4.6	1.1	ug/Kg	☼	11/23/14 10:00	11/23/14 19:30	1
Cyclohexane	4.6	U	4.6	0.86	ug/Kg	☼	11/23/14 10:00	11/23/14 19:30	1
Dibromochloromethane	4.6	U	4.6	2.3	ug/Kg	☼	11/23/14 10:00	11/23/14 19:30	1
1,2-Dibromo-3-Chloropropane	4.6	U	4.6	3.0	ug/Kg	☼	11/23/14 10:00	11/23/14 19:30	1
1,2-Dichlorobenzene	4.6	U	4.6	0.65	ug/Kg	☼	11/23/14 10:00	11/23/14 19:30	1
1,3-Dichlorobenzene	4.6	U	4.6	0.87	ug/Kg	☼	11/23/14 10:00	11/23/14 19:30	1
1,4-Dichlorobenzene	4.6	U	4.6	2.3	ug/Kg	☼	11/23/14 10:00	11/23/14 19:30	1
Dichlorodifluoromethane	4.6	U	4.6	1.2	ug/Kg	☼	11/23/14 10:00	11/23/14 19:30	1
1,1-Dichloroethane	4.6	U	4.6	0.76	ug/Kg	☼	11/23/14 10:00	11/23/14 19:30	1
1,2-Dichloroethane	4.6	U	4.6	0.75	ug/Kg	☼	11/23/14 10:00	11/23/14 19:30	1
1,1-Dichloroethene	4.6	U	4.6	2.3	ug/Kg	☼	11/23/14 10:00	11/23/14 19:30	1
1,2-Dichloropropane	4.6	U	4.6	2.3	ug/Kg	☼	11/23/14 10:00	11/23/14 19:30	1
Diisopropyl ether	4.6	U	4.6	0.50	ug/Kg	☼	11/23/14 10:00	11/23/14 19:30	1
Ethylbenzene	4.6	U	4.6	0.56	ug/Kg	☼	11/23/14 10:00	11/23/14 19:30	1
Ethylene Dibromide	4.6	U	4.6	0.91	ug/Kg	☼	11/23/14 10:00	11/23/14 19:30	1
Ethyl tert-butyl ether	4.6	U	4.6	2.3	ug/Kg	☼	11/23/14 10:00	11/23/14 19:30	1
2-Hexanone	23	U	23	4.6	ug/Kg	☼	11/23/14 10:00	11/23/14 19:30	1
Isopropylbenzene	4.6	U	4.6	0.62	ug/Kg	☼	11/23/14 10:00	11/23/14 19:30	1
Methyl acetate	4.6	U	4.6	4.2	ug/Kg	☼	11/23/14 10:00	11/23/14 19:30	1
Methylcyclohexane	4.6	U	4.6	1.4	ug/Kg	☼	11/23/14 10:00	11/23/14 19:30	1
Methylene Chloride	14	U	14	9.1	ug/Kg	☼	11/23/14 10:00	11/23/14 19:30	1
Methyl Ethyl Ketone	23	U	23	5.5	ug/Kg	☼	11/23/14 10:00	11/23/14 19:30	1
methyl isobutyl ketone	23	U	23	4.6	ug/Kg	☼	11/23/14 10:00	11/23/14 19:30	1
Methyl tert-butyl ether	4.6	U	4.6	0.91	ug/Kg	☼	11/23/14 10:00	11/23/14 19:30	1
Naphthalene	4.6	U	4.6	1.8	ug/Kg	☼	11/23/14 10:00	11/23/14 19:30	1
Styrene	4.6	U	4.6	0.91	ug/Kg	☼	11/23/14 10:00	11/23/14 19:30	1
Tert-amyl methyl ether	4.6	U	4.6	0.91	ug/Kg	☼	11/23/14 10:00	11/23/14 19:30	1
tert-Butyl alcohol	9.1	U	9.1	7.3	ug/Kg	☼	11/23/14 10:00	11/23/14 19:30	1
1,1,2,2-Tetrachloroethane	4.6	U	4.6	2.3	ug/Kg	☼	11/23/14 10:00	11/23/14 19:30	1
Tetrachloroethene	4.6	U	4.6	2.3	ug/Kg	☼	11/23/14 10:00	11/23/14 19:30	1
Toluene	4.6	U	4.6	0.91	ug/Kg	☼	11/23/14 10:00	11/23/14 19:30	1
trans-1,2-Dichloroethene	4.6	U	4.6	2.3	ug/Kg	☼	11/23/14 10:00	11/23/14 19:30	1
trans-1,3-Dichloropropene	4.6	U	4.6	2.3	ug/Kg	☼	11/23/14 10:00	11/23/14 19:30	1
1,2,4-Trichlorobenzene	4.6	U	4.6	1.8	ug/Kg	☼	11/23/14 10:00	11/23/14 19:30	1
1,1,1-Trichloroethane	4.6	U	4.6	1.0	ug/Kg	☼	11/23/14 10:00	11/23/14 19:30	1
1,1,2-Trichloroethane	4.6	U	4.6	2.3	ug/Kg	☼	11/23/14 10:00	11/23/14 19:30	1
Trichloroethene	4.6	U	4.6	0.91	ug/Kg	☼	11/23/14 10:00	11/23/14 19:30	1

Client Sample ID: GP-96(7-8)(111914)
Date Collected: 11/19/14 16:20
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-33
Matrix: Solid
Percent Solids: 82.2

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichlorofluoromethane	4.6	U	4.6	2.3	ug/Kg	☼	11/23/14 10:00	11/23/14 19:30	1
1,1,2-Trichloro-1,2,2-trifluoroethane	4.6	U	4.6	1.8	ug/Kg	☼	11/23/14 10:00	11/23/14 19:30	1
Vinyl chloride	4.6	U	4.6	2.3	ug/Kg	☼	11/23/14 10:00	11/23/14 19:30	1
Xylenes, Total	4.6	U	4.6	0.91	ug/Kg	☼	11/23/14 10:00	11/23/14 19:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*93*		*72 - 122*	*11/23/14 10:00*	*11/23/14 19:30*	*1*
Dibromofluoromethane	*91*		*79 - 123*	*11/23/14 10:00*	*11/23/14 19:30*	*1*
Toluene-d8 (Surr)	*97*		*80 - 120*	*11/23/14 10:00*	*11/23/14 19:30*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzaldehyde	400	U	400	71	ug/Kg	☼	11/20/14 17:57	11/24/14 20:35	1
Phenol	400	U	400	41	ug/Kg	☼	11/20/14 17:57	11/24/14 20:35	1
Bis(2-chloroethyl)ether	400	U	400	55	ug/Kg	☼	11/20/14 17:57	11/24/14 20:35	1
2-Chlorophenol	400	U	400	49	ug/Kg	☼	11/20/14 17:57	11/24/14 20:35	1
2-Methylphenol	400	U	400	33	ug/Kg	☼	11/20/14 17:57	11/24/14 20:35	1
bis (2-chloroisopropyl) ether	400	U	400	37	ug/Kg	☼	11/20/14 17:57	11/24/14 20:35	1
Acetophenone	400	U	400	34	ug/Kg	☼	11/20/14 17:57	11/24/14 20:35	1
3 & 4 Methylphenol	400	U	400	52	ug/Kg	☼	11/20/14 17:57	11/24/14 20:35	1
N-Nitrosodi-n-propylamine	400	U	400	39	ug/Kg	☼	11/20/14 17:57	11/24/14 20:35	1
Hexachloroethane	400	U	400	34	ug/Kg	☼	11/20/14 17:57	11/24/14 20:35	1
Nitrobenzene	400	U	400	32	ug/Kg	☼	11/20/14 17:57	11/24/14 20:35	1
Isophorone	400	U	400	40	ug/Kg	☼	11/20/14 17:57	11/24/14 20:35	1
2-Nitrophenol	400	U	400	50	ug/Kg	☼	11/20/14 17:57	11/24/14 20:35	1
2,4-Dimethylphenol	400	U	400	54	ug/Kg	☼	11/20/14 17:57	11/24/14 20:35	1
Bis(2-chloroethoxy)methane	400	U	400	47	ug/Kg	☼	11/20/14 17:57	11/24/14 20:35	1
2,4-Dichlorophenol	400	U	400	43	ug/Kg	☼	11/20/14 17:57	11/24/14 20:35	1
Naphthalene	400	U	400	37	ug/Kg	☼	11/20/14 17:57	11/24/14 20:35	1
4-Chloroaniline	800	U	800	63	ug/Kg	☼	11/20/14 17:57	11/24/14 20:35	1
Hexachlorobutadiene	400	U	400	44	ug/Kg	☼	11/20/14 17:57	11/24/14 20:35	1
Caprolactam	400	U	400	80	ug/Kg	☼	11/20/14 17:57	11/24/14 20:35	1
4-Chloro-3-methylphenol	400	U	400	43	ug/Kg	☼	11/20/14 17:57	11/24/14 20:35	1
2-Methylnaphthalene	400	U	400	46	ug/Kg	☼	11/20/14 17:57	11/24/14 20:35	1
Hexachlorocyclopentadiene	400	U	400	50	ug/Kg	☼	11/20/14 17:57	11/24/14 20:35	1
2,4,6-Trichlorophenol	400	U	400	35	ug/Kg	☼	11/20/14 17:57	11/24/14 20:35	1
2,4,5-Trichlorophenol	400	U	400	43	ug/Kg	☼	11/20/14 17:57	11/24/14 20:35	1
1,1'-Biphenyl	2100	U	2100	2100	ug/Kg	☼	11/20/14 17:57	11/24/14 20:35	1
2-Chloronaphthalene	400	U	400	43	ug/Kg	☼	11/20/14 17:57	11/24/14 20:35	1
2-Nitroaniline	2100	U	2100	55	ug/Kg	☼	11/20/14 17:57	11/24/14 20:35	1
Dimethyl phthalate	400	U	400	41	ug/Kg	☼	11/20/14 17:57	11/24/14 20:35	1
2,6-Dinitrotoluene	400	U	400	51	ug/Kg	☼	11/20/14 17:57	11/24/14 20:35	1
Acenaphthylene	400	U	400	44	ug/Kg	☼	11/20/14 17:57	11/24/14 20:35	1
3-Nitroaniline	2100	U	2100	56	ug/Kg	☼	11/20/14 17:57	11/24/14 20:35	1
Acenaphthene	400	U	400	50	ug/Kg	☼	11/20/14 17:57	11/24/14 20:35	1
2,4-Dinitrophenol	2100	U	2100	1000	ug/Kg	☼	11/20/14 17:57	11/24/14 20:35	1
4-Nitrophenol	2100	U	2100	400	ug/Kg	☼	11/20/14 17:57	11/24/14 20:35	1
Dibenzofuran	400	U	400	40	ug/Kg	☼	11/20/14 17:57	11/24/14 20:35	1
2,4-Dinitrotoluene	400	U	400	60	ug/Kg	☼	11/20/14 17:57	11/24/14 20:35	1
Diethyl phthalate	400	U	400	45	ug/Kg	☼	11/20/14 17:57	11/24/14 20:35	1

Client: ARCADIS U.S., Inc.
Project/Site: CSX C&O Canal Brunswick, MD

TestAmerica Job ID: 680-107453-1

Client Sample ID: GP-96(7-8)(111914)
Date Collected: 11/19/14 16:20
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-33
Matrix: Solid
Percent Solids: 82.2

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluorene	400	U	400	44	ug/Kg	☼	11/20/14 17:57	11/24/14 20:35	1
4-Chlorophenyl phenyl ether	400	U	400	54	ug/Kg	☼	11/20/14 17:57	11/24/14 20:35	1
4-Nitroaniline	2100	U	2100	60	ug/Kg	☼	11/20/14 17:57	11/24/14 20:35	1
4,6-Dinitro-2-methylphenol	2100	U	2100	210	ug/Kg	☼	11/20/14 17:57	11/24/14 20:35	1
N-Nitrosodiphenylamine	400	U	400	40	ug/Kg	☼	11/20/14 17:57	11/24/14 20:35	1
4-Bromophenyl phenyl ether	400	U	400	44	ug/Kg	☼	11/20/14 17:57	11/24/14 20:35	1
Hexachlorobenzene	400	U	400	47	ug/Kg	☼	11/20/14 17:57	11/24/14 20:35	1
Atrazine	400	U	400	28	ug/Kg	☼	11/20/14 17:57	11/24/14 20:35	1
Pentachlorophenol	2100	U	2100	400	ug/Kg	☼	11/20/14 17:57	11/24/14 20:35	1
Phenanthrene	400	U	400	33	ug/Kg	☼	11/20/14 17:57	11/24/14 20:35	1
Anthracene	**40**	**J**	400	30	ug/Kg	☼	11/20/14 17:57	11/24/14 20:35	1
Carbazole	400	U	400	37	ug/Kg	☼	11/20/14 17:57	11/24/14 20:35	1
Di-n-butyl phthalate	400	U	400	37	ug/Kg	☼	11/20/14 17:57	11/24/14 20:35	1
Fluoranthene	400	U	400	39	ug/Kg	☼	11/20/14 17:57	11/24/14 20:35	1
Pyrene	**41**	**J**	400	33	ug/Kg	☼	11/20/14 17:57	11/24/14 20:35	1
Butyl benzyl phthalate	400	U	400	32	ug/Kg	☼	11/20/14 17:57	11/24/14 20:35	1
3,3'-Dichlorobenzidine	800	U	800	34	ug/Kg	☼	11/20/14 17:57	11/24/14 20:35	1
Benzo[a]anthracene	400	U	400	33	ug/Kg	☼	11/20/14 17:57	11/24/14 20:35	1
Chrysene	400	U	400	26	ug/Kg	☼	11/20/14 17:57	11/24/14 20:35	1
Bis(2-ethylhexyl) phthalate	400	U	400	35	ug/Kg	☼	11/20/14 17:57	11/24/14 20:35	1
Di-n-octyl phthalate	400	U	400	35	ug/Kg	☼	11/20/14 17:57	11/24/14 20:35	1
Benzo[b]fluoranthene	400	U	400	46	ug/Kg	☼	11/20/14 17:57	11/24/14 20:35	1
Benzo[k]fluoranthene	400	U	400	79	ug/Kg	☼	11/20/14 17:57	11/24/14 20:35	1
Benzo[a]pyrene	400	U	400	63	ug/Kg	☼	11/20/14 17:57	11/24/14 20:35	1
Indeno[1,2,3-cd]pyrene	400	U	400	34	ug/Kg	☼	11/20/14 17:57	11/24/14 20:35	1
Dibenz(a,h)anthracene	400	U	400	47	ug/Kg	☼	11/20/14 17:57	11/24/14 20:35	1
Benzo[g,h,i]perylene	400	U	400	27	ug/Kg	☼	11/20/14 17:57	11/24/14 20:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*35*	*X*	*37 - 115*	*11/20/14 17:57*	*11/24/14 20:35*	*1*
2-Fluorobiphenyl	*72*		*41 - 116*	*11/20/14 17:57*	*11/24/14 20:35*	*1*
Terphenyl-d14 (Surr)	*107*		*46 - 126*	*11/20/14 17:57*	*11/24/14 20:35*	*1*
Phenol-d5 (Surr)	*62*		*38 - 122*	*11/20/14 17:57*	*11/24/14 20:35*	*1*
2-Fluorophenol (Surr)	*62*		*39 - 114*	*11/20/14 17:57*	*11/24/14 20:35*	*1*
2,4,6-Tribromophenol (Surr)	*92*		*45 - 129*	*11/20/14 17:57*	*11/24/14 20:35*	*1*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Gasoline Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**1.3**	**B**	0.24	0.018	mg/Kg	☼	11/20/14 17:44	11/24/14 16:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*112*		*70 - 131*	*11/20/14 17:44*	*11/24/14 16:06*	*1*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**37**		4.0	2.6	mg/Kg	☼	11/20/14 17:57	11/22/14 06:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*53*		*45 - 130*	*11/20/14 17:57*	*11/22/14 06:05*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: CSX C&O Canal Brunswick, MD

TestAmerica Job ID: 680-107453-1

Client Sample ID: GP-96(15-16)(111914)
Date Collected: 11/19/14 16:25
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-34
Matrix: Solid
Percent Solids: 81.9

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	**45**		35	10	ug/Kg	☼	11/23/14 10:00	11/23/14 19:54	1
Benzene	7.0	U	7.0	1.5	ug/Kg	☼	11/23/14 10:00	11/23/14 19:54	1
Bromodichloromethane	7.0	U	7.0	3.5	ug/Kg	☼	11/23/14 10:00	11/23/14 19:54	1
Bromoform	7.0	U	7.0	3.5	ug/Kg	☼	11/23/14 10:00	11/23/14 19:54	1
Bromomethane	7.0	U	7.0	3.5	ug/Kg	☼	11/23/14 10:00	11/23/14 19:54	1
Carbon disulfide	7.0	U	7.0	3.5	ug/Kg	☼	11/23/14 10:00	11/23/14 19:54	1
Carbon tetrachloride	7.0	U	7.0	2.4	ug/Kg	☼	11/23/14 10:00	11/23/14 19:54	1
Chlorobenzene	7.0	U	7.0	0.73	ug/Kg	☼	11/23/14 10:00	11/23/14 19:54	1
Chloroethane	7.0	U	7.0	3.5	ug/Kg	☼	11/23/14 10:00	11/23/14 19:54	1
Chloroform	7.0	U	7.0	3.5	ug/Kg	☼	11/23/14 10:00	11/23/14 19:54	1
Chloromethane	7.0	U	7.0	1.4	ug/Kg	☼	11/23/14 10:00	11/23/14 19:54	1
cis-1,2-Dichloroethene	7.0	U	7.0	1.1	ug/Kg	☼	11/23/14 10:00	11/23/14 19:54	1
cis-1,3-Dichloropropene	7.0	U	7.0	1.7	ug/Kg	☼	11/23/14 10:00	11/23/14 19:54	1
Cyclohexane	**1.5**	**J**	7.0	1.3	ug/Kg	☼	11/23/14 10:00	11/23/14 19:54	1
Dibromochloromethane	7.0	U	7.0	3.5	ug/Kg	☼	11/23/14 10:00	11/23/14 19:54	1
1,2-Dibromo-3-Chloropropane	7.0	U	7.0	4.6	ug/Kg	☼	11/23/14 10:00	11/23/14 19:54	1
1,2-Dichlorobenzene	7.0	U	7.0	1.0	ug/Kg	☼	11/23/14 10:00	11/23/14 19:54	1
1,3-Dichlorobenzene	7.0	U	7.0	1.3	ug/Kg	☼	11/23/14 10:00	11/23/14 19:54	1
1,4-Dichlorobenzene	7.0	U	7.0	3.5	ug/Kg	☼	11/23/14 10:00	11/23/14 19:54	1
Dichlorodifluoromethane	7.0	U	7.0	1.8	ug/Kg	☼	11/23/14 10:00	11/23/14 19:54	1
1,1-Dichloroethane	7.0	U	7.0	1.2	ug/Kg	☼	11/23/14 10:00	11/23/14 19:54	1
1,2-Dichloroethane	7.0	U	7.0	1.2	ug/Kg	☼	11/23/14 10:00	11/23/14 19:54	1
1,1-Dichloroethene	7.0	U	7.0	3.5	ug/Kg	☼	11/23/14 10:00	11/23/14 19:54	1
1,2-Dichloropropane	7.0	U	7.0	3.5	ug/Kg	☼	11/23/14 10:00	11/23/14 19:54	1
Diisopropyl ether	7.0	U	7.0	0.77	ug/Kg	☼	11/23/14 10:00	11/23/14 19:54	1
Ethylbenzene	7.0	U	7.0	0.86	ug/Kg	☼	11/23/14 10:00	11/23/14 19:54	1
Ethylene Dibromide	7.0	U	7.0	1.4	ug/Kg	☼	11/23/14 10:00	11/23/14 19:54	1
Ethyl tert-butyl ether	7.0	U	7.0	3.5	ug/Kg	☼	11/23/14 10:00	11/23/14 19:54	1
2-Hexanone	35	U	35	7.0	ug/Kg	☼	11/23/14 10:00	11/23/14 19:54	1
Isopropylbenzene	7.0	U	7.0	0.96	ug/Kg	☼	11/23/14 10:00	11/23/14 19:54	1
Methyl acetate	7.0	U	7.0	6.5	ug/Kg	☼	11/23/14 10:00	11/23/14 19:54	1
Methylcyclohexane	**8.1**		7.0	2.1	ug/Kg	☼	11/23/14 10:00	11/23/14 19:54	1
Methylene Chloride	21	U	21	14	ug/Kg	☼	11/23/14 10:00	11/23/14 19:54	1
Methyl Ethyl Ketone	**10**	**J**	35	8.4	ug/Kg	☼	11/23/14 10:00	11/23/14 19:54	1
methyl isobutyl ketone	35	U	35	7.0	ug/Kg	☼	11/23/14 10:00	11/23/14 19:54	1
Methyl tert-butyl ether	7.0	U	7.0	1.4	ug/Kg	☼	11/23/14 10:00	11/23/14 19:54	1
Naphthalene	7.0	U	7.0	2.8	ug/Kg	☼	11/23/14 10:00	11/23/14 19:54	1
Styrene	7.0	U	7.0	1.4	ug/Kg	☼	11/23/14 10:00	11/23/14 19:54	1
Tert-amyl methyl ether	7.0	U	7.0	1.4	ug/Kg	☼	11/23/14 10:00	11/23/14 19:54	1
tert-Butyl alcohol	14	U	14	11	ug/Kg	☼	11/23/14 10:00	11/23/14 19:54	1
1,1,2,2-Tetrachloroethane	7.0	U	7.0	3.5	ug/Kg	☼	11/23/14 10:00	11/23/14 19:54	1
Tetrachloroethene	7.0	U	7.0	3.5	ug/Kg	☼	11/23/14 10:00	11/23/14 19:54	1
Toluene	7.0	U	7.0	1.4	ug/Kg	☼	11/23/14 10:00	11/23/14 19:54	1
trans-1,2-Dichloroethene	7.0	U	7.0	3.5	ug/Kg	☼	11/23/14 10:00	11/23/14 19:54	1
trans-1,3-Dichloropropene	7.0	U	7.0	3.5	ug/Kg	☼	11/23/14 10:00	11/23/14 19:54	1
1,2,4-Trichlorobenzene	7.0	U	7.0	2.8	ug/Kg	☼	11/23/14 10:00	11/23/14 19:54	1
1,1,1-Trichloroethane	7.0	U	7.0	1.5	ug/Kg	☼	11/23/14 10:00	11/23/14 19:54	1
1,1,2-Trichloroethane	7.0	U	7.0	3.5	ug/Kg	☼	11/23/14 10:00	11/23/14 19:54	1
Trichloroethene	7.0	U	7.0	1.4	ug/Kg	☼	11/23/14 10:00	11/23/14 19:54	1

Client Sample ID: GP-96(15-16)(111914)
Date Collected: 11/19/14 16:25
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-34
Matrix: Solid
Percent Solids: 81.9

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichlorofluoromethane	7.0	U	7.0	3.5	ug/Kg	☼	11/23/14 10:00	11/23/14 19:54	1
1,1,2-Trichloro-1,2,2-trifluoroethane	7.0	U	7.0	2.8	ug/Kg	☼	11/23/14 10:00	11/23/14 19:54	1
Vinyl chloride	7.0	U	7.0	3.5	ug/Kg	☼	11/23/14 10:00	11/23/14 19:54	1
Xylenes, Total	7.0	U	7.0	1.4	ug/Kg	☼	11/23/14 10:00	11/23/14 19:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*93*		*72 - 122*	*11/23/14 10:00*	*11/23/14 19:54*	*1*
Dibromofluoromethane	*97*		*79 - 123*	*11/23/14 10:00*	*11/23/14 19:54*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*	*11/23/14 10:00*	*11/23/14 19:54*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzaldehyde	400	U	400	71	ug/Kg	☼	11/20/14 17:57	11/24/14 20:58	1
Phenol	400	U	400	41	ug/Kg	☼	11/20/14 17:57	11/24/14 20:58	1
Bis(2-chloroethyl)ether	400	U	400	55	ug/Kg	☼	11/20/14 17:57	11/24/14 20:58	1
2-Chlorophenol	400	U	400	49	ug/Kg	☼	11/20/14 17:57	11/24/14 20:58	1
2-Methylphenol	400	U	400	33	ug/Kg	☼	11/20/14 17:57	11/24/14 20:58	1
bis (2-chloroisopropyl) ether	400	U	400	36	ug/Kg	☼	11/20/14 17:57	11/24/14 20:58	1
Acetophenone	400	U	400	34	ug/Kg	☼	11/20/14 17:57	11/24/14 20:58	1
3 & 4 Methylphenol	400	U	400	52	ug/Kg	☼	11/20/14 17:57	11/24/14 20:58	1
N-Nitrosodi-n-propylamine	400	U	400	39	ug/Kg	☼	11/20/14 17:57	11/24/14 20:58	1
Hexachloroethane	400	U	400	34	ug/Kg	☼	11/20/14 17:57	11/24/14 20:58	1
Nitrobenzene	400	U	400	32	ug/Kg	☼	11/20/14 17:57	11/24/14 20:58	1
Isophorone	400	U	400	40	ug/Kg	☼	11/20/14 17:57	11/24/14 20:58	1
2-Nitrophenol	400	U	400	50	ug/Kg	☼	11/20/14 17:57	11/24/14 20:58	1
2,4-Dimethylphenol	400	U	400	54	ug/Kg	☼	11/20/14 17:57	11/24/14 20:58	1
Bis(2-chloroethoxy)methane	400	U	400	47	ug/Kg	☼	11/20/14 17:57	11/24/14 20:58	1
2,4-Dichlorophenol	400	U	400	43	ug/Kg	☼	11/20/14 17:57	11/24/14 20:58	1
Naphthalene	400	U	400	36	ug/Kg	☼	11/20/14 17:57	11/24/14 20:58	1
4-Chloroaniline	800	U	800	63	ug/Kg	☼	11/20/14 17:57	11/24/14 20:58	1
Hexachlorobutadiene	400	U	400	44	ug/Kg	☼	11/20/14 17:57	11/24/14 20:58	1
Caprolactam	400	U	400	80	ug/Kg	☼	11/20/14 17:57	11/24/14 20:58	1
4-Chloro-3-methylphenol	400	U	400	43	ug/Kg	☼	11/20/14 17:57	11/24/14 20:58	1
2-Methylnaphthalene	400	U	400	46	ug/Kg	☼	11/20/14 17:57	11/24/14 20:58	1
Hexachlorocyclopentadiene	400	U	400	50	ug/Kg	☼	11/20/14 17:57	11/24/14 20:58	1
2,4,6-Trichlorophenol	400	U	400	35	ug/Kg	☼	11/20/14 17:57	11/24/14 20:58	1
2,4,5-Trichlorophenol	400	U	400	43	ug/Kg	☼	11/20/14 17:57	11/24/14 20:58	1
1,1'-Biphenyl	2100	U	2100	2100	ug/Kg	☼	11/20/14 17:57	11/24/14 20:58	1
2-Chloronaphthalene	400	U	400	43	ug/Kg	☼	11/20/14 17:57	11/24/14 20:58	1
2-Nitroaniline	2100	U	2100	55	ug/Kg	☼	11/20/14 17:57	11/24/14 20:58	1
Dimethyl phthalate	400	U	400	41	ug/Kg	☼	11/20/14 17:57	11/24/14 20:58	1
2,6-Dinitrotoluene	400	U	400	51	ug/Kg	☼	11/20/14 17:57	11/24/14 20:58	1
Acenaphthylene	400	U	400	44	ug/Kg	☼	11/20/14 17:57	11/24/14 20:58	1
3-Nitroaniline	2100	U	2100	56	ug/Kg	☼	11/20/14 17:57	11/24/14 20:58	1
Acenaphthene	400	U	400	50	ug/Kg	☼	11/20/14 17:57	11/24/14 20:58	1
2,4-Dinitrophenol	2100	U	2100	1000	ug/Kg	☼	11/20/14 17:57	11/24/14 20:58	1
4-Nitrophenol	2100	U	2100	400	ug/Kg	☼	11/20/14 17:57	11/24/14 20:58	1
Dibenzofuran	400	U	400	40	ug/Kg	☼	11/20/14 17:57	11/24/14 20:58	1
2,4-Dinitrotoluene	400	U	400	60	ug/Kg	☼	11/20/14 17:57	11/24/14 20:58	1
Diethyl phthalate	400	U	400	45	ug/Kg	☼	11/20/14 17:57	11/24/14 20:58	1

Client: ARCADIS U.S., Inc.
Project/Site: CSX C&O Canal Brunswick, MD

TestAmerica Job ID: 680-107453-1

Client Sample ID: GP-96(15-16)(111914)
Date Collected: 11/19/14 16:25
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-34
Matrix: Solid
Percent Solids: 81.9

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluorene	400	U	400	44	ug/Kg	☼	11/20/14 17:57	11/24/14 20:58	1
4-Chlorophenyl phenyl ether	400	U	400	54	ug/Kg	☼	11/20/14 17:57	11/24/14 20:58	1
4-Nitroaniline	2100	U	2100	60	ug/Kg	☼	11/20/14 17:57	11/24/14 20:58	1
4,6-Dinitro-2-methylphenol	2100	U	2100	210	ug/Kg	☼	11/20/14 17:57	11/24/14 20:58	1
N-Nitrosodiphenylamine	400	U	400	40	ug/Kg	☼	11/20/14 17:57	11/24/14 20:58	1
4-Bromophenyl phenyl ether	400	U	400	44	ug/Kg	☼	11/20/14 17:57	11/24/14 20:58	1
Hexachlorobenzene	400	U	400	47	ug/Kg	☼	11/20/14 17:57	11/24/14 20:58	1
Atrazine	400	U	400	28	ug/Kg	☼	11/20/14 17:57	11/24/14 20:58	1
Pentachlorophenol	2100	U	2100	400	ug/Kg	☼	11/20/14 17:57	11/24/14 20:58	1
Phenanthrene	**53**	**J**	400	33	ug/Kg	☼	11/20/14 17:57	11/24/14 20:58	1
Anthracene	400	U	400	30	ug/Kg	☼	11/20/14 17:57	11/24/14 20:58	1
Carbazole	400	U	400	36	ug/Kg	☼	11/20/14 17:57	11/24/14 20:58	1
Di-n-butyl phthalate	400	U	400	36	ug/Kg	☼	11/20/14 17:57	11/24/14 20:58	1
Fluoranthene	**40**	**J**	400	39	ug/Kg	☼	11/20/14 17:57	11/24/14 20:58	1
Pyrene	**33**	**J**	400	33	ug/Kg	☼	11/20/14 17:57	11/24/14 20:58	1
Butyl benzyl phthalate	400	U	400	32	ug/Kg	☼	11/20/14 17:57	11/24/14 20:58	1
3,3'-Dichlorobenzidine	800	U	800	34	ug/Kg	☼	11/20/14 17:57	11/24/14 20:58	1
Benzo[a]anthracene	400	U	400	33	ug/Kg	☼	11/20/14 17:57	11/24/14 20:58	1
Chrysene	**28**	**J**	400	26	ug/Kg	☼	11/20/14 17:57	11/24/14 20:58	1
Bis(2-ethylhexyl) phthalate	400	U	400	35	ug/Kg	☼	11/20/14 17:57	11/24/14 20:58	1
Di-n-octyl phthalate	400	U	400	35	ug/Kg	☼	11/20/14 17:57	11/24/14 20:58	1
Benzo[b]fluoranthene	400	U	400	46	ug/Kg	☼	11/20/14 17:57	11/24/14 20:58	1
Benzo[k]fluoranthene	400	U	400	79	ug/Kg	☼	11/20/14 17:57	11/24/14 20:58	1
Benzo[a]pyrene	400	U	400	63	ug/Kg	☼	11/20/14 17:57	11/24/14 20:58	1
Indeno[1,2,3-cd]pyrene	400	U	400	34	ug/Kg	☼	11/20/14 17:57	11/24/14 20:58	1
Dibenz(a,h)anthracene	400	U	400	47	ug/Kg	☼	11/20/14 17:57	11/24/14 20:58	1
Benzo[g,h,i]perylene	400	U	400	27	ug/Kg	☼	11/20/14 17:57	11/24/14 20:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*24*	*X*	*37 - 115*	*11/20/14 17:57*	*11/24/14 20:58*	*1*
2-Fluorobiphenyl	*79*		*41 - 116*	*11/20/14 17:57*	*11/24/14 20:58*	*1*
Terphenyl-d14 (Surr)	*110*		*46 - 126*	*11/20/14 17:57*	*11/24/14 20:58*	*1*
Phenol-d5 (Surr)	*66*		*38 - 122*	*11/20/14 17:57*	*11/24/14 20:58*	*1*
2-Fluorophenol (Surr)	*68*		*39 - 114*	*11/20/14 17:57*	*11/24/14 20:58*	*1*
2,4,6-Tribromophenol (Surr)	*96*		*45 - 129*	*11/20/14 17:57*	*11/24/14 20:58*	*1*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Gasoline Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**11**	**B**	6.0	0.45	mg/Kg	☼	12/01/14 15:37	12/01/14 17:40	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*81*		*70 - 131*	*12/01/14 15:37*	*12/01/14 17:40*	*20*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**28**		4.0	2.6	mg/Kg	☼	11/20/14 17:57	11/22/14 06:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*56*		*45 - 130*	*11/20/14 17:57*	*11/22/14 06:19*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: CSX C&O Canal Brunswick, MD

TestAmerica Job ID: 680-107453-1

Client Sample ID: TRIPBLANK(111914)
Date Collected: 11/19/14 00:00
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-35
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	25	U	25	10	ug/L			11/25/14 08:32	1
Benzene	1.0	U	1.0	0.38	ug/L			11/25/14 08:32	1
Bromodichloromethane	1.0	U	1.0	0.50	ug/L			11/25/14 08:32	1
Bromoform	5.0	U	5.0	0.71	ug/L			11/25/14 08:32	1
Carbon disulfide	1.0	U	1.0	0.50	ug/L			11/25/14 08:32	1
Carbon tetrachloride	1.0	U	1.0	0.50	ug/L			11/25/14 08:32	1
Chlorobenzene	1.0	U	1.0	0.50	ug/L			11/25/14 08:32	1
Chloroethane	1.0	U	1.0	0.76	ug/L			11/25/14 08:32	1
Chloroform	1.0	U	1.0	0.60	ug/L			11/25/14 08:32	1
Chloromethane	1.0	U	1.0	0.83	ug/L			11/25/14 08:32	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.50	ug/L			11/25/14 08:32	1
cis-1,3-Dichloropropene	5.0	U	5.0	0.50	ug/L			11/25/14 08:32	1
Cyclohexane	1.0	U	1.0	0.50	ug/L			11/25/14 08:32	1
Dibromochloromethane	1.0	U	1.0	0.50	ug/L			11/25/14 08:32	1
1,2-Dibromo-3-Chloropropane	5.0	U	5.0	1.5	ug/L			11/25/14 08:32	1
1,2-Dichlorobenzene	1.0	U	1.0	0.50	ug/L			11/25/14 08:32	1
1,3-Dichlorobenzene	1.0	U	1.0	0.54	ug/L			11/25/14 08:32	1
1,4-Dichlorobenzene	1.0	U	1.0	0.64	ug/L			11/25/14 08:32	1
Dichlorodifluoromethane	1.0	U	1.0	0.85	ug/L			11/25/14 08:32	1
1,1-Dichloroethane	1.0	U	1.0	0.50	ug/L			11/25/14 08:32	1
1,2-Dichloroethane	1.0	U	1.0	0.50	ug/L			11/25/14 08:32	1
1,1-Dichloroethene	1.0	U	1.0	0.50	ug/L			11/25/14 08:32	1
1,2-Dichloropropane	1.0	U	1.0	0.50	ug/L			11/25/14 08:32	1
Diisopropyl ether	1.0	U	1.0	0.70	ug/L			11/25/14 08:32	1
Ethylbenzene	1.0	U	1.0	0.50	ug/L			11/25/14 08:32	1
Ethylene Dibromide	1.0	U	1.0	0.50	ug/L			11/25/14 08:32	1
Ethyl tert-butyl ether	1.0	U	1.0	0.68	ug/L			11/25/14 08:32	1
2-Hexanone	25	U	25	3.1	ug/L			11/25/14 08:32	1
Isopropylbenzene	1.0	U	1.0	0.53	ug/L			11/25/14 08:32	1
Methyl acetate	5.0	U	5.0	2.5	ug/L			11/25/14 08:32	1
Methylcyclohexane	1.0	U	1.0	0.50	ug/L			11/25/14 08:32	1
Methylene Chloride	5.0	U	5.0	3.0	ug/L			11/25/14 08:32	1
Methyl Ethyl Ketone	25	U	25	2.6	ug/L			11/25/14 08:32	1
methyl isobutyl ketone	25	U	25	1.8	ug/L			11/25/14 08:32	1
Methyl tert-butyl ether	1.0	U	1.0	0.74	ug/L			11/25/14 08:32	1
Naphthalene	1.0	U	1.0	1.0	ug/L			11/25/14 08:32	1
Styrene	1.0	U	1.0	1.0	ug/L			11/25/14 08:32	1
Tert-amyl methyl ether	1.0	U	1.0	0.60	ug/L			11/25/14 08:32	1
tert-Butyl alcohol	10	U	10	4.9	ug/L			11/25/14 08:32	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.50	ug/L			11/25/14 08:32	1
Tetrachloroethene	1.0	U	1.0	0.58	ug/L			11/25/14 08:32	1
Toluene	1.0	U	1.0	0.70	ug/L			11/25/14 08:32	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.50	ug/L			11/25/14 08:32	1
trans-1,3-Dichloropropene	5.0	U	5.0	0.50	ug/L			11/25/14 08:32	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.82	ug/L			11/25/14 08:32	1
1,1,1-Trichloroethane	1.0	U	1.0	0.50	ug/L			11/25/14 08:32	1
1,1,2-Trichloroethane	5.0	U	5.0	0.50	ug/L			11/25/14 08:32	1
Trichloroethene	1.0	U	1.0	0.50	ug/L			11/25/14 08:32	1
Trichlorofluoromethane	1.0	U	1.0	0.52	ug/L			11/25/14 08:32	1

Client: ARCADIS U.S., Inc.
Project/Site: CSX C&O Canal Brunswick, MD

TestAmerica Job ID: 680-107453-1

Client Sample ID: TRIPBLANK(111914)
Date Collected: 11/19/14 00:00
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-35
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.50	ug/L			11/25/14 08:32	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			11/25/14 08:32	1
Xylenes, Total	5.0	U	5.0	0.60	ug/L			11/25/14 08:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*98*		*78 - 118*		*11/25/14 08:32*	*1*
Dibromofluoromethane	*100*		*81 - 121*		*11/25/14 08:32*	*1*
Toluene-d8 (Surr)	*105*		*80 - 120*		*11/25/14 08:32*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 400-237702/21-A
Matrix: Solid
Analysis Batch: 237692

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 237702

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	25	U	25	7.3	ug/Kg		11/23/14 10:00	11/23/14 11:45	1
Benzene	5.0	U	5.0	1.1	ug/Kg		11/23/14 10:00	11/23/14 11:45	1
Bromodichloromethane	5.0	U	5.0	2.5	ug/Kg		11/23/14 10:00	11/23/14 11:45	1
Bromoform	5.0	U	5.0	2.5	ug/Kg		11/23/14 10:00	11/23/14 11:45	1
Bromomethane	5.0	U	5.0	2.5	ug/Kg		11/23/14 10:00	11/23/14 11:45	1
Carbon disulfide	5.0	U	5.0	2.5	ug/Kg		11/23/14 10:00	11/23/14 11:45	1
Carbon tetrachloride	5.0	U	5.0	1.7	ug/Kg		11/23/14 10:00	11/23/14 11:45	1
Chlorobenzene	5.0	U	5.0	0.52	ug/Kg		11/23/14 10:00	11/23/14 11:45	1
Chloroethane	5.0	U	5.0	2.5	ug/Kg		11/23/14 10:00	11/23/14 11:45	1
Chloroform	5.0	U	5.0	2.5	ug/Kg		11/23/14 10:00	11/23/14 11:45	1
Chloromethane	5.0	U	5.0	1.0	ug/Kg		11/23/14 10:00	11/23/14 11:45	1
cis-1,2-Dichloroethene	5.0	U	5.0	0.76	ug/Kg		11/23/14 10:00	11/23/14 11:45	1
cis-1,3-Dichloropropene	5.0	U	5.0	1.2	ug/Kg		11/23/14 10:00	11/23/14 11:45	1
Cyclohexane	5.0	U	5.0	0.94	ug/Kg		11/23/14 10:00	11/23/14 11:45	1
Dibromochloromethane	5.0	U	5.0	2.5	ug/Kg		11/23/14 10:00	11/23/14 11:45	1
1,2-Dibromo-3-Chloropropane	5.0	U	5.0	3.3	ug/Kg		11/23/14 10:00	11/23/14 11:45	1
1,2-Dichlorobenzene	5.0	U	5.0	0.71	ug/Kg		11/23/14 10:00	11/23/14 11:45	1
1,3-Dichlorobenzene	5.0	U	5.0	0.95	ug/Kg		11/23/14 10:00	11/23/14 11:45	1
1,4-Dichlorobenzene	5.0	U	5.0	2.5	ug/Kg		11/23/14 10:00	11/23/14 11:45	1
Dichlorodifluoromethane	5.0	U	5.0	1.3	ug/Kg		11/23/14 10:00	11/23/14 11:45	1
1,1-Dichloroethane	5.0	U	5.0	0.83	ug/Kg		11/23/14 10:00	11/23/14 11:45	1
1,2-Dichloroethane	5.0	U	5.0	0.82	ug/Kg		11/23/14 10:00	11/23/14 11:45	1
1,1-Dichloroethene	5.0	U	5.0	2.5	ug/Kg		11/23/14 10:00	11/23/14 11:45	1
1,2-Dichloropropane	5.0	U	5.0	2.5	ug/Kg		11/23/14 10:00	11/23/14 11:45	1
Diisopropyl ether	5.0	U	5.0	0.55	ug/Kg		11/23/14 10:00	11/23/14 11:45	1
Ethylbenzene	5.0	U	5.0	0.61	ug/Kg		11/23/14 10:00	11/23/14 11:45	1
Ethylene Dibromide	5.0	U	5.0	1.0	ug/Kg		11/23/14 10:00	11/23/14 11:45	1
Ethyl tert-butyl ether	5.0	U	5.0	2.5	ug/Kg		11/23/14 10:00	11/23/14 11:45	1
2-Hexanone	25	U	25	5.0	ug/Kg		11/23/14 10:00	11/23/14 11:45	1
Isopropylbenzene	5.0	U	5.0	0.68	ug/Kg		11/23/14 10:00	11/23/14 11:45	1
Methyl acetate	5.0	U	5.0	4.6	ug/Kg		11/23/14 10:00	11/23/14 11:45	1
Methylcyclohexane	5.0	U	5.0	1.5	ug/Kg		11/23/14 10:00	11/23/14 11:45	1
Methylene Chloride	15	U	15	10	ug/Kg		11/23/14 10:00	11/23/14 11:45	1
Methyl Ethyl Ketone	25	U	25	6.0	ug/Kg		11/23/14 10:00	11/23/14 11:45	1
methyl isobutyl ketone	25	U	25	5.0	ug/Kg		11/23/14 10:00	11/23/14 11:45	1
Methyl tert-butyl ether	5.0	U	5.0	1.0	ug/Kg		11/23/14 10:00	11/23/14 11:45	1
Naphthalene	5.0	U	5.0	2.0	ug/Kg		11/23/14 10:00	11/23/14 11:45	1
Styrene	5.0	U	5.0	1.0	ug/Kg		11/23/14 10:00	11/23/14 11:45	1
Tert-amyl methyl ether	5.0	U	5.0	1.0	ug/Kg		11/23/14 10:00	11/23/14 11:45	1
tert-Butyl alcohol	10	U	10	8.0	ug/Kg		11/23/14 10:00	11/23/14 11:45	1
1,1,2,2-Tetrachloroethane	5.0	U	5.0	2.5	ug/Kg		11/23/14 10:00	11/23/14 11:45	1
Tetrachloroethene	5.0	U	5.0	2.5	ug/Kg		11/23/14 10:00	11/23/14 11:45	1
Toluene	5.0	U	5.0	1.0	ug/Kg		11/23/14 10:00	11/23/14 11:45	1
trans-1,2-Dichloroethene	5.0	U	5.0	2.5	ug/Kg		11/23/14 10:00	11/23/14 11:45	1
trans-1,3-Dichloropropene	5.0	U	5.0	2.5	ug/Kg		11/23/14 10:00	11/23/14 11:45	1
1,2,4-Trichlorobenzene	5.0	U	5.0	2.0	ug/Kg		11/23/14 10:00	11/23/14 11:45	1
1,1,1-Trichloroethane	5.0	U	5.0	1.1	ug/Kg		11/23/14 10:00	11/23/14 11:45	1
1,1,2-Trichloroethane	5.0	U	5.0	2.5	ug/Kg		11/23/14 10:00	11/23/14 11:45	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 400-237702/21-A
Matrix: Solid
Analysis Batch: 237692

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 237702

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	5.0	U	5.0	1.0	ug/Kg		11/23/14 10:00	11/23/14 11:45	1
Trichlorofluoromethane	5.0	U	5.0	2.5	ug/Kg		11/23/14 10:00	11/23/14 11:45	1
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	2.0	ug/Kg		11/23/14 10:00	11/23/14 11:45	1
Vinyl chloride	5.0	U	5.0	2.5	ug/Kg		11/23/14 10:00	11/23/14 11:45	1
Xylenes, Total	5.0	U	5.0	1.0	ug/Kg		11/23/14 10:00	11/23/14 11:45	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*92*		*72 - 122*	*11/23/14 10:00*	*11/23/14 11:45*	*1*
Dibromofluoromethane	*98*		*79 - 123*	*11/23/14 10:00*	*11/23/14 11:45*	*1*
Toluene-d8 (Surr)	*95*		*80 - 120*	*11/23/14 10:00*	*11/23/14 11:45*	*1*

Lab Sample ID: LCS 400-237702/22-A
Matrix: Solid
Analysis Batch: 237692

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 237702

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	200	229		ug/Kg		114	43 - 150
Benzene	50.0	47.8		ug/Kg		96	74 - 119
Bromodichloromethane	50.0	44.2		ug/Kg		88	68 - 128
Bromoform	50.0	42.1		ug/Kg		84	54 - 125
Bromomethane	50.0	59.4		ug/Kg		119	25 - 150
Carbon disulfide	50.0	47.6		ug/Kg		95	26 - 150
Carbon tetrachloride	50.0	45.5		ug/Kg		91	70 - 128
Chlorobenzene	50.0	47.7		ug/Kg		95	80 - 116
Chloroethane	50.0	49.4		ug/Kg		99	22 - 150
Chloroform	50.0	45.1		ug/Kg		90	74 - 119
Chloromethane	50.0	58.6		ug/Kg		117	36 - 147
cis-1,2-Dichloroethene	50.0	48.0		ug/Kg		96	68 - 126
cis-1,3-Dichloropropene	50.0	46.4		ug/Kg		93	68 - 125
Cyclohexane	50.0	51.6		ug/Kg		103	62 - 126
Dibromochloromethane	50.0	46.7		ug/Kg		93	65 - 131
1,2-Dibromo-3-Chloropropane	50.0	45.2		ug/Kg		90	57 - 123
1,2-Dichlorobenzene	50.0	45.0		ug/Kg		90	76 - 120
1,3-Dichlorobenzene	50.0	45.9		ug/Kg		92	78 - 118
1,4-Dichlorobenzene	50.0	45.9		ug/Kg		92	77 - 118
Dichlorodifluoromethane	50.0	44.6		ug/Kg		89	44 - 145
1,1-Dichloroethane	50.0	46.9		ug/Kg		94	61 - 128
1,2-Dichloroethane	50.0	46.3		ug/Kg		93	70 - 125
1,1-Dichloroethene	50.0	46.8		ug/Kg		94	62 - 130
1,2-Dichloropropane	50.0	51.1		ug/Kg		102	64 - 129
Diisopropyl ether	50.0	47.0		ug/Kg		94	46 - 144
Ethylbenzene	50.0	47.5		ug/Kg		95	78 - 120
Ethylene Dibromide	50.0	48.1		ug/Kg		96	78 - 119
Ethyl tert-butyl ether	50.0	44.4		ug/Kg		89	60 - 128
2-Hexanone	200	211		ug/Kg		106	54 - 140
Isopropylbenzene	50.0	49.7		ug/Kg		99	78 - 119
Methyl acetate	250	302		ug/Kg		121	52 - 139
Methylcyclohexane	50.0	50.1		ug/Kg		100	65 - 126

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 400-237702/22-A
Matrix: Solid
Analysis Batch: 237692

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 237702

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methylene Chloride	50.0	48.4		ug/Kg		97	45 - 150
Methyl Ethyl Ketone	200	214		ug/Kg		107	62 - 126
methyl isobutyl ketone	200	208		ug/Kg		104	56 - 137
Methyl tert-butyl ether	50.0	44.6		ug/Kg		89	69 - 124
Naphthalene	50.0	46.6		ug/Kg		93	64 - 126
Styrene	50.0	48.2		ug/Kg		96	66 - 132
Tert-amyl methyl ether	50.0	45.4		ug/Kg		91	65 - 124
tert-Butyl alcohol	500	467		ug/Kg		93	12 - 150
1,1,2,2-Tetrachloroethane	50.0	45.8		ug/Kg		92	67 - 120
Tetrachloroethene	50.0	47.0		ug/Kg		94	74 - 126
Toluene	50.0	47.1		ug/Kg		94	76 - 120
trans-1,2-Dichloroethene	50.0	46.2		ug/Kg		92	65 - 130
trans-1,3-Dichloropropene	50.0	43.0		ug/Kg		86	65 - 126
1,2,4-Trichlorobenzene	50.0	45.2		ug/Kg		90	72 - 126
1,1,1-Trichloroethane	50.0	45.0		ug/Kg		90	72 - 121
1,1,2-Trichloroethane	50.0	46.4		ug/Kg		93	75 - 118
Trichloroethene	50.0	50.0		ug/Kg		100	76 - 122
Trichlorofluoromethane	50.0	47.9		ug/Kg		96	65 - 132
1,1,2-Trichloro-1,2,2-trifluoroethane	50.0	44.7		ug/Kg		89	74 - 123
Vinyl chloride	50.0	58.2		ug/Kg		116	52 - 134
Xylenes, Total	100	94.8		ug/Kg		95	70 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene	*90*		*72 - 122*
Dibromofluoromethane	*100*		*79 - 123*
Toluene-d8 (Surr)	*100*		*80 - 120*

Lab Sample ID: LCSD 400-237702/23-A
Matrix: Solid
Analysis Batch: 237692

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 237702

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone	200	201		ug/Kg		100	43 - 150	13	30
Benzene	50.0	49.1		ug/Kg		98	74 - 119	3	30
Bromodichloromethane	50.0	44.0		ug/Kg		88	68 - 128	0	30
Bromoform	50.0	44.3		ug/Kg		89	54 - 125	5	30
Bromomethane	50.0	62.5		ug/Kg		125	25 - 150	5	30
Carbon disulfide	50.0	47.1		ug/Kg		94	26 - 150	1	30
Carbon tetrachloride	50.0	46.4		ug/Kg		93	70 - 128	2	30
Chlorobenzene	50.0	48.3		ug/Kg		97	80 - 116	1	30
Chloroethane	50.0	48.3		ug/Kg		97	22 - 150	2	30
Chloroform	50.0	46.0		ug/Kg		92	74 - 119	2	30
Chloromethane	50.0	55.8		ug/Kg		112	36 - 147	5	30
cis-1,2-Dichloroethene	50.0	49.0		ug/Kg		98	68 - 126	2	30
cis-1,3-Dichloropropene	50.0	46.4		ug/Kg		93	68 - 125	0	30
Cyclohexane	50.0	52.2		ug/Kg		104	62 - 126	1	30
Dibromochloromethane	50.0	46.3		ug/Kg		93	65 - 131	1	30

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 400-237702/23-A
Matrix: Solid
Analysis Batch: 237692

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 237702

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dibromo-3-Chloropropane			50.0	46.1		ug/Kg		92	57 - 123	2	30
1,2-Dichlorobenzene			50.0	47.0		ug/Kg		94	76 - 120	4	30
1,3-Dichlorobenzene			50.0	46.7		ug/Kg		93	78 - 118	2	30
1,4-Dichlorobenzene			50.0	46.5		ug/Kg		93	77 - 118	1	30
Dichlorodifluoromethane			50.0	42.6		ug/Kg		85	44 - 145	5	30
1,1-Dichloroethane			50.0	47.7		ug/Kg		95	61 - 128	2	30
1,2-Dichloroethane			50.0	48.4		ug/Kg		97	70 - 125	4	30
1,1-Dichloroethene			50.0	47.0		ug/Kg		94	62 - 130	0	30
1,2-Dichloropropane			50.0	50.6		ug/Kg		101	64 - 129	1	30
Diisopropyl ether			50.0	46.8		ug/Kg		94	46 - 144	0	30
Ethylbenzene			50.0	48.5		ug/Kg		97	78 - 120	2	30
Ethylene Dibromide			50.0	46.6		ug/Kg		93	78 - 119	3	30
Ethyl tert-butyl ether			50.0	45.0		ug/Kg		90	60 - 128	1	30
2-Hexanone			200	209		ug/Kg		104	54 - 140	1	30
Isopropylbenzene			50.0	48.8		ug/Kg		98	78 - 119	2	30
Methyl acetate			250	299		ug/Kg		120	52 - 139	1	30
Methylcyclohexane			50.0	49.7		ug/Kg		99	65 - 126	1	30
Methylene Chloride			50.0	47.1		ug/Kg		94	45 - 150	3	30
Methyl Ethyl Ketone			200	214		ug/Kg		107	62 - 126	0	30
methyl isobutyl ketone			200	208		ug/Kg		104	56 - 137	0	30
Methyl tert-butyl ether			50.0	44.8		ug/Kg		90	69 - 124	0	30
Naphthalene			50.0	47.5		ug/Kg		95	64 - 126	2	30
Styrene			50.0	48.8		ug/Kg		98	66 - 132	1	30
Tert-amyl methyl ether			50.0	45.4		ug/Kg		91	65 - 124	0	30
tert-Butyl alcohol			500	463		ug/Kg		93	12 - 150	1	30
1,1,2,2-Tetrachloroethane			50.0	45.8		ug/Kg		92	67 - 120	0	30
Tetrachloroethene			50.0	47.4		ug/Kg		95	74 - 126	1	30
Toluene			50.0	47.0		ug/Kg		94	76 - 120	0	30
trans-1,2-Dichloroethene			50.0	48.2		ug/Kg		96	65 - 130	4	30
trans-1,3-Dichloropropene			50.0	42.4		ug/Kg		85	65 - 126	1	30
1,2,4-Trichlorobenzene			50.0	47.4		ug/Kg		95	72 - 126	5	30
1,1,1-Trichloroethane			50.0	46.7		ug/Kg		93	72 - 121	4	30
1,1,2-Trichloroethane			50.0	45.2		ug/Kg		90	75 - 118	3	30
Trichloroethene			50.0	50.5		ug/Kg		101	76 - 122	1	30
Trichlorofluoromethane			50.0	44.1		ug/Kg		88	65 - 132	8	30
1,1,2-Trichloro-1,2,2-trifluoroetha ne			50.0	47.5		ug/Kg		95	74 - 123	6	30
Vinyl chloride			50.0	56.0		ug/Kg		112	52 - 134	4	30
Xylenes, Total			100	94.8		ug/Kg		95	70 - 120	0	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene	*92*		*72 - 122*
Dibromofluoromethane	*99*		*79 - 123*
Toluene-d8 (Surr)	*96*		*80 - 120*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 400-237866/4
Matrix: Water
Analysis Batch: 237866

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	25	U	25	10	ug/L			11/25/14 08:08	1
Benzene	1.0	U	1.0	0.38	ug/L			11/25/14 08:08	1
Bromodichloromethane	1.0	U	1.0	0.50	ug/L			11/25/14 08:08	1
Bromoform	5.0	U	5.0	0.71	ug/L			11/25/14 08:08	1
Carbon disulfide	1.0	U	1.0	0.50	ug/L			11/25/14 08:08	1
Carbon tetrachloride	1.0	U	1.0	0.50	ug/L			11/25/14 08:08	1
Chlorobenzene	1.0	U	1.0	0.50	ug/L			11/25/14 08:08	1
Chloroethane	1.0	U	1.0	0.76	ug/L			11/25/14 08:08	1
Chloroform	1.0	U	1.0	0.60	ug/L			11/25/14 08:08	1
Chloromethane	1.0	U	1.0	0.83	ug/L			11/25/14 08:08	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.50	ug/L			11/25/14 08:08	1
cis-1,3-Dichloropropene	5.0	U	5.0	0.50	ug/L			11/25/14 08:08	1
Cyclohexane	1.0	U	1.0	0.50	ug/L			11/25/14 08:08	1
Dibromochloromethane	1.0	U	1.0	0.50	ug/L			11/25/14 08:08	1
1,2-Dibromo-3-Chloropropane	5.0	U	5.0	1.5	ug/L			11/25/14 08:08	1
1,2-Dichlorobenzene	1.0	U	1.0	0.50	ug/L			11/25/14 08:08	1
1,3-Dichlorobenzene	1.0	U	1.0	0.54	ug/L			11/25/14 08:08	1
1,4-Dichlorobenzene	1.0	U	1.0	0.64	ug/L			11/25/14 08:08	1
Dichlorodifluoromethane	1.0	U	1.0	0.85	ug/L			11/25/14 08:08	1
1,1-Dichloroethane	1.0	U	1.0	0.50	ug/L			11/25/14 08:08	1
1,2-Dichloroethane	1.0	U	1.0	0.50	ug/L			11/25/14 08:08	1
1,1-Dichloroethene	1.0	U	1.0	0.50	ug/L			11/25/14 08:08	1
1,2-Dichloropropane	1.0	U	1.0	0.50	ug/L			11/25/14 08:08	1
Diisopropyl ether	1.0	U	1.0	0.70	ug/L			11/25/14 08:08	1
Ethylbenzene	1.0	U	1.0	0.50	ug/L			11/25/14 08:08	1
Ethylene Dibromide	1.0	U	1.0	0.50	ug/L			11/25/14 08:08	1
Ethyl tert-butyl ether	1.0	U	1.0	0.68	ug/L			11/25/14 08:08	1
2-Hexanone	25	U	25	3.1	ug/L			11/25/14 08:08	1
Isopropylbenzene	1.0	U	1.0	0.53	ug/L			11/25/14 08:08	1
Methyl acetate	5.0	U	5.0	2.5	ug/L			11/25/14 08:08	1
Methylcyclohexane	1.0	U	1.0	0.50	ug/L			11/25/14 08:08	1
Methylene Chloride	5.0	U	5.0	3.0	ug/L			11/25/14 08:08	1
Methyl Ethyl Ketone	25	U	25	2.6	ug/L			11/25/14 08:08	1
methyl isobutyl ketone	25	U	25	1.8	ug/L			11/25/14 08:08	1
Methyl tert-butyl ether	1.0	U	1.0	0.74	ug/L			11/25/14 08:08	1
Naphthalene	1.0	U	1.0	1.0	ug/L			11/25/14 08:08	1
Styrene	1.0	U	1.0	1.0	ug/L			11/25/14 08:08	1
Tert-amyl methyl ether	1.0	U	1.0	0.60	ug/L			11/25/14 08:08	1
tert-Butyl alcohol	10	U	10	4.9	ug/L			11/25/14 08:08	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.50	ug/L			11/25/14 08:08	1
Tetrachloroethene	1.0	U	1.0	0.58	ug/L			11/25/14 08:08	1
Toluene	1.0	U	1.0	0.70	ug/L			11/25/14 08:08	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.50	ug/L			11/25/14 08:08	1
trans-1,3-Dichloropropene	5.0	U	5.0	0.50	ug/L			11/25/14 08:08	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.82	ug/L			11/25/14 08:08	1
1,1,1-Trichloroethane	1.0	U	1.0	0.50	ug/L			11/25/14 08:08	1
1,1,2-Trichloroethane	5.0	U	5.0	0.50	ug/L			11/25/14 08:08	1
Trichloroethene	1.0	U	1.0	0.50	ug/L			11/25/14 08:08	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 400-237866/4
Matrix: Water
Analysis Batch: 237866

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichlorofluoromethane	1.0	U	1.0	0.52	ug/L			11/25/14 08:08	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.50	ug/L			11/25/14 08:08	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			11/25/14 08:08	1
Xylenes, Total	5.0	U	5.0	0.60	ug/L			11/25/14 08:08	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*95*		*78 - 118*		*11/25/14 08:08*	*1*
Dibromofluoromethane	*100*		*81 - 121*		*11/25/14 08:08*	*1*
Toluene-d8 (Surr)	*103*		*80 - 120*		*11/25/14 08:08*	*1*

Lab Sample ID: LCS 400-237866/1002
Matrix: Water
Analysis Batch: 237866

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	200	160		ug/L		80	24 - 150
Benzene	50.0	45.1		ug/L		90	79 - 120
Bromodichloromethane	50.0	45.2		ug/L		90	75 - 127
Bromoform	50.0	50.0		ug/L		100	65 - 121
Carbon disulfide	50.0	46.4		ug/L		93	41 - 140
Carbon tetrachloride	50.0	45.7		ug/L		91	46 - 141
Chlorobenzene	50.0	51.6		ug/L		103	80 - 120
Chloroethane	50.0	47.7		ug/L		95	37 - 150
Chloroform	50.0	43.7		ug/L		87	73 - 122
Chloromethane	50.0	40.9		ug/L		82	49 - 141
cis-1,2-Dichloroethene	50.0	45.1		ug/L		90	78 - 122
cis-1,3-Dichloropropene	50.0	44.1		ug/L		88	70 - 122
Cyclohexane	50.0	46.0		ug/L		92	69 - 123
Dibromochloromethane	50.0	52.6		ug/L		105	63 - 125
1,2-Dibromo-3-Chloropropane	50.0	54.8		ug/L		110	52 - 124
1,2-Dichlorobenzene	50.0	52.9		ug/L		106	80 - 121
1,3-Dichlorobenzene	50.0	52.5		ug/L		105	77 - 124
1,4-Dichlorobenzene	50.0	53.7		ug/L		107	79 - 120
Dichlorodifluoromethane	50.0	42.3		ug/L		85	27 - 144
1,1-Dichloroethane	50.0	46.2		ug/L		92	75 - 126
1,2-Dichloroethane	50.0	47.8		ug/L		96	69 - 128
1,1-Dichloroethene	50.0	46.8		ug/L		94	50 - 134
1,2-Dichloropropane	50.0	45.2		ug/L		90	77 - 126
Diisopropyl ether	50.0	45.0		ug/L		90	69 - 143
Ethylbenzene	50.0	51.2		ug/L		102	80 - 120
Ethylene Dibromide	50.0	51.1		ug/L		102	80 - 120
Ethyl tert-butyl ether	50.0	40.4		ug/L		81	58 - 142
2-Hexanone	200	197		ug/L		99	60 - 150
Isopropylbenzene	50.0	49.4		ug/L		99	76 - 120
Methyl acetate	250	251		ug/L		101	58 - 150
Methylcyclohexane	50.0	45.3		ug/L		91	72 - 121
Methylene Chloride	50.0	45.6		ug/L		91	70 - 130
Methyl Ethyl Ketone	200	178		ug/L		89	62 - 137

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 400-237866/1002
Matrix: Water
Analysis Batch: 237866

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
methyl isobutyl ketone	200	177		ug/L		88	63 - 150
Methyl tert-butyl ether	50.0	44.2		ug/L		88	70 - 124
Naphthalene	50.0	54.8		ug/L		110	45 - 131
Styrene	50.0	50.2		ug/L		100	79 - 124
Tert-amyl methyl ether	50.0	41.7		ug/L		83	65 - 125
tert-Butyl alcohol	500	397		ug/L		79	44 - 150
1,1,2,2-Tetrachloroethane	50.0	55.2		ug/L		110	68 - 132
Tetrachloroethene	50.0	47.9		ug/L		96	76 - 124
Toluene	50.0	50.3		ug/L		101	80 - 120
trans-1,2-Dichloroethene	50.0	45.9		ug/L		92	70 - 126
trans-1,3-Dichloropropene	50.0	47.5		ug/L		95	64 - 120
1,2,4-Trichlorobenzene	50.0	50.1		ug/L		100	69 - 128
1,1,1-Trichloroethane	50.0	45.2		ug/L		90	66 - 130
1,1,2-Trichloroethane	50.0	51.2		ug/L		102	80 - 120
Trichloroethene	50.0	45.1		ug/L		90	77 - 120
Trichlorofluoromethane	50.0	51.1		ug/L		102	26 - 150
1,1,2-Trichloro-1,2,2-trifluoroethane	50.0	49.1		ug/L		98	45 - 138
Vinyl chloride	50.0	47.4		ug/L		95	60 - 128
Xylenes, Total	100	100		ug/L		100	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene	*103*		*78 - 118*
Dibromofluoromethane	*98*		*81 - 121*
Toluene-d8 (Surr)	*105*		*80 - 120*

Lab Sample ID: MB 400-238370/1-A
Matrix: Solid
Analysis Batch: 238333

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 238370

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	25	U	25	7.3	ug/Kg		12/01/14 09:24	12/01/14 11:01	1
Benzene	5.0	U	5.0	1.1	ug/Kg		12/01/14 09:24	12/01/14 11:01	1
Bromodichloromethane	5.0	U	5.0	2.5	ug/Kg		12/01/14 09:24	12/01/14 11:01	1
Bromoform	5.0	U	5.0	2.5	ug/Kg		12/01/14 09:24	12/01/14 11:01	1
Bromomethane	5.0	U	5.0	2.5	ug/Kg		12/01/14 09:24	12/01/14 11:01	1
Carbon disulfide	5.0	U	5.0	2.5	ug/Kg		12/01/14 09:24	12/01/14 11:01	1
Carbon tetrachloride	5.0	U	5.0	1.7	ug/Kg		12/01/14 09:24	12/01/14 11:01	1
Chlorobenzene	5.0	U	5.0	0.52	ug/Kg		12/01/14 09:24	12/01/14 11:01	1
Chloroethane	5.0	U	5.0	2.5	ug/Kg		12/01/14 09:24	12/01/14 11:01	1
Chloroform	5.0	U	5.0	2.5	ug/Kg		12/01/14 09:24	12/01/14 11:01	1
Chloromethane	5.0	U	5.0	1.0	ug/Kg		12/01/14 09:24	12/01/14 11:01	1
cis-1,2-Dichloroethene	5.0	U	5.0	0.76	ug/Kg		12/01/14 09:24	12/01/14 11:01	1
cis-1,3-Dichloropropene	5.0	U	5.0	1.2	ug/Kg		12/01/14 09:24	12/01/14 11:01	1
Cyclohexane	5.0	U	5.0	0.94	ug/Kg		12/01/14 09:24	12/01/14 11:01	1
Dibromochloromethane	5.0	U	5.0	2.5	ug/Kg		12/01/14 09:24	12/01/14 11:01	1
1,2-Dibromo-3-Chloropropane	5.0	U	5.0	3.3	ug/Kg		12/01/14 09:24	12/01/14 11:01	1
1,2-Dichlorobenzene	5.0	U	5.0	0.71	ug/Kg		12/01/14 09:24	12/01/14 11:01	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 400-238370/1-A
Matrix: Solid
Analysis Batch: 238333

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 238370

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	5.0	U	5.0	0.95	ug/Kg		12/01/14 09:24	12/01/14 11:01	1
1,4-Dichlorobenzene	5.0	U	5.0	2.5	ug/Kg		12/01/14 09:24	12/01/14 11:01	1
Dichlorodifluoromethane	5.0	U	5.0	1.3	ug/Kg		12/01/14 09:24	12/01/14 11:01	1
1,1-Dichloroethane	5.0	U	5.0	0.83	ug/Kg		12/01/14 09:24	12/01/14 11:01	1
1,2-Dichloroethane	5.0	U	5.0	0.82	ug/Kg		12/01/14 09:24	12/01/14 11:01	1
1,1-Dichloroethene	5.0	U	5.0	2.5	ug/Kg		12/01/14 09:24	12/01/14 11:01	1
1,2-Dichloropropane	5.0	U	5.0	2.5	ug/Kg		12/01/14 09:24	12/01/14 11:01	1
Diisopropyl ether	5.0	U	5.0	0.55	ug/Kg		12/01/14 09:24	12/01/14 11:01	1
Ethylbenzene	5.0	U	5.0	0.61	ug/Kg		12/01/14 09:24	12/01/14 11:01	1
Ethylene Dibromide	5.0	U	5.0	1.0	ug/Kg		12/01/14 09:24	12/01/14 11:01	1
Ethyl tert-butyl ether	5.0	U	5.0	2.5	ug/Kg		12/01/14 09:24	12/01/14 11:01	1
2-Hexanone	25	U	25	5.0	ug/Kg		12/01/14 09:24	12/01/14 11:01	1
Isopropylbenzene	5.0	U	5.0	0.68	ug/Kg		12/01/14 09:24	12/01/14 11:01	1
Methyl acetate	5.0	U	5.0	4.6	ug/Kg		12/01/14 09:24	12/01/14 11:01	1
Methylcyclohexane	5.0	U	5.0	1.5	ug/Kg		12/01/14 09:24	12/01/14 11:01	1
Methylene Chloride	15	U	15	10	ug/Kg		12/01/14 09:24	12/01/14 11:01	1
Methyl Ethyl Ketone	25	U	25	6.0	ug/Kg		12/01/14 09:24	12/01/14 11:01	1
methyl isobutyl ketone	25	U	25	5.0	ug/Kg		12/01/14 09:24	12/01/14 11:01	1
Methyl tert-butyl ether	5.0	U	5.0	1.0	ug/Kg		12/01/14 09:24	12/01/14 11:01	1
Naphthalene	5.0	U	5.0	2.0	ug/Kg		12/01/14 09:24	12/01/14 11:01	1
Styrene	5.0	U	5.0	1.0	ug/Kg		12/01/14 09:24	12/01/14 11:01	1
Tert-amyl methyl ether	5.0	U	5.0	1.0	ug/Kg		12/01/14 09:24	12/01/14 11:01	1
tert-Butyl alcohol	10	U	10	8.0	ug/Kg		12/01/14 09:24	12/01/14 11:01	1
1,1,2,2-Tetrachloroethane	5.0	U	5.0	2.5	ug/Kg		12/01/14 09:24	12/01/14 11:01	1
Tetrachloroethene	5.0	U	5.0	2.5	ug/Kg		12/01/14 09:24	12/01/14 11:01	1
Toluene	5.0	U	5.0	1.0	ug/Kg		12/01/14 09:24	12/01/14 11:01	1
trans-1,2-Dichloroethene	5.0	U	5.0	2.5	ug/Kg		12/01/14 09:24	12/01/14 11:01	1
trans-1,3-Dichloropropene	5.0	U	5.0	2.5	ug/Kg		12/01/14 09:24	12/01/14 11:01	1
1,2,4-Trichlorobenzene	5.0	U	5.0	2.0	ug/Kg		12/01/14 09:24	12/01/14 11:01	1
1,1,1-Trichloroethane	5.0	U	5.0	1.1	ug/Kg		12/01/14 09:24	12/01/14 11:01	1
1,1,2-Trichloroethane	5.0	U	5.0	2.5	ug/Kg		12/01/14 09:24	12/01/14 11:01	1
Trichloroethene	5.0	U	5.0	1.0	ug/Kg		12/01/14 09:24	12/01/14 11:01	1
Trichlorofluoromethane	5.0	U	5.0	2.5	ug/Kg		12/01/14 09:24	12/01/14 11:01	1
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	2.0	ug/Kg		12/01/14 09:24	12/01/14 11:01	1
Vinyl chloride	5.0	U	5.0	2.5	ug/Kg		12/01/14 09:24	12/01/14 11:01	1
Xylenes, Total	5.0	U	5.0	1.9	ug/Kg		12/01/14 09:24	12/01/14 11:01	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*100*		*72 - 122*	*12/01/14 09:24*	*12/01/14 11:01*	*1*
Dibromofluoromethane	*102*		*79 - 123*	*12/01/14 09:24*	*12/01/14 11:01*	*1*
Toluene-d8 (Surr)	*102*		*80 - 120*	*12/01/14 09:24*	*12/01/14 11:01*	*1*

Lab Sample ID: LCS 400-238370/2-A
Matrix: Solid
Analysis Batch: 238333

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 238370

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	200	177		ug/Kg		89	43 - 150

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 400-238370/2-A
Matrix: Solid
Analysis Batch: 238333

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 238370

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	50.0	41.7		ug/Kg		83	74 - 119
Bromodichloromethane	50.0	41.8		ug/Kg		84	68 - 128
Bromoform	50.0	45.0		ug/Kg		90	54 - 125
Bromomethane	50.0	67.8		ug/Kg		136	25 - 150
Carbon disulfide	50.0	41.8		ug/Kg		84	26 - 150
Carbon tetrachloride	50.0	43.2		ug/Kg		86	70 - 128
Chlorobenzene	50.0	41.3		ug/Kg		83	80 - 116
Chloroethane	50.0	47.9		ug/Kg		96	22 - 150
Chloroform	50.0	41.4		ug/Kg		83	74 - 119
Chloromethane	50.0	46.7		ug/Kg		93	36 - 147
cis-1,2-Dichloroethene	50.0	41.6		ug/Kg		83	68 - 126
cis-1,3-Dichloropropene	50.0	43.3		ug/Kg		87	68 - 125
Cyclohexane	50.0	43.2		ug/Kg		86	62 - 126
Dibromochloromethane	50.0	42.1		ug/Kg		84	65 - 131
1,2-Dibromo-3-Chloropropane	50.0	45.3		ug/Kg		91	57 - 123
1,2-Dichlorobenzene	50.0	40.6		ug/Kg		81	76 - 120
1,3-Dichlorobenzene	50.0	40.7		ug/Kg		81	78 - 118
1,4-Dichlorobenzene	50.0	41.0		ug/Kg		82	77 - 118
Dichlorodifluoromethane	50.0	47.2		ug/Kg		94	44 - 145
1,1-Dichloroethane	50.0	40.2		ug/Kg		80	61 - 128
1,2-Dichloroethane	50.0	43.1		ug/Kg		86	70 - 125
1,1-Dichloroethene	50.0	41.0		ug/Kg		82	62 - 130
1,2-Dichloropropane	50.0	40.6		ug/Kg		81	64 - 129
Diisopropyl ether	50.0	41.0		ug/Kg		82	46 - 144
Ethylbenzene	50.0	44.0		ug/Kg		88	78 - 120
Ethylene Dibromide	50.0	40.8		ug/Kg		82	78 - 119
Ethyl tert-butyl ether	50.0	40.8		ug/Kg		82	60 - 128
2-Hexanone	200	187		ug/Kg		93	54 - 140
Isopropylbenzene	50.0	44.7		ug/Kg		89	78 - 119
Methyl acetate	250	222		ug/Kg		89	52 - 139
Methylcyclohexane	50.0	44.1		ug/Kg		88	65 - 126
Methylene Chloride	50.0	38.8		ug/Kg		78	45 - 150
Methyl Ethyl Ketone	200	175		ug/Kg		88	62 - 126
methyl isobutyl ketone	200	178		ug/Kg		89	56 - 137
Methyl tert-butyl ether	50.0	41.1		ug/Kg		82	69 - 124
Naphthalene	50.0	44.4		ug/Kg		89	64 - 126
Styrene	50.0	44.6		ug/Kg		89	66 - 132
Tert-amyl methyl ether	50.0	40.7		ug/Kg		81	65 - 124
tert-Butyl alcohol	500	438		ug/Kg		88	12 - 150
1,1,2,2-Tetrachloroethane	50.0	42.5		ug/Kg		85	67 - 120
Tetrachloroethene	50.0	42.3		ug/Kg		85	74 - 126
Toluene	50.0	42.5		ug/Kg		85	76 - 120
trans-1,2-Dichloroethene	50.0	41.7		ug/Kg		83	65 - 130
trans-1,3-Dichloropropene	50.0	37.8		ug/Kg		76	65 - 126
1,2,4-Trichlorobenzene	50.0	41.9		ug/Kg		84	72 - 126
1,1,1-Trichloroethane	50.0	43.1		ug/Kg		86	72 - 121
1,1,2-Trichloroethane	50.0	43.2		ug/Kg		86	75 - 118
Trichloroethene	50.0	40.6		ug/Kg		81	76 - 122

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 400-238370/2-A
Matrix: Solid
Analysis Batch: 238333

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 238370

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Trichlorofluoromethane	50.0	47.6		ug/Kg		95	65 - 132
1,1,2-Trichloro-1,2,2-trifluoroethane	50.0	44.1		ug/Kg		88	74 - 123
Vinyl chloride	50.0	48.4		ug/Kg		97	52 - 134
Xylenes, Total	100	85.9		ug/Kg		86	70 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene	*105*		*72 - 122*
Dibromofluoromethane	*97*		*79 - 123*
Toluene-d8 (Surr)	*102*		*80 - 120*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 680-359760/21-A
Matrix: Solid
Analysis Batch: 360199

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 359760

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzaldehyde	330	U	330	58	ug/Kg		11/20/14 17:27	11/24/14 13:37	1
Phenol	330	U	330	34	ug/Kg		11/20/14 17:27	11/24/14 13:37	1
Bis(2-chloroethyl)ether	330	U	330	45	ug/Kg		11/20/14 17:27	11/24/14 13:37	1
2-Chlorophenol	330	U	330	40	ug/Kg		11/20/14 17:27	11/24/14 13:37	1
2-Methylphenol	330	U	330	27	ug/Kg		11/20/14 17:27	11/24/14 13:37	1
bis (2-chloroisopropyl) ether	330	U	330	30	ug/Kg		11/20/14 17:27	11/24/14 13:37	1
Acetophenone	330	U	330	28	ug/Kg		11/20/14 17:27	11/24/14 13:37	1
3 & 4 Methylphenol	330	U	330	43	ug/Kg		11/20/14 17:27	11/24/14 13:37	1
N-Nitrosodi-n-propylamine	330	U	330	32	ug/Kg		11/20/14 17:27	11/24/14 13:37	1
Hexachloroethane	330	U	330	28	ug/Kg		11/20/14 17:27	11/24/14 13:37	1
Nitrobenzene	330	U	330	26	ug/Kg		11/20/14 17:27	11/24/14 13:37	1
Isophorone	330	U	330	33	ug/Kg		11/20/14 17:27	11/24/14 13:37	1
2-Nitrophenol	330	U	330	41	ug/Kg		11/20/14 17:27	11/24/14 13:37	1
2,4-Dimethylphenol	330	U	330	44	ug/Kg		11/20/14 17:27	11/24/14 13:37	1
Bis(2-chloroethoxy)methane	330	U	330	39	ug/Kg		11/20/14 17:27	11/24/14 13:37	1
2,4-Dichlorophenol	330	U	330	35	ug/Kg		11/20/14 17:27	11/24/14 13:37	1
Naphthalene	330	U	330	30	ug/Kg		11/20/14 17:27	11/24/14 13:37	1
4-Chloroaniline	660	U	660	52	ug/Kg		11/20/14 17:27	11/24/14 13:37	1
Hexachlorobutadiene	330	U	330	36	ug/Kg		11/20/14 17:27	11/24/14 13:37	1
Caprolactam	330	U	330	66	ug/Kg		11/20/14 17:27	11/24/14 13:37	1
4-Chloro-3-methylphenol	330	U	330	35	ug/Kg		11/20/14 17:27	11/24/14 13:37	1
2-Methylnaphthalene	330	U	330	38	ug/Kg		11/20/14 17:27	11/24/14 13:37	1
Hexachlorocyclopentadiene	330	U	330	41	ug/Kg		11/20/14 17:27	11/24/14 13:37	1
2,4,6-Trichlorophenol	330	U	330	29	ug/Kg		11/20/14 17:27	11/24/14 13:37	1
2,4,5-Trichlorophenol	330	U	330	35	ug/Kg		11/20/14 17:27	11/24/14 13:37	1
1,1'-Biphenyl	1700	U	1700	1700	ug/Kg		11/20/14 17:27	11/24/14 13:37	1
2-Chloronaphthalene	330	U	330	35	ug/Kg		11/20/14 17:27	11/24/14 13:37	1
2-Nitroaniline	1700	U	1700	45	ug/Kg		11/20/14 17:27	11/24/14 13:37	1
Dimethyl phthalate	330	U	330	34	ug/Kg		11/20/14 17:27	11/24/14 13:37	1
2,6-Dinitrotoluene	330	U	330	42	ug/Kg		11/20/14 17:27	11/24/14 13:37	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 680-359760/21-A
Matrix: Solid
Analysis Batch: 360199

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 359760

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthylene	330	U	330	36	ug/Kg		11/20/14 17:27	11/24/14 13:37	1
3-Nitroaniline	1700	U	1700	46	ug/Kg		11/20/14 17:27	11/24/14 13:37	1
Acenaphthene	330	U	330	41	ug/Kg		11/20/14 17:27	11/24/14 13:37	1
2,4-Dinitrophenol	1700	U	1700	830	ug/Kg		11/20/14 17:27	11/24/14 13:37	1
4-Nitrophenol	1700	U	1700	330	ug/Kg		11/20/14 17:27	11/24/14 13:37	1
Dibenzofuran	330	U	330	33	ug/Kg		11/20/14 17:27	11/24/14 13:37	1
2,4-Dinitrotoluene	330	U	330	49	ug/Kg		11/20/14 17:27	11/24/14 13:37	1
Diethyl phthalate	330	U	330	37	ug/Kg		11/20/14 17:27	11/24/14 13:37	1
Fluorene	330	U	330	36	ug/Kg		11/20/14 17:27	11/24/14 13:37	1
4-Chlorophenyl phenyl ether	330	U	330	44	ug/Kg		11/20/14 17:27	11/24/14 13:37	1
4-Nitroaniline	1700	U	1700	49	ug/Kg		11/20/14 17:27	11/24/14 13:37	1
4,6-Dinitro-2-methylphenol	1700	U	1700	170	ug/Kg		11/20/14 17:27	11/24/14 13:37	1
N-Nitrosodiphenylamine	330	U	330	33	ug/Kg		11/20/14 17:27	11/24/14 13:37	1
4-Bromophenyl phenyl ether	330	U	330	36	ug/Kg		11/20/14 17:27	11/24/14 13:37	1
Hexachlorobenzene	330	U	330	39	ug/Kg		11/20/14 17:27	11/24/14 13:37	1
Atrazine	330	U	330	23	ug/Kg		11/20/14 17:27	11/24/14 13:37	1
Pentachlorophenol	1700	U	1700	330	ug/Kg		11/20/14 17:27	11/24/14 13:37	1
Phenanthrene	330	U	330	27	ug/Kg		11/20/14 17:27	11/24/14 13:37	1
Anthracene	330	U	330	25	ug/Kg		11/20/14 17:27	11/24/14 13:37	1
Carbazole	330	U	330	30	ug/Kg		11/20/14 17:27	11/24/14 13:37	1
Di-n-butyl phthalate	330	U	330	30	ug/Kg		11/20/14 17:27	11/24/14 13:37	1
Fluoranthene	330	U	330	32	ug/Kg		11/20/14 17:27	11/24/14 13:37	1
Pyrene	330	U	330	27	ug/Kg		11/20/14 17:27	11/24/14 13:37	1
Butyl benzyl phthalate	330	U	330	26	ug/Kg		11/20/14 17:27	11/24/14 13:37	1
3,3'-Dichlorobenzidine	660	U	660	28	ug/Kg		11/20/14 17:27	11/24/14 13:37	1
Benzo[a]anthracene	330	U	330	27	ug/Kg		11/20/14 17:27	11/24/14 13:37	1
Chrysene	330	U	330	21	ug/Kg		11/20/14 17:27	11/24/14 13:37	1
Bis(2-ethylhexyl) phthalate	330	U	330	29	ug/Kg		11/20/14 17:27	11/24/14 13:37	1
Di-n-octyl phthalate	330	U	330	29	ug/Kg		11/20/14 17:27	11/24/14 13:37	1
Benzo[b]fluoranthene	330	U	330	38	ug/Kg		11/20/14 17:27	11/24/14 13:37	1
Benzo[k]fluoranthene	330	U	330	65	ug/Kg		11/20/14 17:27	11/24/14 13:37	1
Benzo[a]pyrene	330	U	330	52	ug/Kg		11/20/14 17:27	11/24/14 13:37	1
Indeno[1,2,3-cd]pyrene	330	U	330	28	ug/Kg		11/20/14 17:27	11/24/14 13:37	1
Dibenz(a,h)anthracene	330	U	330	39	ug/Kg		11/20/14 17:27	11/24/14 13:37	1
Benzo[g,h,i]perylene	330	U	330	22	ug/Kg		11/20/14 17:27	11/24/14 13:37	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*78*		*37 - 115*	*11/20/14 17:27*	*11/24/14 13:37*	*1*
2-Fluorobiphenyl	*82*		*41 - 116*	*11/20/14 17:27*	*11/24/14 13:37*	*1*
Terphenyl-d14 (Surr)	*90*		*46 - 126*	*11/20/14 17:27*	*11/24/14 13:37*	*1*
Phenol-d5 (Surr)	*78*		*38 - 122*	*11/20/14 17:27*	*11/24/14 13:37*	*1*
2-Fluorophenol (Surr)	*79*		*39 - 114*	*11/20/14 17:27*	*11/24/14 13:37*	*1*
2,4,6-Tribromophenol (Surr)	*90*		*45 - 129*	*11/20/14 17:27*	*11/24/14 13:37*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 680-359760/22-A
Matrix: Solid
Analysis Batch: 360199

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 359760

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzaldehyde	3310	1330		ug/Kg		40	10 - 130
Phenol	3310	2680		ug/Kg		81	47 - 130
Bis(2-chloroethyl)ether	3310	2420		ug/Kg		73	37 - 130
2-Chlorophenol	3310	2610		ug/Kg		79	47 - 130
2-Methylphenol	3310	2650		ug/Kg		80	46 - 130
bis (2-chloroisopropyl) ether	3310	2260		ug/Kg		68	38 - 130
Acetophenone	3310	2570		ug/Kg		78	44 - 130
3 & 4 Methylphenol	3310	2700		ug/Kg		82	46 - 130
N-Nitrosodi-n-propylamine	3310	2450		ug/Kg		74	38 - 130
Hexachloroethane	3310	2360		ug/Kg		71	42 - 130
Nitrobenzene	3310	2630		ug/Kg		80	45 - 130
Isophorone	3310	2710		ug/Kg		82	48 - 130
2-Nitrophenol	3310	2800		ug/Kg		85	43 - 130
2,4-Dimethylphenol	3310	2700		ug/Kg		82	43 - 130
Bis(2-chloroethoxy)methane	3310	2650		ug/Kg		80	47 - 130
2,4-Dichlorophenol	3310	2930		ug/Kg		89	48 - 130
Naphthalene	3310	2660		ug/Kg		80	47 - 130
4-Chloroaniline	3310	2200		ug/Kg		66	10 - 130
Hexachlorobutadiene	3310	2680		ug/Kg		81	48 - 130
Caprolactam	3310	2990		ug/Kg		90	44 - 130
4-Chloro-3-methylphenol	3310	3000		ug/Kg		91	51 - 130
2-Methylnaphthalene	3310	2790		ug/Kg		84	48 - 130
Hexachlorocyclopentadiene	3310	2540		ug/Kg		77	28 - 130
2,4,6-Trichlorophenol	3310	2970		ug/Kg		90	50 - 130
2,4,5-Trichlorophenol	3310	2980		ug/Kg		90	51 - 130
1,1'-Biphenyl	3310	2710		ug/Kg		82	48 - 130
2-Chloronaphthalene	3310	2760		ug/Kg		83	48 - 130
2-Nitroaniline	3310	2970		ug/Kg		90	44 - 130
Dimethyl phthalate	3310	2990		ug/Kg		90	50 - 130
2,6-Dinitrotoluene	3310	3120		ug/Kg		94	49 - 130
Acenaphthylene	3310	2840		ug/Kg		86	45 - 130
3-Nitroaniline	3310	2800		ug/Kg		84	21 - 130
Acenaphthene	3310	2790		ug/Kg		84	47 - 130
2,4-Dinitrophenol	6620	4020		ug/Kg		61	10 - 130
4-Nitrophenol	6620	6520		ug/Kg		98	40 - 130
Dibenzofuran	3310	2920		ug/Kg		88	49 - 130
2,4-Dinitrotoluene	3310	3260		ug/Kg		98	49 - 111
Diethyl phthalate	3310	3080		ug/Kg		93	49 - 130
Fluorene	3310	3030		ug/Kg		92	52 - 130
4-Chlorophenyl phenyl ether	3310	3000		ug/Kg		91	49 - 130
4-Nitroaniline	3310	3090		ug/Kg		94	41 - 130
4,6-Dinitro-2-methylphenol	6620	5300		ug/Kg		80	23 - 130
N-Nitrosodiphenylamine	3310	2740		ug/Kg		83	50 - 130
4-Bromophenyl phenyl ether	3310	2910		ug/Kg		88	53 - 130
Hexachlorobenzene	3310	2880		ug/Kg		87	53 - 130
Atrazine	3310	2970		ug/Kg		90	47 - 130
Pentachlorophenol	6620	5950		ug/Kg		90	41 - 130
Phenanthrene	3310	2860		ug/Kg		86	52 - 130

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 680-359760/22-A
Matrix: Solid
Analysis Batch: 360199

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 359760

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Anthracene	3310	2920		ug/Kg		88	50 - 130
Carbazole	3310	2950		ug/Kg		89	51 - 130
Di-n-butyl phthalate	3310	3000		ug/Kg		91	52 - 130
Fluoranthene	3310	3110		ug/Kg		94	51 - 130
Pyrene	3310	2850		ug/Kg		86	50 - 130
Butyl benzyl phthalate	3310	3000		ug/Kg		91	53 - 134
3,3'-Dichlorobenzidine	3310	2400		ug/Kg		72	16 - 130
Benzo[a]anthracene	3310	2920		ug/Kg		88	50 - 130
Chrysene	3310	2900		ug/Kg		88	47 - 130
Bis(2-ethylhexyl) phthalate	3310	2950		ug/Kg		89	48 - 130
Di-n-octyl phthalate	3310	2950		ug/Kg		89	46 - 130
Benzo[b]fluoranthene	3310	2800		ug/Kg		85	48 - 130
Benzo[k]fluoranthene	3310	3090		ug/Kg		93	48 - 108
Benzo[a]pyrene	3310	2970		ug/Kg		90	47 - 131
Indeno[1,2,3-cd]pyrene	3310	3320		ug/Kg		100	41 - 130
Dibenz(a,h)anthracene	3310	3110		ug/Kg		94	44 - 130
Benzo[g,h,i]perylene	3310	3120		ug/Kg		94	42 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Nitrobenzene-d5 (Surr)	*79*		*37 - 115*
2-Fluorobiphenyl	*83*		*41 - 116*
Terphenyl-d14 (Surr)	*88*		*46 - 126*
Phenol-d5 (Surr)	*79*		*38 - 122*
2-Fluorophenol (Surr)	*79*		*39 - 114*
2,4,6-Tribromophenol (Surr)	*105*		*45 - 129*

Lab Sample ID: 680-107453-20 MS
Matrix: Solid
Analysis Batch: 360199

Client Sample ID: GP-89(15.5-16.5)(111914)
Prep Type: Total/NA
Prep Batch: 359760

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzaldehyde	390	U	3940	3340		ug/Kg	☼	85	10 - 130
Phenol	390	U	3940	2820		ug/Kg	☼	72	46 - 130
Bis(2-chloroethyl)ether	390	U	3940	1050	F1	ug/Kg	☼	27	42 - 130
2-Chlorophenol	390	U	3940	2840		ug/Kg	☼	72	51 - 130
2-Methylphenol	390	U	3940	2380		ug/Kg	☼	60	49 - 130
bis (2-chloroisopropyl) ether	390	U	3940	2510		ug/Kg	☼	64	44 - 130
Acetophenone	390	U	3940	2890		ug/Kg	☼	73	42 - 130
3 & 4 Methylphenol	390	U	3940	2650		ug/Kg	☼	67	50 - 130
N-Nitrosodi-n-propylamine	390	U	3940	2780		ug/Kg	☼	71	48 - 130
Hexachloroethane	390	U	3940	2570		ug/Kg	☼	65	44 - 130
Nitrobenzene	390	U	3940	2890		ug/Kg	☼	73	43 - 130
Isophorone	390	U	3940	2950		ug/Kg	☼	75	48 - 130
2-Nitrophenol	390	U	3940	3120		ug/Kg	☼	79	45 - 130
2,4-Dimethylphenol	390	U	3940	1350	F1	ug/Kg	☼	34	47 - 130
Bis(2-chloroethoxy)methane	390	U	3940	2950		ug/Kg	☼	75	56 - 130
2,4-Dichlorophenol	390	U	3940	3120		ug/Kg	☼	79	53 - 130
Naphthalene	390	U	3940	2940		ug/Kg	☼	75	54 - 130

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 680-107453-20 MS
Matrix: Solid
Analysis Batch: 360199

Client Sample ID: GP-89(15.5-16.5)(111914)
Prep Type: Total/NA
Prep Batch: 359760

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
4-Chloroaniline	780	U	3940	870	F1	ug/Kg	☼	22	36 - 130
Hexachlorobutadiene	390	U	3940	2900		ug/Kg	☼	74	47 - 130
Caprolactam	390	U	3940	2990		ug/Kg	☼	76	52 - 130
4-Chloro-3-methylphenol	390	U	3940	3070		ug/Kg	☼	78	52 - 130
2-Methylnaphthalene	390	U	3940	3010		ug/Kg	☼	76	55 - 130
Hexachlorocyclopentadiene	390	U	3940	2660		ug/Kg	☼	68	35 - 130
2,4,6-Trichlorophenol	390	U	3940	3100		ug/Kg	☼	79	53 - 130
2,4,5-Trichlorophenol	390	U	3940	3320		ug/Kg	☼	84	60 - 130
1,1'-Biphenyl	2000	U	3940	3050		ug/Kg	☼	78	57 - 130
2-Chloronaphthalene	390	U	3940	3090		ug/Kg	☼	79	55 - 130
2-Nitroaniline	2000	U	3940	3300		ug/Kg	☼	84	52 - 130
Dimethyl phthalate	390	U	3940	3240		ug/Kg	☼	82	63 - 130
2,6-Dinitrotoluene	390	U	3940	3300		ug/Kg	☼	84	57 - 130
Acenaphthylene	390	U	3940	3110		ug/Kg	☼	79	58 - 130
3-Nitroaniline	2000	U	3940	1510	J F1	ug/Kg	☼	38	42 - 130
Acenaphthene	390	U	3940	2760		ug/Kg	☼	70	58 - 130
2,4-Dinitrophenol	2000	U	7870	5500		ug/Kg	☼	70	10 - 154
4-Nitrophenol	2000	U	7870	6600		ug/Kg	☼	84	30 - 130
Dibenzofuran	390	U	3940	3190		ug/Kg	☼	81	56 - 130
2,4-Dinitrotoluene	390	U	3940	3360		ug/Kg	☼	85	55 - 130
Diethyl phthalate	390	U	3940	3240		ug/Kg	☼	82	62 - 130
Fluorene	390	U	3940	3220		ug/Kg	☼	82	58 - 130
4-Chlorophenyl phenyl ether	390	U	3940	3260		ug/Kg	☼	83	61 - 130
4-Nitroaniline	2000	U	3940	2840		ug/Kg	☼	72	49 - 130
4,6-Dinitro-2-methylphenol	2000	U	7870	6370		ug/Kg	☼	81	14 - 137
N-Nitrosodiphenylamine	390	U	3940	2870		ug/Kg	☼	73	62 - 130
4-Bromophenyl phenyl ether	390	U	3940	3380		ug/Kg	☼	86	65 - 130
Hexachlorobenzene	390	U	3940	3180		ug/Kg	☼	81	59 - 130
Atrazine	390	U	3940	3360		ug/Kg	☼	85	54 - 141
Pentachlorophenol	2000	U	7870	6280		ug/Kg	☼	80	38 - 131
Phenanthrene	390	U	3940	3200		ug/Kg	☼	81	61 - 130
Anthracene	390	U	3940	3200		ug/Kg	☼	81	60 - 130
Carbazole	390	U	3940	3120		ug/Kg	☼	79	60 - 130
Di-n-butyl phthalate	390	U	3940	3350		ug/Kg	☼	85	65 - 130
Fluoranthene	390	U	3940	3370		ug/Kg	☼	86	62 - 130
Pyrene	390	U	3940	3160		ug/Kg	☼	80	59 - 130
Butyl benzyl phthalate	390	U	3940	3340		ug/Kg	☼	85	65 - 134
3,3'-Dichlorobenzidine	780	U	3940	710	J F1	ug/Kg	☼	18	45 - 130
Benzo[a]anthracene	390	U	3940	3250		ug/Kg	☼	83	62 - 130
Chrysene	390	U	3940	3250		ug/Kg	☼	82	62 - 130
Bis(2-ethylhexyl) phthalate	390	U	3940	3290		ug/Kg	☼	84	62 - 132
Di-n-octyl phthalate	390	U	3940	3290		ug/Kg	☼	84	59 - 146
Benzo[b]fluoranthene	390	U	3940	3290		ug/Kg	☼	84	53 - 130
Benzo[k]fluoranthene	390	U	3940	3260		ug/Kg	☼	83	57 - 130
Benzo[a]pyrene	390	U	3940	3250		ug/Kg	☼	83	68 - 131
Indeno[1,2,3-cd]pyrene	390	U	3940	3640		ug/Kg	☼	92	52 - 130
Dibenz(a,h)anthracene	390	U	3940	3390		ug/Kg	☼	86	56 - 130
Benzo[g,h,i]perylene	390	U	3940	3380		ug/Kg	☼	86	54 - 130

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 680-107453-20 MS
Matrix: Solid
Analysis Batch: 360199

Client Sample ID: GP-89(15.5-16.5)(111914)
Prep Type: Total/NA
Prep Batch: 359760

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Nitrobenzene-d5 (Surr)	*73*		*37 - 115*
2-Fluorobiphenyl	*80*		*41 - 116*
Terphenyl-d14 (Surr)	*83*		*46 - 126*
Phenol-d5 (Surr)	*75*		*38 - 122*
2-Fluorophenol (Surr)	*67*		*39 - 114*
2,4,6-Tribromophenol (Surr)	*78*		*45 - 129*

Lab Sample ID: 680-107453-20 MSD
Matrix: Solid
Analysis Batch: 360199

Client Sample ID: GP-89(15.5-16.5)(111914)
Prep Type: Total/NA
Prep Batch: 359760

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzaldehyde	390	U	3910	3080		ug/Kg	☼	79	10 - 130	8	50
Phenol	390	U	3910	3010		ug/Kg	☼	77	46 - 130	7	50
Bis(2-chloroethyl)ether	390	U	3910	2630	F2	ug/Kg	☼	67	42 - 130	86	50
2-Chlorophenol	390	U	3910	2870		ug/Kg	☼	73	51 - 130	1	50
2-Methylphenol	390	U	3910	2680		ug/Kg	☼	68	49 - 130	12	50
bis (2-chloroisopropyl) ether	390	U	3910	2570		ug/Kg	☼	66	44 - 130	2	50
Acetophenone	390	U	3910	2960		ug/Kg	☼	76	42 - 130	2	50
3 & 4 Methylphenol	390	U	3910	2880		ug/Kg	☼	74	50 - 130	8	50
N-Nitrosodi-n-propylamine	390	U	3910	2840		ug/Kg	☼	73	48 - 130	2	50
Hexachloroethane	390	U	3910	2660		ug/Kg	☼	68	44 - 130	3	50
Nitrobenzene	390	U	3910	2910		ug/Kg	☼	75	43 - 130	1	50
Isophorone	390	U	3910	3140		ug/Kg	☼	80	48 - 130	6	50
2-Nitrophenol	390	U	3910	3210		ug/Kg	☼	82	45 - 130	3	50
2,4-Dimethylphenol	390	U	3910	2380	F2	ug/Kg	☼	61	47 - 130	55	50
Bis(2-chloroethoxy)methane	390	U	3910	3110		ug/Kg	☼	80	56 - 130	6	50
2,4-Dichlorophenol	390	U	3910	3340		ug/Kg	☼	85	53 - 130	7	50
Naphthalene	390	U	3910	3020		ug/Kg	☼	77	54 - 130	3	50
4-Chloroaniline	780	U	3910	2110	F2	ug/Kg	☼	54	36 - 130	83	50
Hexachlorobutadiene	390	U	3910	2980		ug/Kg	☼	76	47 - 130	3	50
Caprolactam	390	U	3910	3280		ug/Kg	☼	84	52 - 130	9	50
4-Chloro-3-methylphenol	390	U	3910	3490		ug/Kg	☼	89	52 - 130	13	50
2-Methylnaphthalene	390	U	3910	3140		ug/Kg	☼	80	55 - 130	4	50
Hexachlorocyclopentadiene	390	U	3910	2560		ug/Kg	☼	65	35 - 130	4	50
2,4,6-Trichlorophenol	390	U	3910	3340		ug/Kg	☼	85	53 - 130	8	50
2,4,5-Trichlorophenol	390	U	3910	3450		ug/Kg	☼	88	60 - 130	4	50
1,1'-Biphenyl	2000	U	3910	3040		ug/Kg	☼	78	57 - 130	0	50
2-Chloronaphthalene	390	U	3910	3100		ug/Kg	☼	79	55 - 130	0	50
2-Nitroaniline	2000	U	3910	3350		ug/Kg	☼	86	52 - 130	1	50
Dimethyl phthalate	390	U	3910	3320		ug/Kg	☼	85	63 - 130	3	50
2,6-Dinitrotoluene	390	U	3910	3450		ug/Kg	☼	88	57 - 130	5	50
Acenaphthylene	390	U	3910	3160		ug/Kg	☼	81	58 - 130	2	50
3-Nitroaniline	2000	U	3910	2660	F2	ug/Kg	☼	68	42 - 130	55	50
Acenaphthene	390	U	3910	2900		ug/Kg	☼	74	58 - 130	5	50
2,4-Dinitrophenol	2000	U	7810	4070		ug/Kg	☼	52	10 - 154	30	50
4-Nitrophenol	2000	U	7810	6970		ug/Kg	☼	89	30 - 130	6	50
Dibenzofuran	390	U	3910	3270		ug/Kg	☼	84	56 - 130	3	50

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 680-107453-20 MSD
Matrix: Solid
Analysis Batch: 360199

Client Sample ID: GP-89(15.5-16.5)(111914)
Prep Type: Total/NA
Prep Batch: 359760

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2,4-Dinitrotoluene	390	U	3910	3510		ug/Kg	☼	90	55 - 130	4	50
Diethyl phthalate	390	U	3910	3420		ug/Kg	☼	88	62 - 130	6	50
Fluorene	390	U	3910	3370		ug/Kg	☼	86	58 - 130	5	50
4-Chlorophenyl phenyl ether	390	U	3910	3390		ug/Kg	☼	87	61 - 130	4	50
4-Nitroaniline	2000	U	3910	3130		ug/Kg	☼	80	49 - 130	10	50
4,6-Dinitro-2-methylphenol	2000	U	7810	5590		ug/Kg	☼	72	14 - 137	13	50
N-Nitrosodiphenylamine	390	U	3910	3110		ug/Kg	☼	80	62 - 130	8	50
4-Bromophenyl phenyl ether	390	U	3910	3400		ug/Kg	☼	87	65 - 130	1	50
Hexachlorobenzene	390	U	3910	3340		ug/Kg	☼	86	59 - 130	5	50
Atrazine	390	U	3910	3450		ug/Kg	☼	88	54 - 141	3	50
Pentachlorophenol	2000	U	7810	6610		ug/Kg	☼	85	38 - 131	5	50
Phenanthrene	390	U	3910	3270		ug/Kg	☼	84	61 - 130	2	50
Anthracene	390	U	3910	3290		ug/Kg	☼	84	60 - 130	3	50
Carbazole	390	U	3910	3230		ug/Kg	☼	83	60 - 130	4	50
Di-n-butyl phthalate	390	U	3910	3370		ug/Kg	☼	86	65 - 130	1	50
Fluoranthene	390	U	3910	3420		ug/Kg	☼	87	62 - 130	1	50
Pyrene	390	U	3910	3210		ug/Kg	☼	82	59 - 130	2	50
Butyl benzyl phthalate	390	U	3910	3310		ug/Kg	☼	85	65 - 134	1	50
3,3'-Dichlorobenzidine	780	U	3910	2230	F2	ug/Kg	☼	57	45 - 130	103	50
Benzo[a]anthracene	390	U	3910	3250		ug/Kg	☼	83	62 - 130	0	50
Chrysene	390	U	3910	3270		ug/Kg	☼	84	62 - 130	1	50
Bis(2-ethylhexyl) phthalate	390	U	3910	3330		ug/Kg	☼	85	62 - 132	1	50
Di-n-octyl phthalate	390	U	3910	3270		ug/Kg	☼	84	59 - 146	1	50
Benzo[b]fluoranthene	390	U	3910	3470		ug/Kg	☼	89	53 - 130	5	50
Benzo[k]fluoranthene	390	U	3910	3280		ug/Kg	☼	84	57 - 130	1	50
Benzo[a]pyrene	390	U	3910	3380		ug/Kg	☼	86	68 - 131	4	50
Indeno[1,2,3-cd]pyrene	390	U	3910	3540		ug/Kg	☼	90	52 - 130	3	50
Dibenz(a,h)anthracene	390	U	3910	3430		ug/Kg	☼	88	56 - 130	1	50
Benzo[g,h,i]perylene	390	U	3910	3510		ug/Kg	☼	90	54 - 130	4	50

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Nitrobenzene-d5 (Surr)	*75*		*37 - 115*
2-Fluorobiphenyl	*80*		*41 - 116*
Terphenyl-d14 (Surr)	*84*		*46 - 126*
Phenol-d5 (Surr)	*73*		*38 - 122*
2-Fluorophenol (Surr)	*72*		*39 - 114*
2,4,6-Tribromophenol (Surr)	*93*		*45 - 129*

Lab Sample ID: MB 680-359773/15-A
Matrix: Solid
Analysis Batch: 360400

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 359773

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzaldehyde	330	U	330	58	ug/Kg		11/20/14 17:57	11/25/14 14:40	1
Phenol	330	U	330	34	ug/Kg		11/20/14 17:57	11/25/14 14:40	1
Bis(2-chloroethyl)ether	330	U	330	45	ug/Kg		11/20/14 17:57	11/25/14 14:40	1
2-Chlorophenol	330	U	330	40	ug/Kg		11/20/14 17:57	11/25/14 14:40	1
2-Methylphenol	330	U	330	27	ug/Kg		11/20/14 17:57	11/25/14 14:40	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 680-359773/15-A
Matrix: Solid
Analysis Batch: 360400

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 359773

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
bis (2-chloroisopropyl) ether	330	U	330	30	ug/Kg		11/20/14 17:57	11/25/14 14:40	1
Acetophenone	330	U	330	28	ug/Kg		11/20/14 17:57	11/25/14 14:40	1
3 & 4 Methylphenol	330	U	330	43	ug/Kg		11/20/14 17:57	11/25/14 14:40	1
N-Nitrosodi-n-propylamine	330	U	330	32	ug/Kg		11/20/14 17:57	11/25/14 14:40	1
Hexachloroethane	330	U	330	28	ug/Kg		11/20/14 17:57	11/25/14 14:40	1
Nitrobenzene	330	U	330	26	ug/Kg		11/20/14 17:57	11/25/14 14:40	1
Isophorone	330	U	330	33	ug/Kg		11/20/14 17:57	11/25/14 14:40	1
2-Nitrophenol	330	U	330	41	ug/Kg		11/20/14 17:57	11/25/14 14:40	1
2,4-Dimethylphenol	330	U	330	44	ug/Kg		11/20/14 17:57	11/25/14 14:40	1
Bis(2-chloroethoxy)methane	330	U	330	39	ug/Kg		11/20/14 17:57	11/25/14 14:40	1
2,4-Dichlorophenol	330	U	330	35	ug/Kg		11/20/14 17:57	11/25/14 14:40	1
Naphthalene	330	U	330	30	ug/Kg		11/20/14 17:57	11/25/14 14:40	1
4-Chloroaniline	660	U	660	52	ug/Kg		11/20/14 17:57	11/25/14 14:40	1
Hexachlorobutadiene	330	U	330	36	ug/Kg		11/20/14 17:57	11/25/14 14:40	1
Caprolactam	330	U	330	66	ug/Kg		11/20/14 17:57	11/25/14 14:40	1
4-Chloro-3-methylphenol	330	U	330	35	ug/Kg		11/20/14 17:57	11/25/14 14:40	1
2-Methylnaphthalene	330	U	330	38	ug/Kg		11/20/14 17:57	11/25/14 14:40	1
Hexachlorocyclopentadiene	330	U	330	41	ug/Kg		11/20/14 17:57	11/25/14 14:40	1
2,4,6-Trichlorophenol	330	U	330	29	ug/Kg		11/20/14 17:57	11/25/14 14:40	1
2,4,5-Trichlorophenol	330	U	330	35	ug/Kg		11/20/14 17:57	11/25/14 14:40	1
1,1'-Biphenyl	1700	U	1700	1700	ug/Kg		11/20/14 17:57	11/25/14 14:40	1
2-Chloronaphthalene	330	U	330	35	ug/Kg		11/20/14 17:57	11/25/14 14:40	1
2-Nitroaniline	1700	U	1700	45	ug/Kg		11/20/14 17:57	11/25/14 14:40	1
Dimethyl phthalate	330	U	330	34	ug/Kg		11/20/14 17:57	11/25/14 14:40	1
2,6-Dinitrotoluene	330	U	330	42	ug/Kg		11/20/14 17:57	11/25/14 14:40	1
Acenaphthylene	330	U	330	36	ug/Kg		11/20/14 17:57	11/25/14 14:40	1
3-Nitroaniline	1700	U	1700	46	ug/Kg		11/20/14 17:57	11/25/14 14:40	1
Acenaphthene	330	U	330	41	ug/Kg		11/20/14 17:57	11/25/14 14:40	1
2,4-Dinitrophenol	1700	U	1700	830	ug/Kg		11/20/14 17:57	11/25/14 14:40	1
4-Nitrophenol	1700	U	1700	330	ug/Kg		11/20/14 17:57	11/25/14 14:40	1
Dibenzofuran	330	U	330	33	ug/Kg		11/20/14 17:57	11/25/14 14:40	1
2,4-Dinitrotoluene	330	U	330	49	ug/Kg		11/20/14 17:57	11/25/14 14:40	1
Diethyl phthalate	330	U	330	37	ug/Kg		11/20/14 17:57	11/25/14 14:40	1
Fluorene	330	U	330	36	ug/Kg		11/20/14 17:57	11/25/14 14:40	1
4-Chlorophenyl phenyl ether	330	U	330	44	ug/Kg		11/20/14 17:57	11/25/14 14:40	1
4-Nitroaniline	1700	U	1700	49	ug/Kg		11/20/14 17:57	11/25/14 14:40	1
4,6-Dinitro-2-methylphenol	1700	U	1700	170	ug/Kg		11/20/14 17:57	11/25/14 14:40	1
N-Nitrosodiphenylamine	330	U	330	33	ug/Kg		11/20/14 17:57	11/25/14 14:40	1
4-Bromophenyl phenyl ether	330	U	330	36	ug/Kg		11/20/14 17:57	11/25/14 14:40	1
Hexachlorobenzene	330	U	330	39	ug/Kg		11/20/14 17:57	11/25/14 14:40	1
Atrazine	330	U	330	23	ug/Kg		11/20/14 17:57	11/25/14 14:40	1
Pentachlorophenol	1700	U	1700	330	ug/Kg		11/20/14 17:57	11/25/14 14:40	1
Phenanthrene	330	U	330	27	ug/Kg		11/20/14 17:57	11/25/14 14:40	1
Anthracene	330	U	330	25	ug/Kg		11/20/14 17:57	11/25/14 14:40	1
Carbazole	330	U	330	30	ug/Kg		11/20/14 17:57	11/25/14 14:40	1
Di-n-butyl phthalate	330	U	330	30	ug/Kg		11/20/14 17:57	11/25/14 14:40	1
Fluoranthene	330	U	330	32	ug/Kg		11/20/14 17:57	11/25/14 14:40	1
Pyrene	330	U	330	27	ug/Kg		11/20/14 17:57	11/25/14 14:40	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 680-359773/15-A
Matrix: Solid
Analysis Batch: 360400

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 359773

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Butyl benzyl phthalate	330	U	330	26	ug/Kg		11/20/14 17:57	11/25/14 14:40	1
3,3'-Dichlorobenzidine	660	U	660	28	ug/Kg		11/20/14 17:57	11/25/14 14:40	1
Benzo[a]anthracene	330	U	330	27	ug/Kg		11/20/14 17:57	11/25/14 14:40	1
Chrysene	330	U	330	21	ug/Kg		11/20/14 17:57	11/25/14 14:40	1
Bis(2-ethylhexyl) phthalate	330	U	330	29	ug/Kg		11/20/14 17:57	11/25/14 14:40	1
Di-n-octyl phthalate	330	U	330	29	ug/Kg		11/20/14 17:57	11/25/14 14:40	1
Benzo[b]fluoranthene	330	U	330	38	ug/Kg		11/20/14 17:57	11/25/14 14:40	1
Benzo[k]fluoranthene	330	U	330	65	ug/Kg		11/20/14 17:57	11/25/14 14:40	1
Benzo[a]pyrene	330	U	330	52	ug/Kg		11/20/14 17:57	11/25/14 14:40	1
Indeno[1,2,3-cd]pyrene	330	U	330	28	ug/Kg		11/20/14 17:57	11/25/14 14:40	1
Dibenz(a,h)anthracene	330	U	330	39	ug/Kg		11/20/14 17:57	11/25/14 14:40	1
Benzo[g,h,i]perylene	330	U	330	22	ug/Kg		11/20/14 17:57	11/25/14 14:40	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*79*		*37 - 115*	*11/20/14 17:57*	*11/25/14 14:40*	*1*
2-Fluorobiphenyl	*83*		*41 - 116*	*11/20/14 17:57*	*11/25/14 14:40*	*1*
Terphenyl-d14 (Surr)	*92*		*46 - 126*	*11/20/14 17:57*	*11/25/14 14:40*	*1*
Phenol-d5 (Surr)	*75*		*38 - 122*	*11/20/14 17:57*	*11/25/14 14:40*	*1*
2-Fluorophenol (Surr)	*78*		*39 - 114*	*11/20/14 17:57*	*11/25/14 14:40*	*1*
2,4,6-Tribromophenol (Surr)	*92*		*45 - 129*	*11/20/14 17:57*	*11/25/14 14:40*	*1*

Lab Sample ID: LCS 680-359773/16-A
Matrix: Solid
Analysis Batch: 360248

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 359773

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzaldehyde	3340	852		ug/Kg		26	10 - 130
Phenol	3340	2490		ug/Kg		75	47 - 130
Bis(2-chloroethyl)ether	3340	2060		ug/Kg		62	37 - 130
2-Chlorophenol	3340	2460		ug/Kg		74	47 - 130
2-Methylphenol	3340	2470		ug/Kg		74	46 - 130
bis (2-chloroisopropyl) ether	3340	1920		ug/Kg		58	38 - 130
Acetophenone	3340	2430		ug/Kg		73	44 - 130
3 & 4 Methylphenol	3340	2460		ug/Kg		74	46 - 130
N-Nitrosodi-n-propylamine	3340	2120		ug/Kg		64	38 - 130
Hexachloroethane	3340	2260		ug/Kg		68	42 - 130
Nitrobenzene	3340	2200		ug/Kg		66	45 - 130
Isophorone	3340	2360		ug/Kg		71	48 - 130
2-Nitrophenol	3340	2700		ug/Kg		81	43 - 130
2,4-Dimethylphenol	3340	2460		ug/Kg		74	43 - 130
Bis(2-chloroethoxy)methane	3340	2430		ug/Kg		73	47 - 130
2,4-Dichlorophenol	3340	2810		ug/Kg		84	48 - 130
Naphthalene	3340	2630		ug/Kg		79	47 - 130
4-Chloroaniline	3340	1890		ug/Kg		57	10 - 130
Hexachlorobutadiene	3340	2830		ug/Kg		85	48 - 130
Caprolactam	3340	2920		ug/Kg		87	44 - 130
4-Chloro-3-methylphenol	3340	2630		ug/Kg		79	51 - 130
2-Methylnaphthalene	3340	2620		ug/Kg		79	48 - 130

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 680-359773/16-A
Matrix: Solid
Analysis Batch: 360248

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 359773

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Hexachlorocyclopentadiene	3340	2580		ug/Kg		77	28 - 130
2,4,6-Trichlorophenol	3340	2910		ug/Kg		87	50 - 130
2,4,5-Trichlorophenol	3340	2960		ug/Kg		89	51 - 130
1,1'-Biphenyl	3340	2660		ug/Kg		80	48 - 130
2-Chloronaphthalene	3340	2740		ug/Kg		82	48 - 130
2-Nitroaniline	3340	2250		ug/Kg		68	44 - 130
Dimethyl phthalate	3340	2880		ug/Kg		86	50 - 130
2,6-Dinitrotoluene	3340	2940		ug/Kg		88	49 - 130
Acenaphthylene	3340	2720		ug/Kg		81	45 - 130
3-Nitroaniline	3340	2400		ug/Kg		72	21 - 130
Acenaphthene	3340	2390		ug/Kg		72	47 - 130
2,4-Dinitrophenol	6670	2690		ug/Kg		40	10 - 130
4-Nitrophenol	6670	4390		ug/Kg		66	40 - 130
Dibenzofuran	3340	2830		ug/Kg		85	49 - 130
2,4-Dinitrotoluene	3340	3180		ug/Kg		95	49 - 111
Diethyl phthalate	3340	2760		ug/Kg		83	49 - 130
Fluorene	3340	2810		ug/Kg		84	52 - 130
4-Chlorophenyl phenyl ether	3340	2910		ug/Kg		87	49 - 130
4-Nitroaniline	3340	2620		ug/Kg		79	41 - 130
4,6-Dinitro-2-methylphenol	6670	4950		ug/Kg		74	23 - 130
N-Nitrosodiphenylamine	3340	2870		ug/Kg		86	50 - 130
4-Bromophenyl phenyl ether	3340	3120		ug/Kg		94	53 - 130
Hexachlorobenzene	3340	3270		ug/Kg		98	53 - 130
Atrazine	3340	2980		ug/Kg		89	47 - 130
Pentachlorophenol	6670	6270		ug/Kg		94	41 - 130
Phenanthrene	3340	2880		ug/Kg		86	52 - 130
Anthracene	3340	2900		ug/Kg		87	50 - 130
Carbazole	3340	2890		ug/Kg		87	51 - 130
Di-n-butyl phthalate	3340	2890		ug/Kg		87	52 - 130
Fluoranthene	3340	3030		ug/Kg		91	51 - 130
Pyrene	3340	2820		ug/Kg		85	50 - 130
Butyl benzyl phthalate	3340	2700		ug/Kg		81	53 - 134
3,3'-Dichlorobenzidine	3340	2040		ug/Kg		61	16 - 130
Benzo[a]anthracene	3340	2900		ug/Kg		87	50 - 130
Chrysene	3340	2950		ug/Kg		88	47 - 130
Bis(2-ethylhexyl) phthalate	3340	2840		ug/Kg		85	48 - 130
Di-n-octyl phthalate	3340	2910		ug/Kg		87	46 - 130
Benzo[b]fluoranthene	3340	2860		ug/Kg		86	48 - 130
Benzo[k]fluoranthene	3340	2940		ug/Kg		88	48 - 108
Benzo[a]pyrene	3340	2910		ug/Kg		87	47 - 131
Indeno[1,2,3-cd]pyrene	3340	2990		ug/Kg		90	41 - 130
Dibenz(a,h)anthracene	3340	2890		ug/Kg		87	44 - 130
Benzo[g,h,i]perylene	3340	3020		ug/Kg		91	42 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Nitrobenzene-d5 (Surr)	*67*		*37 - 115*
2-Fluorobiphenyl	*86*		*41 - 116*
Terphenyl-d14 (Surr)	*122*		*46 - 126*

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 680-359773/16-A
Matrix: Solid
Analysis Batch: 360248

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 359773

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Phenol-d5 (Surr)	*72*		*38 - 122*
2-Fluorophenol (Surr)	*74*		*39 - 114*
2,4,6-Tribromophenol (Surr)	*109*		*45 - 129*

Lab Sample ID: 680-107453-21 MS
Matrix: Solid
Analysis Batch: 360248

Client Sample ID: GP-90(9-10)(111914)
Prep Type: Total/NA
Prep Batch: 359773

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzaldehyde	390	U	3960	3350		ug/Kg	☼	84	10 - 130
Phenol	390	U	3960	2840		ug/Kg	☼	72	46 - 130
Bis(2-chloroethyl)ether	390	U	3960	2440		ug/Kg	☼	61	42 - 130
2-Chlorophenol	390	U	3960	2930		ug/Kg	☼	74	51 - 130
2-Methylphenol	390	U	3960	2860		ug/Kg	☼	72	49 - 130
bis (2-chloroisopropyl) ether	390	U	3960	2320		ug/Kg	☼	59	44 - 130
Acetophenone	390	U	3960	2820		ug/Kg	☼	71	42 - 130
3 & 4 Methylphenol	390	U	3960	2880		ug/Kg	☼	73	50 - 130
N-Nitrosodi-n-propylamine	390	U	3960	2610		ug/Kg	☼	66	48 - 130
Hexachloroethane	390	U	3960	2590		ug/Kg	☼	65	44 - 130
Nitrobenzene	390	U	3960	2600		ug/Kg	☼	66	43 - 130
Isophorone	390	U	3960	2780		ug/Kg	☼	70	48 - 130
2-Nitrophenol	390	U	3960	3130		ug/Kg	☼	79	45 - 130
2,4-Dimethylphenol	390	U	3960	2060		ug/Kg	☼	52	47 - 130
Bis(2-chloroethoxy)methane	390	U	3960	2880		ug/Kg	☼	73	56 - 130
2,4-Dichlorophenol	390	U	3960	3340		ug/Kg	☼	84	53 - 130
Naphthalene	390	U	3960	3130		ug/Kg	☼	79	54 - 130
4-Chloroaniline	790	U	3960	1480		ug/Kg	☼	37	36 - 130
Hexachlorobutadiene	390	U	3960	3330		ug/Kg	☼	84	47 - 130
Caprolactam	390	U	3960	3030		ug/Kg	☼	76	52 - 130
4-Chloro-3-methylphenol	390	U	3960	3160		ug/Kg	☼	80	52 - 130
2-Methylnaphthalene	390	U	3960	3220		ug/Kg	☼	81	55 - 130
Hexachlorocyclopentadiene	390	U	3960	3040		ug/Kg	☼	77	35 - 130
2,4,6-Trichlorophenol	390	U	3960	3250		ug/Kg	☼	82	53 - 130
2,4,5-Trichlorophenol	390	U	3960	3460		ug/Kg	☼	87	60 - 130
1,1'-Biphenyl	2000	U	3960	3140		ug/Kg	☼	79	57 - 130
2-Chloronaphthalene	390	U	3960	3170		ug/Kg	☼	80	55 - 130
2-Nitroaniline	2000	U	3960	2640		ug/Kg	☼	67	52 - 130
Dimethyl phthalate	390	U	3960	3330		ug/Kg	☼	84	63 - 130
2,6-Dinitrotoluene	390	U	3960	3490		ug/Kg	☼	88	57 - 130
Acenaphthylene	390	U	3960	3230		ug/Kg	☼	81	58 - 130
3-Nitroaniline	2000	U	3960	2280		ug/Kg	☼	57	42 - 130
Acenaphthene	390	U	3960	2940		ug/Kg	☼	74	58 - 130
2,4-Dinitrophenol	2000	U	7930	6010		ug/Kg	☼	76	10 - 154
4-Nitrophenol	2000	U	7930	5140		ug/Kg	☼	65	30 - 130
Dibenzofuran	390	U	3960	3320		ug/Kg	☼	84	56 - 130
2,4-Dinitrotoluene	390	U	3960	3700		ug/Kg	☼	93	55 - 130
Diethyl phthalate	390	U	3960	3280		ug/Kg	☼	83	62 - 130
Fluorene	390	U	3960	3350		ug/Kg	☼	85	58 - 130

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 680-107453-21 MS
Matrix: Solid
Analysis Batch: 360248

Client Sample ID: GP-90(9-10)(111914)
Prep Type: Total/NA
Prep Batch: 359773

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
4-Chlorophenyl phenyl ether	390	U	3960	3440		ug/Kg	☼	87	61 - 130
4-Nitroaniline	2000	U	3960	3050		ug/Kg	☼	77	49 - 130
4,6-Dinitro-2-methylphenol	2000	U	7930	7230		ug/Kg	☼	91	14 - 137
N-Nitrosodiphenylamine	390	U	3960	2310	F1	ug/Kg	☼	58	62 - 130
4-Bromophenyl phenyl ether	390	U	3960	3600		ug/Kg	☼	91	65 - 130
Hexachlorobenzene	390	U	3960	3780		ug/Kg	☼	95	59 - 130
Atrazine	390	U	3960	3400		ug/Kg	☼	86	54 - 141
Pentachlorophenol	2000	U	7930	7340		ug/Kg	☼	93	38 - 131
Phenanthrene	390	U	3960	3390		ug/Kg	☼	86	61 - 130
Anthracene	390	U	3960	3380		ug/Kg	☼	85	60 - 130
Carbazole	390	U	3960	3330		ug/Kg	☼	84	60 - 130
Di-n-butyl phthalate	390	U	3960	3350		ug/Kg	☼	85	65 - 130
Fluoranthene	390	U	3960	3500		ug/Kg	☼	88	62 - 130
Pyrene	390	U	3960	3240		ug/Kg	☼	82	59 - 130
Butyl benzyl phthalate	390	U	3960	3070		ug/Kg	☼	78	65 - 134
3,3'-Dichlorobenzidine	790	U	3960	337	J F1	ug/Kg	☼	9	45 - 130
Benzo[a]anthracene	390	U	3960	3190		ug/Kg	☼	81	62 - 130
Chrysene	390	U	3960	3450		ug/Kg	☼	87	62 - 130
Bis(2-ethylhexyl) phthalate	390	U	3960	3220		ug/Kg	☼	81	62 - 132
Di-n-octyl phthalate	390	U	3960	3300		ug/Kg	☼	83	59 - 146
Benzo[b]fluoranthene	390	U	3960	3030		ug/Kg	☼	76	53 - 130
Benzo[k]fluoranthene	390	U	3960	3320		ug/Kg	☼	84	57 - 130
Benzo[a]pyrene	390	U	3960	3290		ug/Kg	☼	83	68 - 131
Indeno[1,2,3-cd]pyrene	390	U	3960	3410		ug/Kg	☼	86	52 - 130
Dibenz(a,h)anthracene	390	U	3960	3270		ug/Kg	☼	82	56 - 130
Benzo[g,h,i]perylene	390	U	3960	3420		ug/Kg	☼	86	54 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Nitrobenzene-d5 (Surr)	*65*		*37 - 115*
2-Fluorobiphenyl	*84*		*41 - 116*
Terphenyl-d14 (Surr)	*115*		*46 - 126*
Phenol-d5 (Surr)	*72*		*38 - 122*
2-Fluorophenol (Surr)	*71*		*39 - 114*
2,4,6-Tribromophenol (Surr)	*102*		*45 - 129*

Lab Sample ID: 680-107453-21 MSD
Matrix: Solid
Analysis Batch: 360248

Client Sample ID: GP-90(9-10)(111914)
Prep Type: Total/NA
Prep Batch: 359773

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzaldehyde	390	U	3970	2980		ug/Kg	☼	75	10 - 130	12	50
Phenol	390	U	3970	2640		ug/Kg	☼	67	46 - 130	7	50
Bis(2-chloroethyl)ether	390	U	3970	2290		ug/Kg	☼	58	42 - 130	6	50
2-Chlorophenol	390	U	3970	2750		ug/Kg	☼	69	51 - 130	6	50
2-Methylphenol	390	U	3970	2430		ug/Kg	☼	61	49 - 130	16	50
bis (2-chloroisopropyl) ether	390	U	3970	2160		ug/Kg	☼	55	44 - 130	7	50
Acetophenone	390	U	3970	2800		ug/Kg	☼	71	42 - 130	1	50
3 & 4 Methylphenol	390	U	3970	2420		ug/Kg	☼	61	50 - 130	17	50

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 680-107453-21 MSD
Matrix: Solid
Analysis Batch: 360248

Client Sample ID: GP-90(9-10)(111914)
Prep Type: Total/NA
Prep Batch: 359773

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
N-Nitrosodi-n-propylamine	390	U	3970	2420		ug/Kg	☼	61	48 - 130	7	50
Hexachloroethane	390	U	3970	2530		ug/Kg	☼	64	44 - 130	3	50
Nitrobenzene	390	U	3970	2540		ug/Kg	☼	64	43 - 130	2	50
Isophorone	390	U	3970	2680		ug/Kg	☼	68	48 - 130	4	50
2-Nitrophenol	390	U	3970	3010		ug/Kg	☼	76	45 - 130	4	50
2,4-Dimethylphenol	390	U	3970	1570	F1	ug/Kg	☼	40	47 - 130	27	50
Bis(2-chloroethoxy)methane	390	U	3970	2750		ug/Kg	☼	69	56 - 130	4	50
2,4-Dichlorophenol	390	U	3970	3220		ug/Kg	☼	81	53 - 130	4	50
Naphthalene	390	U	3970	3030		ug/Kg	☼	77	54 - 130	3	50
4-Chloroaniline	790	U	3970	1990		ug/Kg	☼	50	36 - 130	30	50
Hexachlorobutadiene	390	U	3970	3210		ug/Kg	☼	81	47 - 130	4	50
Caprolactam	390	U	3970	2870		ug/Kg	☼	72	52 - 130	5	50
4-Chloro-3-methylphenol	390	U	3970	2960		ug/Kg	☼	75	52 - 130	7	50
2-Methylnaphthalene	390	U	3970	3090		ug/Kg	☼	78	55 - 130	4	50
Hexachlorocyclopentadiene	390	U	3970	3050		ug/Kg	☼	77	35 - 130	0	50
2,4,6-Trichlorophenol	390	U	3970	3200		ug/Kg	☼	81	53 - 130	2	50
2,4,5-Trichlorophenol	390	U	3970	3460		ug/Kg	☼	87	60 - 130	0	50
1,1'-Biphenyl	2000	U	3970	3120		ug/Kg	☼	79	57 - 130	1	50
2-Chloronaphthalene	390	U	3970	3160		ug/Kg	☼	80	55 - 130	0	50
2-Nitroaniline	2000	U	3970	2560		ug/Kg	☼	64	52 - 130	3	50
Dimethyl phthalate	390	U	3970	3350		ug/Kg	☼	84	63 - 130	0	50
2,6-Dinitrotoluene	390	U	3970	3450		ug/Kg	☼	87	57 - 130	1	50
Acenaphthylene	390	U	3970	3180		ug/Kg	☼	80	58 - 130	2	50
3-Nitroaniline	2000	U	3970	2810		ug/Kg	☼	71	42 - 130	21	50
Acenaphthene	390	U	3970	2820		ug/Kg	☼	71	58 - 130	4	50
2,4-Dinitrophenol	2000	U	7930	5410		ug/Kg	☼	68	10 - 154	11	50
4-Nitrophenol	2000	U	7930	5090		ug/Kg	☼	64	30 - 130	1	50
Dibenzofuran	390	U	3970	3310		ug/Kg	☼	83	56 - 130	0	50
2,4-Dinitrotoluene	390	U	3970	3650		ug/Kg	☼	92	55 - 130	1	50
Diethyl phthalate	390	U	3970	3230		ug/Kg	☼	82	62 - 130	1	50
Fluorene	390	U	3970	3250		ug/Kg	☼	82	58 - 130	3	50
4-Chlorophenyl phenyl ether	390	U	3970	3370		ug/Kg	☼	85	61 - 130	2	50
4-Nitroaniline	2000	U	3970	2960		ug/Kg	☼	75	49 - 130	3	50
4,6-Dinitro-2-methylphenol	2000	U	7930	7010		ug/Kg	☼	88	14 - 137	3	50
N-Nitrosodiphenylamine	390	U	3970	1890	F1	ug/Kg	☼	48	62 - 130	20	50
4-Bromophenyl phenyl ether	390	U	3970	3600		ug/Kg	☼	91	65 - 130	0	50
Hexachlorobenzene	390	U	3970	3800		ug/Kg	☼	96	59 - 130	1	50
Atrazine	390	U	3970	3470		ug/Kg	☼	87	54 - 141	2	50
Pentachlorophenol	2000	U	7930	7270		ug/Kg	☼	92	38 - 131	1	50
Phenanthrene	390	U	3970	3390		ug/Kg	☼	85	61 - 130	0	50
Anthracene	390	U	3970	3390		ug/Kg	☼	85	60 - 130	0	50
Carbazole	390	U	3970	3390		ug/Kg	☼	85	60 - 130	2	50
Di-n-butyl phthalate	390	U	3970	3400		ug/Kg	☼	86	65 - 130	1	50
Fluoranthene	390	U	3970	3560		ug/Kg	☼	90	62 - 130	2	50
Pyrene	390	U	3970	3280		ug/Kg	☼	83	59 - 130	1	50
Butyl benzyl phthalate	390	U	3970	3100		ug/Kg	☼	78	65 - 134	1	50
3,3'-Dichlorobenzidine	790	U	3970	277	J F1	ug/Kg	☼	7	45 - 130	20	50
Benzo[a]anthracene	390	U	3970	3220		ug/Kg	☼	81	62 - 130	1	50

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 680-107453-21 MSD
Matrix: Solid
Analysis Batch: 360248

Client Sample ID: GP-90(9-10)(111914)
Prep Type: Total/NA
Prep Batch: 359773

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chrysene	390	U	3970	3490		ug/Kg	☼	88	62 - 130	1	50
Bis(2-ethylhexyl) phthalate	390	U	3970	3230		ug/Kg	☼	81	62 - 132	0	50
Di-n-octyl phthalate	390	U	3970	3300		ug/Kg	☼	83	59 - 146	0	50
Benzo[b]fluoranthene	390	U	3970	3170		ug/Kg	☼	80	53 - 130	4	50
Benzo[k]fluoranthene	390	U	3970	3400		ug/Kg	☼	86	57 - 130	2	50
Benzo[a]pyrene	390	U	3970	3340		ug/Kg	☼	84	68 - 131	2	50
Indeno[1,2,3-cd]pyrene	390	U	3970	3470		ug/Kg	☼	88	52 - 130	2	50
Dibenz(a,h)anthracene	390	U	3970	3380		ug/Kg	☼	85	56 - 130	3	50
Benzo[g,h,i]perylene	390	U	3970	3540		ug/Kg	☼	89	54 - 130	4	50

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Nitrobenzene-d5 (Surr)	*65*		*37 - 115*
2-Fluorobiphenyl	*83*		*41 - 116*
Terphenyl-d14 (Surr)	*118*		*46 - 126*
Phenol-d5 (Surr)	*67*		*38 - 122*
2-Fluorophenol (Surr)	*68*		*39 - 114*
2,4,6-Tribromophenol (Surr)	*94*		*45 - 129*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Gasoline Range Organics)

Lab Sample ID: MB 680-360056/9
Matrix: Solid
Analysis Batch: 360056

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	0.25	U	0.25	0.019	mg/Kg			11/22/14 15:02	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*92*		*70 - 131*		*11/22/14 15:02*	*1*

Lab Sample ID: LCS 680-360056/5
Matrix: Solid
Analysis Batch: 360056

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline Range Organics (GRO) -C6-C10			1.00	1.20		mg/Kg		120	64 - 133		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*80*		*70 - 131*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Gasoline Range Organics) (Continued)

Lab Sample ID: LCSD 680-360056/6
Matrix: Solid
Analysis Batch: 360056

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10			1.00	1.03		mg/Kg		103	64 - 133	15	50

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*79*		*70 - 131*

Lab Sample ID: MB 680-360082/8
Matrix: Solid
Analysis Batch: 360082

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	0.25	U	0.25	0.019	mg/Kg			11/23/14 12:29	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*84*		*70 - 131*		*11/23/14 12:29*	*1*

Lab Sample ID: LCS 680-360082/5
Matrix: Solid
Analysis Batch: 360082

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10			1.00	1.11		mg/Kg		111	64 - 133

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*82*		*70 - 131*

Lab Sample ID: LCSD 680-360082/9
Matrix: Solid
Analysis Batch: 360082

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10			1.00	0.932		mg/Kg		93	64 - 133	17	50

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*96*		*70 - 131*

Lab Sample ID: MB 680-360143/8
Matrix: Solid
Analysis Batch: 360143

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	0.0450	J	0.25	0.019	mg/Kg			11/24/14 12:32	1

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Gasoline Range Organics) (Continued)

Lab Sample ID: MB 680-360143/8
Matrix: Solid
Analysis Batch: 360143

Client Sample ID: Method Blank
Prep Type: Total/NA

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	91		70 - 131		11/24/14 12:32	1

Lab Sample ID: LCS 680-360143/5
Matrix: Solid
Analysis Batch: 360143

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline Range Organics (GRO) -C6-C10			1.00	1.04		mg/Kg		104	64 - 133		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
a,a,a-Trifluorotoluene	94		70 - 131

Lab Sample ID: LCSD 680-360143/6
Matrix: Solid
Analysis Batch: 360143

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10			1.00	1.09		mg/Kg		109	64 - 133	5	50

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
a,a,a-Trifluorotoluene	97		70 - 131

Lab Sample ID: MB 680-360539/8
Matrix: Solid
Analysis Batch: 360539

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	1.03	J	5.0	0.38	mg/Kg			11/28/14 15:09	20

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	88		70 - 131		11/28/14 15:09	20

Lab Sample ID: LCSD 680-360539/6
Matrix: Solid
Analysis Batch: 360539

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10			40.0	37.2		mg/Kg		93	64 - 133	6	50

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
a,a,a-Trifluorotoluene	71		70 - 131

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Gasoline Range Organics) (Continued)

Lab Sample ID: MB 680-361045/8
Matrix: Solid
Analysis Batch: 361045

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	0.960	J	5.0	0.38	mg/Kg			12/01/14 12:09	20

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*83*		*70 - 131*		*12/01/14 12:09*	*20*

Lab Sample ID: LCS 680-361045/5
Matrix: Solid
Analysis Batch: 361045

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline Range Organics (GRO) -C6-C10			40.0	39.7		mg/Kg		99	64 - 133		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*77*		*70 - 131*

Lab Sample ID: LCSD 680-361045/6
Matrix: Solid
Analysis Batch: 361045

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10			40.0	37.0		mg/Kg		93	64 - 133	7	50

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*71*		*70 - 131*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics)

Lab Sample ID: MB 680-359808/21-A
Matrix: Solid
Analysis Batch: 359975

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 359808

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	3.3	U	3.3	2.1	mg/Kg		11/20/14 15:52	11/21/14 16:33	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*101*		*45 - 130*	*11/20/14 15:52*	*11/21/14 16:33*	*1*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics) (Continued)

Lab Sample ID: LCS 680-359808/22-A
Matrix: Solid
Analysis Batch: 359975

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 359808

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Diesel Range Organics [C10-C28]			32.9	34.5		mg/Kg		105	35 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*99*		*45 - 130*

Lab Sample ID: 680-107453-16 MS
Matrix: Solid
Analysis Batch: 359975

Client Sample ID: GP-87(16-17)(111914)
Prep Type: Total/NA
Prep Batch: 359808

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Diesel Range Organics [C10-C28]	29		39.4	51.2		mg/Kg	☼	57	35 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
o-Terphenyl (Surr)	*81*		*45 - 130*

Lab Sample ID: 680-107453-16 MSD
Matrix: Solid
Analysis Batch: 359975

Client Sample ID: GP-87(16-17)(111914)
Prep Type: Total/NA
Prep Batch: 359808

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	29		39.2	42.9		mg/Kg	☼	36	35 - 130	18	50

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
o-Terphenyl (Surr)	*78*		*45 - 130*

Lab Sample ID: MB 680-359812/15-A
Matrix: Solid
Analysis Batch: 359980

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 359812

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	3.3	U	3.3	2.1	mg/Kg		11/20/14 17:57	11/22/14 01:29	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*95*		*45 - 130*	*11/20/14 17:57*	*11/22/14 01:29*	*1*

Lab Sample ID: LCS 680-359812/16-A
Matrix: Solid
Analysis Batch: 359980

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 359812

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Diesel Range Organics [C10-C28]			33.3	32.6		mg/Kg		98	35 - 130		

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics) (Continued)

Lab Sample ID: LCS 680-359812/16-A
Matrix: Solid
Analysis Batch: 359980

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 359812

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl (Surr)	91		45 - 130

Lab Sample ID: 680-107453-22 MS
Matrix: Solid
Analysis Batch: 359980

Client Sample ID: GP-90(12.5-13.5)(111914)
Prep Type: Total/NA
Prep Batch: 359812

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Diesel Range Organics [C10-C28]	4.0	U	40.8	35.4		mg/Kg	☼	87	35 - 130		

Surrogate	MS %Recovery	MS Qualifier	Limits
o-Terphenyl (Surr)	67		45 - 130

Lab Sample ID: 680-107453-22 MSD
Matrix: Solid
Analysis Batch: 360337

Client Sample ID: GP-90(12.5-13.5)(111914)
Prep Type: Total/NA
Prep Batch: 359812

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	4.0	U	40.8	40.3		mg/Kg	☼	99	35 - 130	13	50

Surrogate	MSD %Recovery	MSD Qualifier	Limits
o-Terphenyl (Surr)	69		45 - 130

GC/MS VOA

Analysis Batch: 237692

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-107453-9	GP-84(14-15)(111814)	Total/NA	Solid	8260B	237702
680-107453-10	GP-84(15.5-16.5)(111814)	Total/NA	Solid	8260B	237702
680-107453-11	GP-85(6-7)(111814)	Total/NA	Solid	8260B	237702
680-107453-12	GP-85(15.5-16.5)(111814)	Total/NA	Solid	8260B	237702
680-107453-13	GP-86(14-15)(111814)	Total/NA	Solid	8260B	237702
680-107453-14	GP-86(16-17)(111814)	Total/NA	Solid	8260B	237702
680-107453-15	GP-87(14-15)(111914)	Total/NA	Solid	8260B	237702
680-107453-16	GP-87(16-17)(111914)	Total/NA	Solid	8260B	237702
680-107453-17	GP-88(12-13)(111914)	Total/NA	Solid	8260B	237702
680-107453-18	GP-88(15-16)(111914)	Total/NA	Solid	8260B	237702
680-107453-19	GP-89(12-13)(111914)	Total/NA	Solid	8260B	237702
680-107453-20	GP-89(15.5-16.5)(111914)	Total/NA	Solid	8260B	237702
680-107453-21	GP-90(9-10)(111914)	Total/NA	Solid	8260B	237702
680-107453-22	GP-90(12.5-13.5)(111914)	Total/NA	Solid	8260B	237702
680-107453-29	GP-94(14-15)(111914)	Total/NA	Solid	8260B	237702
680-107453-30	GP-94(13-14)(111914)	Total/NA	Solid	8260B	237702
680-107453-31	GP-95(12-13)(111914)	Total/NA	Solid	8260B	237702
680-107453-32	GP-95(15-16)(111914)	Total/NA	Solid	8260B	237702
680-107453-33	GP-96(7-8)(111914)	Total/NA	Solid	8260B	237702
680-107453-34	GP-96(15-16)(111914)	Total/NA	Solid	8260B	237702
LCS 400-237702/22-A	Lab Control Sample	Total/NA	Solid	8260B	237702
LCSD 400-237702/23-A	Lab Control Sample Dup	Total/NA	Solid	8260B	237702
MB 400-237702/21-A	Method Blank	Total/NA	Solid	8260B	237702

Prep Batch: 237702

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-107453-9	GP-84(14-15)(111814)	Total/NA	Solid	5035	
680-107453-10	GP-84(15.5-16.5)(111814)	Total/NA	Solid	5035	
680-107453-11	GP-85(6-7)(111814)	Total/NA	Solid	5035	
680-107453-12	GP-85(15.5-16.5)(111814)	Total/NA	Solid	5035	
680-107453-13	GP-86(14-15)(111814)	Total/NA	Solid	5035	
680-107453-14	GP-86(16-17)(111814)	Total/NA	Solid	5035	
680-107453-15	GP-87(14-15)(111914)	Total/NA	Solid	5035	
680-107453-16	GP-87(16-17)(111914)	Total/NA	Solid	5035	
680-107453-17	GP-88(12-13)(111914)	Total/NA	Solid	5035	
680-107453-18	GP-88(15-16)(111914)	Total/NA	Solid	5035	
680-107453-19	GP-89(12-13)(111914)	Total/NA	Solid	5035	
680-107453-20	GP-89(15.5-16.5)(111914)	Total/NA	Solid	5035	
680-107453-21	GP-90(9-10)(111914)	Total/NA	Solid	5035	
680-107453-22	GP-90(12.5-13.5)(111914)	Total/NA	Solid	5035	
680-107453-29	GP-94(14-15)(111914)	Total/NA	Solid	5035	
680-107453-30	GP-94(13-14)(111914)	Total/NA	Solid	5035	
680-107453-31	GP-95(12-13)(111914)	Total/NA	Solid	5035	
680-107453-32	GP-95(15-16)(111914)	Total/NA	Solid	5035	
680-107453-33	GP-96(7-8)(111914)	Total/NA	Solid	5035	
680-107453-34	GP-96(15-16)(111914)	Total/NA	Solid	5035	
LCS 400-237702/22-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 400-237702/23-A	Lab Control Sample Dup	Total/NA	Solid	5035	
MB 400-237702/21-A	Method Blank	Total/NA	Solid	5035	

GC/MS VOA (Continued)

Analysis Batch: 237866

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-107453-35	TRIPBLANK(111914)	Total/NA	Water	8260B	
LCS 400-237866/1002	Lab Control Sample	Total/NA	Water	8260B	
MB 400-237866/4	Method Blank	Total/NA	Water	8260B	

Analysis Batch: 238333

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-107453-1	GP-80(18-19) (111814)	Total/NA	Solid	8260B	238370
680-107453-2	GP-80(14-15) (111814)	Total/NA	Solid	8260B	238370
680-107453-3	GP-81(13-14)(111814)	Total/NA	Solid	8260B	238370
680-107453-4	GP-81(14-15)(111814)	Total/NA	Solid	8260B	238370
680-107453-5	GP-82(14-15)(111814)	Total/NA	Solid	8260B	238370
680-107453-6	GP-82(16.5-17.5)(111814)	Total/NA	Solid	8260B	238370
680-107453-7	GP-83(13-14)(111814)	Total/NA	Solid	8260B	238370
680-107453-8	GP-83(14-15)(111814)	Total/NA	Solid	8260B	238370
680-107453-23	GP-91(11-12)(111914)	Total/NA	Solid	8260B	238370
680-107453-24	GP-91(15-16)(111914)	Total/NA	Solid	8260B	238370
680-107453-25	GP-92(14-15)(111914)	Total/NA	Solid	8260B	238370
680-107453-26	GP-92(15.5-16.5)(111914)	Total/NA	Solid	8260B	238370
680-107453-27	GP-93(14-15)(111914)	Total/NA	Solid	8260B	238370
680-107453-28	GP-93(15.5-16.5)(111914)	Total/NA	Solid	8260B	238370
LCS 400-238370/2-A	Lab Control Sample	Total/NA	Solid	8260B	238370
MB 400-238370/1-A	Method Blank	Total/NA	Solid	8260B	238370

Prep Batch: 238370

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-107453-1	GP-80(18-19) (111814)	Total/NA	Solid	5035	
680-107453-2	GP-80(14-15) (111814)	Total/NA	Solid	5035	
680-107453-3	GP-81(13-14)(111814)	Total/NA	Solid	5035	
680-107453-4	GP-81(14-15)(111814)	Total/NA	Solid	5035	
680-107453-5	GP-82(14-15)(111814)	Total/NA	Solid	5035	
680-107453-6	GP-82(16.5-17.5)(111814)	Total/NA	Solid	5035	
680-107453-7	GP-83(13-14)(111814)	Total/NA	Solid	5035	
680-107453-8	GP-83(14-15)(111814)	Total/NA	Solid	5035	
680-107453-23	GP-91(11-12)(111914)	Total/NA	Solid	5035	
680-107453-24	GP-91(15-16)(111914)	Total/NA	Solid	5035	
680-107453-25	GP-92(14-15)(111914)	Total/NA	Solid	5035	
680-107453-26	GP-92(15.5-16.5)(111914)	Total/NA	Solid	5035	
680-107453-27	GP-93(14-15)(111914)	Total/NA	Solid	5035	
680-107453-28	GP-93(15.5-16.5)(111914)	Total/NA	Solid	5035	
LCS 400-238370/2-A	Lab Control Sample	Total/NA	Solid	5035	
MB 400-238370/1-A	Method Blank	Total/NA	Solid	5035	

GC/MS Semi VOA

Prep Batch: 359760

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-107453-1	GP-80(18-19) (111814)	Total/NA	Solid	3546	
680-107453-2	GP-80(14-15) (111814)	Total/NA	Solid	3546	
680-107453-3	GP-81(13-14)(111814)	Total/NA	Solid	3546	
680-107453-4	GP-81(14-15)(111814)	Total/NA	Solid	3546	

GC/MS Semi VOA (Continued)

Prep Batch: 359760 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-107453-5	GP-82(14-15)(111814)	Total/NA	Solid	3546	
680-107453-6	GP-82(16.5-17.5)(111814)	Total/NA	Solid	3546	
680-107453-7	GP-83(13-14)(111814)	Total/NA	Solid	3546	
680-107453-8	GP-83(14-15)(111814)	Total/NA	Solid	3546	
680-107453-9	GP-84(14-15)(111814)	Total/NA	Solid	3546	
680-107453-10	GP-84(15.5-16.5)(111814)	Total/NA	Solid	3546	
680-107453-11	GP-85(6-7)(111814)	Total/NA	Solid	3546	
680-107453-12	GP-85(15.5-16.5)(111814)	Total/NA	Solid	3546	
680-107453-13	GP-86(14-15)(111814)	Total/NA	Solid	3546	
680-107453-14	GP-86(16-17)(111814)	Total/NA	Solid	3546	
680-107453-15	GP-87(14-15)(111914)	Total/NA	Solid	3546	
680-107453-16	GP-87(16-17)(111914)	Total/NA	Solid	3546	
680-107453-17	GP-88(12-13)(111914)	Total/NA	Solid	3546	
680-107453-18	GP-88(15-16)(111914)	Total/NA	Solid	3546	
680-107453-19	GP-89(12-13)(111914)	Total/NA	Solid	3546	
680-107453-20	GP-89(15.5-16.5)(111914)	Total/NA	Solid	3546	
680-107453-20 MS	GP-89(15.5-16.5)(111914)	Total/NA	Solid	3546	
680-107453-20 MSD	GP-89(15.5-16.5)(111914)	Total/NA	Solid	3546	
LCS 680-359760/22-A	Lab Control Sample	Total/NA	Solid	3546	
MB 680-359760/21-A	Method Blank	Total/NA	Solid	3546	

Prep Batch: 359773

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-107453-21	GP-90(9-10)(111914)	Total/NA	Solid	3546	
680-107453-21 MS	GP-90(9-10)(111914)	Total/NA	Solid	3546	
680-107453-21 MSD	GP-90(9-10)(111914)	Total/NA	Solid	3546	
680-107453-22	GP-90(12.5-13.5)(111914)	Total/NA	Solid	3546	
680-107453-23	GP-91(11-12)(111914)	Total/NA	Solid	3546	
680-107453-24	GP-91(15-16)(111914)	Total/NA	Solid	3546	
680-107453-25	GP-92(14-15)(111914)	Total/NA	Solid	3546	
680-107453-26	GP-92(15.5-16.5)(111914)	Total/NA	Solid	3546	
680-107453-27	GP-93(14-15)(111914)	Total/NA	Solid	3546	
680-107453-28	GP-93(15.5-16.5)(111914)	Total/NA	Solid	3546	
680-107453-29	GP-94(14-15)(111914)	Total/NA	Solid	3546	
680-107453-30	GP-94(13-14)(111914)	Total/NA	Solid	3546	
680-107453-31	GP-95(12-13)(111914)	Total/NA	Solid	3546	
680-107453-32	GP-95(15-16)(111914)	Total/NA	Solid	3546	
680-107453-33	GP-96(7-8)(111914)	Total/NA	Solid	3546	
680-107453-34	GP-96(15-16)(111914)	Total/NA	Solid	3546	
LCS 680-359773/16-A	Lab Control Sample	Total/NA	Solid	3546	
MB 680-359773/15-A	Method Blank	Total/NA	Solid	3546	

Analysis Batch: 360199

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-107453-1	GP-80(18-19) (111814)	Total/NA	Solid	8270D	359760
680-107453-2	GP-80(14-15) (111814)	Total/NA	Solid	8270D	359760
680-107453-3	GP-81(13-14)(111814)	Total/NA	Solid	8270D	359760
680-107453-4	GP-81(14-15)(111814)	Total/NA	Solid	8270D	359760
680-107453-5	GP-82(14-15)(111814)	Total/NA	Solid	8270D	359760
680-107453-6	GP-82(16.5-17.5)(111814)	Total/NA	Solid	8270D	359760
680-107453-7	GP-83(13-14)(111814)	Total/NA	Solid	8270D	359760

GC/MS Semi VOA (Continued)

Analysis Batch: 360199 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-107453-8	GP-83(14-15)(111814)	Total/NA	Solid	8270D	359760
680-107453-9	GP-84(14-15)(111814)	Total/NA	Solid	8270D	359760
680-107453-10	GP-84(15.5-16.5)(111814)	Total/NA	Solid	8270D	359760
680-107453-11	GP-85(6-7)(111814)	Total/NA	Solid	8270D	359760
680-107453-12	GP-85(15.5-16.5)(111814)	Total/NA	Solid	8270D	359760
680-107453-13	GP-86(14-15)(111814)	Total/NA	Solid	8270D	359760
680-107453-14	GP-86(16-17)(111814)	Total/NA	Solid	8270D	359760
680-107453-15	GP-87(14-15)(111914)	Total/NA	Solid	8270D	359760
680-107453-16	GP-87(16-17)(111914)	Total/NA	Solid	8270D	359760
680-107453-17	GP-88(12-13)(111914)	Total/NA	Solid	8270D	359760
680-107453-18	GP-88(15-16)(111914)	Total/NA	Solid	8270D	359760
680-107453-19	GP-89(12-13)(111914)	Total/NA	Solid	8270D	359760
680-107453-20	GP-89(15.5-16.5)(111914)	Total/NA	Solid	8270D	359760
680-107453-20 MS	GP-89(15.5-16.5)(111914)	Total/NA	Solid	8270D	359760
680-107453-20 MSD	GP-89(15.5-16.5)(111914)	Total/NA	Solid	8270D	359760
LCS 680-359760/22-A	Lab Control Sample	Total/NA	Solid	8270D	359760
MB 680-359760/21-A	Method Blank	Total/NA	Solid	8270D	359760

Analysis Batch: 360248

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-107453-21	GP-90(9-10)(111914)	Total/NA	Solid	8270D	359773
680-107453-21 MS	GP-90(9-10)(111914)	Total/NA	Solid	8270D	359773
680-107453-21 MSD	GP-90(9-10)(111914)	Total/NA	Solid	8270D	359773
680-107453-22	GP-90(12.5-13.5)(111914)	Total/NA	Solid	8270D	359773
680-107453-23	GP-91(11-12)(111914)	Total/NA	Solid	8270D	359773
680-107453-24	GP-91(15-16)(111914)	Total/NA	Solid	8270D	359773
680-107453-25	GP-92(14-15)(111914)	Total/NA	Solid	8270D	359773
680-107453-26	GP-92(15.5-16.5)(111914)	Total/NA	Solid	8270D	359773
680-107453-28	GP-93(15.5-16.5)(111914)	Total/NA	Solid	8270D	359773
680-107453-29	GP-94(14-15)(111914)	Total/NA	Solid	8270D	359773
680-107453-30	GP-94(13-14)(111914)	Total/NA	Solid	8270D	359773
680-107453-31	GP-95(12-13)(111914)	Total/NA	Solid	8270D	359773
680-107453-32	GP-95(15-16)(111914)	Total/NA	Solid	8270D	359773
680-107453-33	GP-96(7-8)(111914)	Total/NA	Solid	8270D	359773
680-107453-34	GP-96(15-16)(111914)	Total/NA	Solid	8270D	359773
LCS 680-359773/16-A	Lab Control Sample	Total/NA	Solid	8270D	359773

Analysis Batch: 360400

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-107453-27	GP-93(14-15)(111914)	Total/NA	Solid	8270D	359773
MB 680-359773/15-A	Method Blank	Total/NA	Solid	8270D	359773

GC VOA

Prep Batch: 359819

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-107453-1	GP-80(18-19) (111814)	Total/NA	Solid	5035	
680-107453-2	GP-80(14-15) (111814)	Total/NA	Solid	5035	
680-107453-3	GP-81(13-14)(111814)	Total/NA	Solid	5035	
680-107453-4	GP-81(14-15)(111814)	Total/NA	Solid	5035	

GC VOA (Continued)

Prep Batch: 359819 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-107453-5	GP-82(14-15)(111814)	Total/NA	Solid	5035	
680-107453-6	GP-82(16.5-17.5)(111814)	Total/NA	Solid	5035	
680-107453-7	GP-83(13-14)(111814)	Total/NA	Solid	5035	
680-107453-8	GP-83(14-15)(111814)	Total/NA	Solid	5035	
680-107453-9	GP-84(14-15)(111814)	Total/NA	Solid	5035	
680-107453-10	GP-84(15.5-16.5)(111814)	Total/NA	Solid	5035	
680-107453-11	GP-85(6-7)(111814)	Total/NA	Solid	5035	
680-107453-12	GP-85(15.5-16.5)(111814)	Total/NA	Solid	5035	
680-107453-13	GP-86(14-15)(111814)	Total/NA	Solid	5035	
680-107453-14	GP-86(16-17)(111814)	Total/NA	Solid	5035	
680-107453-15	GP-87(14-15)(111914)	Total/NA	Solid	5035	
680-107453-16	GP-87(16-17)(111914)	Total/NA	Solid	5035	
680-107453-17	GP-88(12-13)(111914)	Total/NA	Solid	5035	
680-107453-18	GP-88(15-16)(111914)	Total/NA	Solid	5035	
680-107453-19	GP-89(12-13)(111914)	Total/NA	Solid	5035	
680-107453-20	GP-89(15.5-16.5)(111914)	Total/NA	Solid	5035	
680-107453-21	GP-90(9-10)(111914)	Total/NA	Solid	5035	
680-107453-22	GP-90(12.5-13.5)(111914)	Total/NA	Solid	5035	
680-107453-23	GP-91(11-12)(111914)	Total/NA	Solid	5035	
680-107453-24	GP-91(15-16)(111914)	Total/NA	Solid	5035	
680-107453-25	GP-92(14-15)(111914)	Total/NA	Solid	5035	
680-107453-26	GP-92(15.5-16.5)(111914)	Total/NA	Solid	5035	
680-107453-27	GP-93(14-15)(111914)	Total/NA	Solid	5035	
680-107453-28	GP-93(15.5-16.5)(111914)	Total/NA	Solid	5035	
680-107453-29	GP-94(14-15)(111914)	Total/NA	Solid	5035	
680-107453-30	GP-94(13-14)(111914)	Total/NA	Solid	5035	
680-107453-31	GP-95(12-13)(111914)	Total/NA	Solid	5035	
680-107453-32	GP-95(15-16)(111914)	Total/NA	Solid	5035	
680-107453-33	GP-96(7-8)(111914)	Total/NA	Solid	5035	

Analysis Batch: 360056

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-107453-2	GP-80(14-15) (111814)	Total/NA	Solid	8015C	359819
680-107453-3	GP-81(13-14)(111814)	Total/NA	Solid	8015C	359819
680-107453-8	GP-83(14-15)(111814)	Total/NA	Solid	8015C	359819
680-107453-9	GP-84(14-15)(111814)	Total/NA	Solid	8015C	359819
680-107453-10	GP-84(15.5-16.5)(111814)	Total/NA	Solid	8015C	359819
680-107453-11	GP-85(6-7)(111814)	Total/NA	Solid	8015C	359819
680-107453-12	GP-85(15.5-16.5)(111814)	Total/NA	Solid	8015C	359819
680-107453-13	GP-86(14-15)(111814)	Total/NA	Solid	8015C	359819
680-107453-14	GP-86(16-17)(111814)	Total/NA	Solid	8015C	359819
LCS 680-360056/5	Lab Control Sample	Total/NA	Solid	8015C	
LCSD 680-360056/6	Lab Control Sample Dup	Total/NA	Solid	8015C	
MB 680-360056/9	Method Blank	Total/NA	Solid	8015C	

Analysis Batch: 360082

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-107453-15	GP-87(14-15)(111914)	Total/NA	Solid	8015C	359819
680-107453-18	GP-88(15-16)(111914)	Total/NA	Solid	8015C	359819
680-107453-19	GP-89(12-13)(111914)	Total/NA	Solid	8015C	359819
680-107453-20	GP-89(15.5-16.5)(111914)	Total/NA	Solid	8015C	359819

GC VOA (Continued)

Analysis Batch: 360082 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-107453-21	GP-90(9-10)(111914)	Total/NA	Solid	8015C	359819
680-107453-22	GP-90(12.5-13.5)(111914)	Total/NA	Solid	8015C	359819
LCS 680-360082/5	Lab Control Sample	Total/NA	Solid	8015C	
LCSD 680-360082/9	Lab Control Sample Dup	Total/NA	Solid	8015C	
MB 680-360082/8	Method Blank	Total/NA	Solid	8015C	

Analysis Batch: 360143

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-107453-1	GP-80(18-19) (111814)	Total/NA	Solid	8015C	359819
680-107453-5	GP-82(14-15)(111814)	Total/NA	Solid	8015C	359819
680-107453-6	GP-82(16.5-17.5)(111814)	Total/NA	Solid	8015C	359819
680-107453-7	GP-83(13-14)(111814)	Total/NA	Solid	8015C	359819
680-107453-17	GP-88(12-13)(111914)	Total/NA	Solid	8015C	359819
680-107453-33	GP-96(7-8)(111914)	Total/NA	Solid	8015C	359819
LCS 680-360143/5	Lab Control Sample	Total/NA	Solid	8015C	
LCSD 680-360143/6	Lab Control Sample Dup	Total/NA	Solid	8015C	
MB 680-360143/8	Method Blank	Total/NA	Solid	8015C	

Analysis Batch: 360539

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-107453-28	GP-93(15.5-16.5)(111914)	Total/NA	Solid	8015C	359819
680-107453-30	GP-94(13-14)(111914)	Total/NA	Solid	8015C	359819
680-107453-31	GP-95(12-13)(111914)	Total/NA	Solid	8015C	359819
LCSD 680-360539/6	Lab Control Sample Dup	Total/NA	Solid	8015C	
MB 680-360539/8	Method Blank	Total/NA	Solid	8015C	

Analysis Batch: 361045

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-107453-4	GP-81(14-15)(111814)	Total/NA	Solid	8015C	359819
680-107453-16	GP-87(16-17)(111914)	Total/NA	Solid	8015C	359819
680-107453-23	GP-91(11-12)(111914)	Total/NA	Solid	8015C	359819
680-107453-24	GP-91(15-16)(111914)	Total/NA	Solid	8015C	359819
680-107453-25	GP-92(14-15)(111914)	Total/NA	Solid	8015C	359819
680-107453-26	GP-92(15.5-16.5)(111914)	Total/NA	Solid	8015C	359819
680-107453-27	GP-93(14-15)(111914)	Total/NA	Solid	8015C	359819
680-107453-29	GP-94(14-15)(111914)	Total/NA	Solid	8015C	359819
680-107453-32	GP-95(15-16)(111914)	Total/NA	Solid	8015C	359819
680-107453-34	GP-96(15-16)(111914)	Total/NA	Solid	8015C	361237
LCS 680-361045/5	Lab Control Sample	Total/NA	Solid	8015C	
LCSD 680-361045/6	Lab Control Sample Dup	Total/NA	Solid	8015C	
MB 680-361045/8	Method Blank	Total/NA	Solid	8015C	

Prep Batch: 361237

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-107453-34	GP-96(15-16)(111914)	Total/NA	Solid	5030B	

GC Semi VOA

Prep Batch: 359808

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-107453-1	GP-80(18-19) (111814)	Total/NA	Solid	3546	
680-107453-2	GP-80(14-15) (111814)	Total/NA	Solid	3546	
680-107453-3	GP-81(13-14)(111814)	Total/NA	Solid	3546	
680-107453-4	GP-81(14-15)(111814)	Total/NA	Solid	3546	
680-107453-5	GP-82(14-15)(111814)	Total/NA	Solid	3546	
680-107453-6	GP-82(16.5-17.5)(111814)	Total/NA	Solid	3546	
680-107453-7	GP-83(13-14)(111814)	Total/NA	Solid	3546	
680-107453-8	GP-83(14-15)(111814)	Total/NA	Solid	3546	
680-107453-9	GP-84(14-15)(111814)	Total/NA	Solid	3546	
680-107453-10	GP-84(15.5-16.5)(111814)	Total/NA	Solid	3546	
680-107453-11	GP-85(6-7)(111814)	Total/NA	Solid	3546	
680-107453-12	GP-85(15.5-16.5)(111814)	Total/NA	Solid	3546	
680-107453-13	GP-86(14-15)(111814)	Total/NA	Solid	3546	
680-107453-14	GP-86(16-17)(111814)	Total/NA	Solid	3546	
680-107453-15	GP-87(14-15)(111914)	Total/NA	Solid	3546	
680-107453-16	GP-87(16-17)(111914)	Total/NA	Solid	3546	
680-107453-16 MS	GP-87(16-17)(111914)	Total/NA	Solid	3546	
680-107453-16 MSD	GP-87(16-17)(111914)	Total/NA	Solid	3546	
680-107453-17	GP-88(12-13)(111914)	Total/NA	Solid	3546	
680-107453-18	GP-88(15-16)(111914)	Total/NA	Solid	3546	
680-107453-19	GP-89(12-13)(111914)	Total/NA	Solid	3546	
680-107453-20	GP-89(15.5-16.5)(111914)	Total/NA	Solid	3546	
LCS 680-359808/22-A	Lab Control Sample	Total/NA	Solid	3546	
MB 680-359808/21-A	Method Blank	Total/NA	Solid	3546	

Prep Batch: 359812

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-107453-21	GP-90(9-10)(111914)	Total/NA	Solid	3546	
680-107453-22	GP-90(12.5-13.5)(111914)	Total/NA	Solid	3546	
680-107453-22 MS	GP-90(12.5-13.5)(111914)	Total/NA	Solid	3546	
680-107453-22 MSD	GP-90(12.5-13.5)(111914)	Total/NA	Solid	3546	
680-107453-23	GP-91(11-12)(111914)	Total/NA	Solid	3546	
680-107453-24	GP-91(15-16)(111914)	Total/NA	Solid	3546	
680-107453-25	GP-92(14-15)(111914)	Total/NA	Solid	3546	
680-107453-26	GP-92(15.5-16.5)(111914)	Total/NA	Solid	3546	
680-107453-27	GP-93(14-15)(111914)	Total/NA	Solid	3546	
680-107453-28	GP-93(15.5-16.5)(111914)	Total/NA	Solid	3546	
680-107453-29	GP-94(14-15)(111914)	Total/NA	Solid	3546	
680-107453-30	GP-94(13-14)(111914)	Total/NA	Solid	3546	
680-107453-31	GP-95(12-13)(111914)	Total/NA	Solid	3546	
680-107453-32	GP-95(15-16)(111914)	Total/NA	Solid	3546	
680-107453-33	GP-96(7-8)(111914)	Total/NA	Solid	3546	
680-107453-34	GP-96(15-16)(111914)	Total/NA	Solid	3546	
LCS 680-359812/16-A	Lab Control Sample	Total/NA	Solid	3546	
MB 680-359812/15-A	Method Blank	Total/NA	Solid	3546	

Analysis Batch: 359975

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-107453-1	GP-80(18-19) (111814)	Total/NA	Solid	8015C	359808
680-107453-2	GP-80(14-15) (111814)	Total/NA	Solid	8015C	359808
680-107453-3	GP-81(13-14)(111814)	Total/NA	Solid	8015C	359808

GC Semi VOA (Continued)

Analysis Batch: 359975 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-107453-4	GP-81(14-15)(111814)	Total/NA	Solid	8015C	359808
680-107453-5	GP-82(14-15)(111814)	Total/NA	Solid	8015C	359808
680-107453-7	GP-83(13-14)(111814)	Total/NA	Solid	8015C	359808
680-107453-8	GP-83(14-15)(111814)	Total/NA	Solid	8015C	359808
680-107453-9	GP-84(14-15)(111814)	Total/NA	Solid	8015C	359808
680-107453-10	GP-84(15.5-16.5)(111814)	Total/NA	Solid	8015C	359808
680-107453-11	GP-85(6-7)(111814)	Total/NA	Solid	8015C	359808
680-107453-12	GP-85(15.5-16.5)(111814)	Total/NA	Solid	8015C	359808
680-107453-13	GP-86(14-15)(111814)	Total/NA	Solid	8015C	359808
680-107453-14	GP-86(16-17)(111814)	Total/NA	Solid	8015C	359808
680-107453-15	GP-87(14-15)(111914)	Total/NA	Solid	8015C	359808
680-107453-16	GP-87(16-17)(111914)	Total/NA	Solid	8015C	359808
680-107453-16 MS	GP-87(16-17)(111914)	Total/NA	Solid	8015C	359808
680-107453-16 MSD	GP-87(16-17)(111914)	Total/NA	Solid	8015C	359808
680-107453-17	GP-88(12-13)(111914)	Total/NA	Solid	8015C	359808
680-107453-18	GP-88(15-16)(111914)	Total/NA	Solid	8015C	359808
680-107453-19	GP-89(12-13)(111914)	Total/NA	Solid	8015C	359808
680-107453-20	GP-89(15.5-16.5)(111914)	Total/NA	Solid	8015C	359808
LCS 680-359808/22-A	Lab Control Sample	Total/NA	Solid	8015C	359808
MB 680-359808/21-A	Method Blank	Total/NA	Solid	8015C	359808

Analysis Batch: 359980

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-107453-21	GP-90(9-10)(111914)	Total/NA	Solid	8015C	359812
680-107453-22	GP-90(12.5-13.5)(111914)	Total/NA	Solid	8015C	359812
680-107453-22 MS	GP-90(12.5-13.5)(111914)	Total/NA	Solid	8015C	359812
680-107453-23	GP-91(11-12)(111914)	Total/NA	Solid	8015C	359812
680-107453-30	GP-94(13-14)(111914)	Total/NA	Solid	8015C	359812
680-107453-33	GP-96(7-8)(111914)	Total/NA	Solid	8015C	359812
680-107453-34	GP-96(15-16)(111914)	Total/NA	Solid	8015C	359812
LCS 680-359812/16-A	Lab Control Sample	Total/NA	Solid	8015C	359812
MB 680-359812/15-A	Method Blank	Total/NA	Solid	8015C	359812

Analysis Batch: 360265

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-107453-6	GP-82(16.5-17.5)(111814)	Total/NA	Solid	8015C	359808
680-107453-24	GP-91(15-16)(111914)	Total/NA	Solid	8015C	359812
680-107453-25	GP-92(14-15)(111914)	Total/NA	Solid	8015C	359812
680-107453-26	GP-92(15.5-16.5)(111914)	Total/NA	Solid	8015C	359812
680-107453-27	GP-93(14-15)(111914)	Total/NA	Solid	8015C	359812
680-107453-28	GP-93(15.5-16.5)(111914)	Total/NA	Solid	8015C	359812
680-107453-29	GP-94(14-15)(111914)	Total/NA	Solid	8015C	359812
680-107453-31	GP-95(12-13)(111914)	Total/NA	Solid	8015C	359812
680-107453-32	GP-95(15-16)(111914)	Total/NA	Solid	8015C	359812

Analysis Batch: 360337

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-107453-22 MSD	GP-90(12.5-13.5)(111914)	Total/NA	Solid	8015C	359812

General Chemistry

Analysis Batch: 359740

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-107453-1	GP-80(18-19) (111814)	Total/NA	Solid	Moisture	
680-107453-2	GP-80(14-15) (111814)	Total/NA	Solid	Moisture	
680-107453-3	GP-81(13-14)(111814)	Total/NA	Solid	Moisture	
680-107453-4	GP-81(14-15)(111814)	Total/NA	Solid	Moisture	
680-107453-5	GP-82(14-15)(111814)	Total/NA	Solid	Moisture	
680-107453-6	GP-82(16.5-17.5)(111814)	Total/NA	Solid	Moisture	
680-107453-7	GP-83(13-14)(111814)	Total/NA	Solid	Moisture	
680-107453-8	GP-83(14-15)(111814)	Total/NA	Solid	Moisture	
680-107453-9	GP-84(14-15)(111814)	Total/NA	Solid	Moisture	
680-107453-10	GP-84(15.5-16.5)(111814)	Total/NA	Solid	Moisture	
680-107453-11	GP-85(6-7)(111814)	Total/NA	Solid	Moisture	
680-107453-12	GP-85(15.5-16.5)(111814)	Total/NA	Solid	Moisture	
680-107453-13	GP-86(14-15)(111814)	Total/NA	Solid	Moisture	
680-107453-14	GP-86(16-17)(111814)	Total/NA	Solid	Moisture	
680-107453-15	GP-87(14-15)(111914)	Total/NA	Solid	Moisture	
680-107453-16	GP-87(16-17)(111914)	Total/NA	Solid	Moisture	
680-107453-17	GP-88(12-13)(111914)	Total/NA	Solid	Moisture	
680-107453-18	GP-88(15-16)(111914)	Total/NA	Solid	Moisture	
680-107453-19	GP-89(12-13)(111914)	Total/NA	Solid	Moisture	
680-107453-20	GP-89(15.5-16.5)(111914)	Total/NA	Solid	Moisture	
680-107453-21	GP-90(9-10)(111914)	Total/NA	Solid	Moisture	
680-107453-22	GP-90(12.5-13.5)(111914)	Total/NA	Solid	Moisture	
680-107453-23	GP-91(11-12)(111914)	Total/NA	Solid	Moisture	
680-107453-24	GP-91(15-16)(111914)	Total/NA	Solid	Moisture	
680-107453-25	GP-92(14-15)(111914)	Total/NA	Solid	Moisture	
680-107453-26	GP-92(15.5-16.5)(111914)	Total/NA	Solid	Moisture	
680-107453-27	GP-93(14-15)(111914)	Total/NA	Solid	Moisture	
680-107453-28	GP-93(15.5-16.5)(111914)	Total/NA	Solid	Moisture	
680-107453-29	GP-94(14-15)(111914)	Total/NA	Solid	Moisture	
680-107453-30	GP-94(13-14)(111914)	Total/NA	Solid	Moisture	
680-107453-31	GP-95(12-13)(111914)	Total/NA	Solid	Moisture	
680-107453-32	GP-95(15-16)(111914)	Total/NA	Solid	Moisture	
680-107453-33	GP-96(7-8)(111914)	Total/NA	Solid	Moisture	
680-107453-34	GP-96(15-16)(111914)	Total/NA	Solid	Moisture	

Client Sample ID: GP-80(18-19) (111814)

Lab Sample ID: 680-107453-1

Date Collected: 11/18/14 09:40
Matrix: Solid
Date Received: 11/20/14 09:28
Percent Solids: 84.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.96 g	5.00 g	238370	12/01/14 09:24	LRC	TAL PEN
Total/NA	Analysis	8260B		1	5.96 g	5.00 g	238333	12/01/14 14:17	LRC	TAL PEN
	Instrument ID: CH_WASP									
Total/NA	Prep	3546			30.06 g	1 mL	359760	11/20/14 17:27	JMV	TAL SAV
Total/NA	Analysis	8270D		1	30.06 g	1 mL	360199	11/24/14 14:03	LEG	TAL SAV
	Instrument ID: CMSE									
Total/NA	Prep	5035			5.97 g	5 mL	359819	11/20/14 16:38	FES	TAL SAV
Total/NA	Analysis	8015C		1	5.97 g	5 mL	360143	11/24/14 13:52	AJMC	TAL SAV
	Instrument ID: CVGWFID1									
Total/NA	Prep	3546			30.16 g	1 mL	359808	11/20/14 15:52	JMV	TAL SAV
Total/NA	Analysis	8015C		1	30.16 g	1 mL	359975	11/21/14 18:29	SSP	TAL SAV
	Instrument ID: CSGQ									
Total/NA	Analysis	Moisture		1			359740	11/20/14 14:14	HML	TAL SAV
	Instrument ID: NOEQUIP									

Client Sample ID: GP-80(14-15) (111814)

Lab Sample ID: 680-107453-2

Date Collected: 11/18/14 09:45
Matrix: Solid
Date Received: 11/20/14 09:28
Percent Solids: 82.6

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			6.78 g	5.00 g	238370	12/01/14 09:24	LRC	TAL PEN
Total/NA	Analysis	8260B		1	6.78 g	5.00 g	238333	12/01/14 14:42	LRC	TAL PEN
	Instrument ID: CH_WASP									
Total/NA	Prep	3546			30.42 g	1 mL	359760	11/20/14 17:27	JMV	TAL SAV
Total/NA	Analysis	8270D		1	30.42 g	1 mL	360199	11/24/14 14:28	LEG	TAL SAV
	Instrument ID: CMSE									
Total/NA	Prep	5035			6.77 g	5 mL	359819	11/20/14 16:38	FES	TAL SAV
Total/NA	Analysis	8015C		1	6.77 g	5 mL	360056	11/22/14 17:16	AJMC	TAL SAV
	Instrument ID: CVGWFID1									
Total/NA	Prep	3546			30.16 g	1 mL	359808	11/20/14 15:52	JMV	TAL SAV
Total/NA	Analysis	8015C		1	30.16 g	1 mL	359975	11/21/14 18:44	SSP	TAL SAV
	Instrument ID: CSGQ									
Total/NA	Analysis	Moisture		1			359740	11/20/14 14:14	HML	TAL SAV
	Instrument ID: NOEQUIP									

Client Sample ID: GP-81(13-14)(111814)

Lab Sample ID: 680-107453-3

Date Collected: 11/18/14 11:05
Matrix: Solid
Date Received: 11/20/14 09:28
Percent Solids: 81.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.58 g	5.00 g	238370	12/01/14 09:24	LRC	TAL PEN
Total/NA	Analysis	8260B		1	5.58 g	5.00 g	238333	12/01/14 15:06	LRC	TAL PEN
	Instrument ID: CH_WASP									
Total/NA	Prep	3546			30.05 g	1 mL	359760	11/20/14 17:27	JMV	TAL SAV

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: CSX C&O Canal Brunswick, MD

TestAmerica Job ID: 680-107453-1

Client Sample ID: GP-81(13-14)(111814)

Date Collected: 11/18/14 11:05
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-3

Matrix: Solid
Percent Solids: 81.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8270D		1	30.05 g	1 mL	360199	11/24/14 14:53	LEG	TAL SAV
	Instrument ID: CMSE									
Total/NA	Prep	5035			6.13 g	5 mL	359819	11/20/14 16:38	FES	TAL SAV
Total/NA	Analysis	8015C		1	6.13 g	5 mL	360056	11/22/14 17:38	AJMC	TAL SAV
	Instrument ID: CVGWFID1									
Total/NA	Prep	3546			30.26 g	1 mL	359808	11/20/14 15:52	JMV	TAL SAV
Total/NA	Analysis	8015C		1	30.26 g	1 mL	359975	11/21/14 18:58	SSP	TAL SAV
	Instrument ID: CSGQ									
Total/NA	Analysis	Moisture		1			359740	11/20/14 14:14	HML	TAL SAV
	Instrument ID: NOEQUIP									

Client Sample ID: GP-81(14-15)(111814)

Date Collected: 11/18/14 11:10
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-4

Matrix: Solid
Percent Solids: 84.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			6.25 g	5.00 g	238370	12/01/14 09:24	LRC	TAL PEN
Total/NA	Analysis	8260B		1	6.25 g	5.00 g	238333	12/01/14 15:31	LRC	TAL PEN
	Instrument ID: CH_WASP									
Total/NA	Prep	3546			30.15 g	1 mL	359760	11/20/14 17:27	JMV	TAL SAV
Total/NA	Analysis	8270D		1	30.15 g	1 mL	360199	11/24/14 15:19	LEG	TAL SAV
	Instrument ID: CMSE									
Total/NA	Prep	5035			4.15 g	5 mL	359819	11/20/14 16:38	FES	TAL SAV
Total/NA	Analysis	8015C		250	4.15 g	5 mL	361045	12/01/14 14:22	AJMC	TAL SAV
	Instrument ID: CVGWFID1									
Total/NA	Prep	3546			30.15 g	1 mL	359808	11/20/14 15:52	JMV	TAL SAV
Total/NA	Analysis	8015C		1	30.15 g	1 mL	359975	11/21/14 19:13	SSP	TAL SAV
	Instrument ID: CSGQ									
Total/NA	Analysis	Moisture		1			359740	11/20/14 14:14	HML	TAL SAV
	Instrument ID: NOEQUIP									

Client Sample ID: GP-82(14-15)(111814)

Date Collected: 11/18/14 11:50
Date Received: 11/20/14 09:28

Lab Sample ID: 680-107453-5

Matrix: Solid
Percent Solids: 81.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			6.25 g	5.00 g	238370	12/01/14 09:24	LRC	TAL PEN
Total/NA	Analysis	8260B		1	6.25 g	5.00 g	238333	12/01/14 15:55	LRC	TAL PEN
	Instrument ID: CH_WASP									
Total/NA	Prep	3546			30.31 g	1 mL	359760	11/20/14 17:27	JMV	TAL SAV
Total/NA	Analysis	8270D		1	30.31 g	1 mL	360199	11/24/14 15:44	LEG	TAL SAV
	Instrument ID: CMSE									
Total/NA	Prep	5035			6.55 g	5 mL	359819	11/20/14 16:38	FES	TAL SAV

Client Sample ID: GP-82(14-15)(111814)

Lab Sample ID: 680-107453-5

Date Collected: 11/18/14 11:50
Matrix: Solid
Date Received: 11/20/14 09:28
Percent Solids: 81.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8015C		1	6.55 g	5 mL	360143	11/24/14 14:14	AJMC	TAL SAV
	Instrument ID: CVGWFID1									
Total/NA	Prep	3546			30.32 g	1 mL	359808	11/20/14 15:52	JMV	TAL SAV
Total/NA	Analysis	8015C		1	30.32 g	1 mL	359975	11/21/14 19:27	SSP	TAL SAV
	Instrument ID: CSGQ									
Total/NA	Analysis	Moisture		1			359740	11/20/14 14:14	HML	TAL SAV
	Instrument ID: NOEQUIP									

Client Sample ID: GP-82(16.5-17.5)(111814)

Lab Sample ID: 680-107453-6

Date Collected: 11/18/14 11:55
Matrix: Solid
Date Received: 11/20/14 09:28
Percent Solids: 83.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			6.78 g	5.00 g	238370	12/01/14 09:24	LRC	TAL PEN
Total/NA	Analysis	8260B		1	6.78 g	5.00 g	238333	12/01/14 16:20	LRC	TAL PEN
	Instrument ID: CH_WASP									
Total/NA	Prep	3546			30.33 g	1 mL	359760	11/20/14 17:27	JMV	TAL SAV
Total/NA	Analysis	8270D		1	30.33 g	1 mL	360199	11/24/14 16:09	LEG	TAL SAV
	Instrument ID: CMSE									
Total/NA	Prep	5035			5.61 g	5 mL	359819	11/20/14 16:38	FES	TAL SAV
Total/NA	Analysis	8015C		1	5.61 g	5 mL	360143	11/24/14 14:36	AJMC	TAL SAV
	Instrument ID: CVGWFID1									
Total/NA	Prep	3546			30.22 g	1 mL	359808	11/20/14 15:52	JMV	TAL SAV
Total/NA	Analysis	8015C		10	30.22 g	1 mL	360265	11/24/14 20:24	SSP	TAL SAV
	Instrument ID: CSGQ									
Total/NA	Analysis	Moisture		1			359740	11/20/14 14:14	HML	TAL SAV
	Instrument ID: NOEQUIP									

Client Sample ID: GP-83(13-14)(111814)

Lab Sample ID: 680-107453-7

Date Collected: 11/18/14 13:10
Matrix: Solid
Date Received: 11/20/14 09:28
Percent Solids: 83.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			6.84 g	5.00 g	238370	12/01/14 09:24	LRC	TAL PEN
Total/NA	Analysis	8260B		1	6.84 g	5.00 g	238333	12/01/14 16:44	LRC	TAL PEN
	Instrument ID: CH_WASP									
Total/NA	Prep	3546			30.20 g	1 mL	359760	11/20/14 17:27	JMV	TAL SAV
Total/NA	Analysis	8270D		1	30.20 g	1 mL	360199	11/24/14 16:34	LEG	TAL SAV
	Instrument ID: CMSE									
Total/NA	Prep	5035			6.41 g	5 mL	359819	11/20/14 16:38	FES	TAL SAV
Total/NA	Analysis	8015C		1	6.41 g	5 mL	360143	11/24/14 14:58	AJMC	TAL SAV
	Instrument ID: CVGWFID1									
Total/NA	Prep	3546			30.02 g	1 mL	359808	11/20/14 15:52	JMV	TAL SAV

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: CSX C&O Canal Brunswick, MD

TestAmerica Job ID: 680-107453-1

Client Sample ID: GP-83(13-14)(111814)

Lab Sample ID: 680-107453-7

Date Collected: 11/18/14 13:10
Matrix: Solid
Date Received: 11/20/14 09:28
Percent Solids: 83.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8015C		1	30.02 g	1 mL	359975	11/21/14 19:56	SSP	TAL SAV
	Instrument ID: CSGQ									
Total/NA	Analysis	Moisture		1			359740	11/20/14 14:14	HML	TAL SAV
	Instrument ID: NOEQUIP									

Client Sample ID: GP-83(14-15)(111814)

Lab Sample ID: 680-107453-8

Date Collected: 11/18/14 13:15
Matrix: Solid
Date Received: 11/20/14 09:28
Percent Solids: 85.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.38 g	5.00 g	238370	12/01/14 09:24	LRC	TAL PEN
Total/NA	Analysis	8260B		1	5.38 g	5.00 g	238333	12/01/14 17:09	LRC	TAL PEN
	Instrument ID: CH_WASP									
Total/NA	Prep	3546			30.16 g	1 mL	359760	11/20/14 17:27	JMV	TAL SAV
Total/NA	Analysis	8270D		1	30.16 g	1 mL	360199	11/24/14 16:59	LEG	TAL SAV
	Instrument ID: CMSE									
Total/NA	Prep	5035			5.63 g	5 mL	359819	11/20/14 16:38	FES	TAL SAV
Total/NA	Analysis	8015C		1	5.63 g	5 mL	360056	11/22/14 19:29	AJMC	TAL SAV
	Instrument ID: CVGWFID1									
Total/NA	Prep	3546			30.11 g	1 mL	359808	11/20/14 15:52	JMV	TAL SAV
Total/NA	Analysis	8015C		1	30.11 g	1 mL	359975	11/21/14 20:10	SSP	TAL SAV
	Instrument ID: CSGQ									
Total/NA	Analysis	Moisture		1			359740	11/20/14 14:14	HML	TAL SAV
	Instrument ID: NOEQUIP									

Client Sample ID: GP-84(14-15)(111814)

Lab Sample ID: 680-107453-9

Date Collected: 11/18/14 14:00
Matrix: Solid
Date Received: 11/20/14 09:28
Percent Solids: 85.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			6.4 g	5.00 g	237702	11/22/14 10:00	CAR	TAL PEN
Total/NA	Analysis	8260B		1	6.4 g	5.00 g	237692	11/23/14 12:09	CAR	TAL PEN
	Instrument ID: CH_WASP									
Total/NA	Prep	3546			30.29 g	1 mL	359760	11/20/14 17:27	JMV	TAL SAV
Total/NA	Analysis	8270D		1	30.29 g	1 mL	360199	11/24/14 17:24	LEG	TAL SAV
	Instrument ID: CMSE									
Total/NA	Prep	5035			6.4 g	5 mL	359819	11/20/14 16:38	FES	TAL SAV
Total/NA	Analysis	8015C		1	6.4 g	5 mL	360056	11/22/14 19:51	AJMC	TAL SAV
	Instrument ID: CVGWFID1									
Total/NA	Prep	3546			30.34 g	1 mL	359808	11/20/14 15:52	JMV	TAL SAV
Total/NA	Analysis	8015C		1	30.34 g	1 mL	359975	11/21/14 20:25	SSP	TAL SAV
	Instrument ID: CSGQ									
Total/NA	Analysis	Moisture		1			359740	11/20/14 14:14	HML	TAL SAV
	Instrument ID: NOEQUIP									

Client Sample ID: GP-84(15.5-16.5)(111814) — **Lab Sample ID: 680-107453-10**

Date Collected: 11/18/14 14:05 — **Matrix: Solid**

Date Received: 11/20/14 09:28 — **Percent Solids: 84.1**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			6.96 g	5.00 g	237702	11/22/14 10:00	CAR	TAL PEN
Total/NA	Analysis	8260B		1	6.96 g	5.00 g	237692	11/23/14 12:34	CAR	TAL PEN
	Instrument ID: CH_WASP									
Total/NA	Prep	3546			30.28 g	1 mL	359760	11/20/14 17:27	JMV	TAL SAV
Total/NA	Analysis	8270D		1	30.28 g	1 mL	360199	11/24/14 17:50	LEG	TAL SAV
	Instrument ID: CMSE									
Total/NA	Prep	5035			3.82 g	5 mL	359819	11/20/14 16:38	FES	TAL SAV
Total/NA	Analysis	8015C		1	3.82 g	5 mL	360056	11/22/14 20:13	AJMC	TAL SAV
	Instrument ID: CVGWFID1									
Total/NA	Prep	3546			30.09 g	1 mL	359808	11/20/14 15:52	JMV	TAL SAV
Total/NA	Analysis	8015C		1	30.09 g	1 mL	359975	11/21/14 20:39	SSP	TAL SAV
	Instrument ID: CSGQ									
Total/NA	Analysis	Moisture		1			359740	11/20/14 14:14	HML	TAL SAV
	Instrument ID: NOEQUIP									

Client Sample ID: GP-85(6-7)(111814) — **Lab Sample ID: 680-107453-11**

Date Collected: 11/18/14 14:50 — **Matrix: Solid**

Date Received: 11/20/14 09:28 — **Percent Solids: 84.3**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			6.62 g	5.00 g	237702	11/22/14 10:00	CAR	TAL PEN
Total/NA	Analysis	8260B		1	6.62 g	5.00 g	237692	11/23/14 12:58	CAR	TAL PEN
	Instrument ID: CH_WASP									
Total/NA	Prep	3546			30.24 g	1 mL	359760	11/20/14 17:27	JMV	TAL SAV
Total/NA	Analysis	8270D		1	30.24 g	1 mL	360199	11/24/14 18:15	LEG	TAL SAV
	Instrument ID: CMSE									
Total/NA	Prep	5035			6.02 g	5 mL	359819	11/20/14 16:38	FES	TAL SAV
Total/NA	Analysis	8015C		1	6.02 g	5 mL	360056	11/22/14 20:35	AJMC	TAL SAV
	Instrument ID: CVGWFID1									
Total/NA	Prep	3546			30.08 g	1 mL	359808	11/20/14 15:52	JMV	TAL SAV
Total/NA	Analysis	8015C		1	30.08 g	1 mL	359975	11/21/14 20:54	SSP	TAL SAV
	Instrument ID: CSGQ									
Total/NA	Analysis	Moisture		1			359740	11/20/14 14:14	HML	TAL SAV
	Instrument ID: NOEQUIP									

Client Sample ID: GP-85(15.5-16.5)(111814) — **Lab Sample ID: 680-107453-12**

Date Collected: 11/18/14 15:00 — **Matrix: Solid**

Date Received: 11/20/14 09:28 — **Percent Solids: 84.0**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.7 g	5.00 g	237702	11/22/14 10:00	CAR	TAL PEN
Total/NA	Analysis	8260B		1	5.7 g	5.00 g	237692	11/23/14 13:23	CAR	TAL PEN
	Instrument ID: CH_WASP									
Total/NA	Prep	3546			30.17 g	1 mL	359760	11/20/14 17:27	JMV	TAL SAV

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: CSX C&O Canal Brunswick, MD

TestAmerica Job ID: 680-107453-1

Client Sample ID: GP-85(15.5-16.5)(111814)

Lab Sample ID: 680-107453-12

Date Collected: 11/18/14 15:00
Matrix: Solid
Date Received: 11/20/14 09:28
Percent Solids: 84.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8270D		1	30.17 g	1 mL	360199	11/24/14 18:40	LEG	TAL SAV
	Instrument ID: CMSE									
Total/NA	Prep	5035			6.52 g	5 mL	359819	11/20/14 16:38	FES	TAL SAV
Total/NA	Analysis	8015C		1	6.52 g	5 mL	360056	11/22/14 20:57	AJMC	TAL SAV
	Instrument ID: CVGWFID1									
Total/NA	Prep	3546			30.06 g	1 mL	359808	11/20/14 15:52	JMV	TAL SAV
Total/NA	Analysis	8015C		1	30.06 g	1 mL	359975	11/21/14 21:08	SSP	TAL SAV
	Instrument ID: CSGQ									
Total/NA	Analysis	Moisture		1			359740	11/20/14 14:14	HML	TAL SAV
	Instrument ID: NOEQUIP									

Client Sample ID: GP-86(14-15)(111814)

Lab Sample ID: 680-107453-13

Date Collected: 11/18/14 15:55
Matrix: Solid
Date Received: 11/20/14 09:28
Percent Solids: 88.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			6.35 g	5.00 g	237702	11/22/14 10:00	CAR	TAL PEN
Total/NA	Analysis	8260B		1	6.35 g	5.00 g	237692	11/23/14 13:47	CAR	TAL PEN
	Instrument ID: CH_WASP									
Total/NA	Prep	3546			30.23 g	1 mL	359760	11/20/14 17:27	JMV	TAL SAV
Total/NA	Analysis	8270D		1	30.23 g	1 mL	360199	11/24/14 19:05	LEG	TAL SAV
	Instrument ID: CMSE									
Total/NA	Prep	5035			5.72 g	5 mL	359819	11/20/14 16:38	FES	TAL SAV
Total/NA	Analysis	8015C		1	5.72 g	5 mL	360056	11/22/14 21:19	AJMC	TAL SAV
	Instrument ID: CVGWFID1									
Total/NA	Prep	3546			30.29 g	1 mL	359808	11/20/14 15:52	JMV	TAL SAV
Total/NA	Analysis	8015C		1	30.29 g	1 mL	359975	11/21/14 21:23	SSP	TAL SAV
	Instrument ID: CSGQ									
Total/NA	Analysis	Moisture		1			359740	11/20/14 14:14	HML	TAL SAV
	Instrument ID: NOEQUIP									

Client Sample ID: GP-86(16-17)(111814)

Lab Sample ID: 680-107453-14

Date Collected: 11/18/14 16:00
Matrix: Solid
Date Received: 11/20/14 09:28
Percent Solids: 83.6

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			6.31 g	5.00 g	237702	11/22/14 10:00	CAR	TAL PEN
Total/NA	Analysis	8260B		1	6.31 g	5.00 g	237692	11/23/14 14:12	CAR	TAL PEN
	Instrument ID: CH_WASP									
Total/NA	Prep	3546			30.02 g	1 mL	359760	11/20/14 17:27	JMV	TAL SAV
Total/NA	Analysis	8270D		1	30.02 g	1 mL	360199	11/24/14 19:30	LEG	TAL SAV
	Instrument ID: CMSE									
Total/NA	Prep	5035			5.93 g	5 mL	359819	11/20/14 16:38	FES	TAL SAV

Client Sample ID: GP-86(16-17)(111814) — **Lab Sample ID: 680-107453-14**
Date Collected: 11/18/14 16:00 — **Matrix: Solid**
Date Received: 11/20/14 09:28 — **Percent Solids: 83.6**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8015C		1	5.93 g	5 mL	360056	11/22/14 21:41	AJMC	TAL SAV
	Instrument ID: CVGWFID1									
Total/NA	Prep	3546			30.02 g	1 mL	359808	11/20/14 15:52	JMV	TAL SAV
Total/NA	Analysis	8015C		1	30.02 g	1 mL	359975	11/21/14 21:37	SSP	TAL SAV
	Instrument ID: CSGQ									
Total/NA	Analysis	Moisture		1			359740	11/20/14 14:14	HML	TAL SAV
	Instrument ID: NOEQUIP									

Client Sample ID: GP-87(14-15)(111914) — **Lab Sample ID: 680-107453-15**
Date Collected: 11/19/14 08:25 — **Matrix: Solid**
Date Received: 11/20/14 09:28 — **Percent Solids: 82.3**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.36 g	5.00 g	237702	11/23/14 10:00	CAR	TAL PEN
Total/NA	Analysis	8260B		1	5.36 g	5.00 g	237692	11/23/14 14:36	CAR	TAL PEN
	Instrument ID: CH_WASP									
Total/NA	Prep	3546			30.11 g	1 mL	359760	11/20/14 17:27	JMV	TAL SAV
Total/NA	Analysis	8270D		1	30.11 g	1 mL	360199	11/24/14 19:55	LEG	TAL SAV
	Instrument ID: CMSE									
Total/NA	Prep	5035			4.97 g	5 mL	359819	11/20/14 16:38	FES	TAL SAV
Total/NA	Analysis	8015C		1	4.97 g	5 mL	360082	11/23/14 14:07	AJMC	TAL SAV
	Instrument ID: CVGWFID1									
Total/NA	Prep	3546			30.04 g	1 mL	359808	11/20/14 15:52	JMV	TAL SAV
Total/NA	Analysis	8015C		1	30.04 g	1 mL	359975	11/21/14 21:52	SSP	TAL SAV
	Instrument ID: CSGQ									
Total/NA	Analysis	Moisture		1			359740	11/20/14 14:14	HML	TAL SAV
	Instrument ID: NOEQUIP									

Client Sample ID: GP-87(16-17)(111914) — **Lab Sample ID: 680-107453-16**
Date Collected: 11/19/14 08:30 — **Matrix: Solid**
Date Received: 11/20/14 09:28 — **Percent Solids: 84.6**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			2.76 g	5.00 g	237702	11/23/14 10:00	CAR	TAL PEN
Total/NA	Analysis	8260B		1	2.76 g	5.00 g	237692	11/23/14 15:01	CAR	TAL PEN
	Instrument ID: CH_WASP									
Total/NA	Prep	3546			30.06 g	1 mL	359760	11/20/14 17:27	JMV	TAL SAV
Total/NA	Analysis	8270D		1	30.06 g	1 mL	360199	11/24/14 20:21	LEG	TAL SAV
	Instrument ID: CMSE									
Total/NA	Prep	5035			3.11 g	15 mL	359819	11/20/14 16:38	FES	TAL SAV
Total/NA	Analysis	8015C		20	3.11 g	15 mL	361045	12/01/14 16:56	AJMC	TAL SAV
	Instrument ID: CVGWFID1									
Total/NA	Prep	3546			30.18 g	1 mL	359808	11/20/14 15:52	JMV	TAL SAV

Client Sample ID: GP-87(16-17)(111914)

Lab Sample ID: 680-107453-16

Date Collected: 11/19/14 08:30

Matrix: Solid

Date Received: 11/20/14 09:28

Percent Solids: 84.6

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8015C		1	30.18 g	1 mL	359975	11/21/14 17:17	SSP	TAL SAV
	Instrument ID: CSGQ									
Total/NA	Analysis	Moisture		1			359740	11/20/14 14:14	HML	TAL SAV
	Instrument ID: NOEQUIP									

Client Sample ID: GP-88(12-13)(111914)

Lab Sample ID: 680-107453-17

Date Collected: 11/19/14 09:10

Matrix: Solid

Date Received: 11/20/14 09:28

Percent Solids: 82.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.8 g	5.00 g	237702	11/23/14 10:00	CAR	TAL PEN
Total/NA	Analysis	8260B		1	5.8 g	5.00 g	237692	11/23/14 15:25	CAR	TAL PEN
	Instrument ID: CH_WASP									
Total/NA	Prep	3546			30.20 g	1 mL	359760	11/20/14 17:27	JMV	TAL SAV
Total/NA	Analysis	8270D		1	30.20 g	1 mL	360199	11/24/14 20:46	LEG	TAL SAV
	Instrument ID: CMSE									
Total/NA	Prep	5035			6.89 g	5 mL	359819	11/20/14 16:38	FES	TAL SAV
Total/NA	Analysis	8015C		1	6.89 g	5 mL	360143	11/24/14 15:43	AJMC	TAL SAV
	Instrument ID: CVGWFID1									
Total/NA	Prep	3546			30.24 g	1 mL	359808	11/20/14 15:52	JMV	TAL SAV
Total/NA	Analysis	8015C		1	30.24 g	1 mL	359975	11/21/14 22:06	SSP	TAL SAV
	Instrument ID: CSGQ									
Total/NA	Analysis	Moisture		1			359740	11/20/14 14:14	HML	TAL SAV
	Instrument ID: NOEQUIP									

Client Sample ID: GP-88(15-16)(111914)

Lab Sample ID: 680-107453-18

Date Collected: 11/19/14 09:15

Matrix: Solid

Date Received: 11/20/14 09:28

Percent Solids: 83.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			6.11 g	5.00 g	237702	11/23/14 10:00	CAR	TAL PEN
Total/NA	Analysis	8260B		1	6.11 g	5.00 g	237692	11/23/14 15:49	CAR	TAL PEN
	Instrument ID: CH_WASP									
Total/NA	Prep	3546			30.16 g	1 mL	359760	11/20/14 17:27	JMV	TAL SAV
Total/NA	Analysis	8270D		1	30.16 g	1 mL	360199	11/24/14 21:11	LEG	TAL SAV
	Instrument ID: CMSE									
Total/NA	Prep	5035			5.72 g	5 mL	359819	11/20/14 16:38	FES	TAL SAV
Total/NA	Analysis	8015C		1	5.72 g	5 mL	360082	11/23/14 15:13	AJMC	TAL SAV
	Instrument ID: CVGWFID1									
Total/NA	Prep	3546			30.27 g	1 mL	359808	11/20/14 15:52	JMV	TAL SAV
Total/NA	Analysis	8015C		1	30.27 g	1 mL	359975	11/21/14 22:21	SSP	TAL SAV
	Instrument ID: CSGQ									
Total/NA	Analysis	Moisture		1			359740	11/20/14 14:14	HML	TAL SAV
	Instrument ID: NOEQUIP									

Client Sample ID: GP-89(12-13)(111914)

Lab Sample ID: 680-107453-19

Date Collected: 11/19/14 10:10

Matrix: Solid

Date Received: 11/20/14 09:28

Percent Solids: 81.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			6.05 g	5.00 g	237702	11/23/14 10:00	CAR	TAL PEN
Total/NA	Analysis	8260B		1	6.05 g	5.00 g	237692	11/23/14 16:14	CAR	TAL PEN
	Instrument ID: CH_WASP									
Total/NA	Prep	3546			30.31 g	1 mL	359760	11/20/14 17:27	JMV	TAL SAV
Total/NA	Analysis	8270D		1	30.31 g	1 mL	360199	11/24/14 21:36	LEG	TAL SAV
	Instrument ID: CMSE									
Total/NA	Prep	5035			5.76 g	5 mL	359819	11/20/14 16:38	FES	TAL SAV
Total/NA	Analysis	8015C		1	5.76 g	5 mL	360082	11/23/14 15:35	AJMC	TAL SAV
	Instrument ID: CVGWFID1									
Total/NA	Prep	3546			30.02 g	1 mL	359808	11/20/14 15:52	JMV	TAL SAV
Total/NA	Analysis	8015C		1	30.02 g	1 mL	359975	11/21/14 22:35	SSP	TAL SAV
	Instrument ID: CSGQ									
Total/NA	Analysis	Moisture		1			359740	11/20/14 14:14	HML	TAL SAV
	Instrument ID: NOEQUIP									

Client Sample ID: GP-89(15.5-16.5)(111914)

Lab Sample ID: 680-107453-20

Date Collected: 11/19/14 10:15

Matrix: Solid

Date Received: 11/20/14 09:28

Percent Solids: 84.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			6.4 g	5.00 g	237702	11/23/14 10:00	CAR	TAL PEN
Total/NA	Analysis	8260B		1	6.4 g	5.00 g	237692	11/23/14 16:38	CAR	TAL PEN
	Instrument ID: CH_WASP									
Total/NA	Prep	3546			30.22 g	1 mL	359760	11/20/14 17:27	JMV	TAL SAV
Total/NA	Analysis	8270D		1	30.22 g	1 mL	360199	11/24/14 22:01	LEG	TAL SAV
	Instrument ID: CMSE									
Total/NA	Prep	5035			6.66 g	5 mL	359819	11/20/14 16:38	FES	TAL SAV
Total/NA	Analysis	8015C		1	6.66 g	5 mL	360082	11/23/14 15:57	AJMC	TAL SAV
	Instrument ID: CVGWFID1									
Total/NA	Prep	3546			30.32 g	1 mL	359808	11/20/14 15:52	JMV	TAL SAV
Total/NA	Analysis	8015C		1	30.32 g	1 mL	359975	11/21/14 22:50	SSP	TAL SAV
	Instrument ID: CSGQ									
Total/NA	Analysis	Moisture		1			359740	11/20/14 14:14	HML	TAL SAV
	Instrument ID: NOEQUIP									

Client Sample ID: GP-90(9-10)(111914)

Lab Sample ID: 680-107453-21

Date Collected: 11/19/14 10:45

Matrix: Solid

Date Received: 11/20/14 09:28

Percent Solids: 83.8

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.75 g	5.00 g	237702	11/23/14 10:00	CAR	TAL PEN
Total/NA	Analysis	8260B		1	5.75 g	5.00 g	237692	11/23/14 17:03	CAR	TAL PEN
	Instrument ID: CH_WASP									
Total/NA	Prep	3546			30.02 g	1 mL	359773	11/20/14 17:57	JMV	TAL SAV

Client Sample ID: GP-90(9-10)(111914)

Lab Sample ID: 680-107453-21

Date Collected: 11/19/14 10:45
Matrix: Solid
Date Received: 11/20/14 09:28
Percent Solids: 83.8

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8270D		1	30.02 g	1 mL	360248	11/24/14 16:02	LEG	TAL SAV
	Instrument ID: CMSN									
Total/NA	Prep	5035			5.76 g	5 mL	359819	11/20/14 16:38	FES	TAL SAV
Total/NA	Analysis	8015C		1	5.76 g	5 mL	360082	11/23/14 16:19	AJMC	TAL SAV
	Instrument ID: CVGWFID1									
Total/NA	Prep	3546			30.06 g	1 mL	359812	11/20/14 17:57	JMV	TAL SAV
Total/NA	Analysis	8015C		1	30.06 g	1 mL	359980	11/22/14 03:25	SSP	TAL SAV
	Instrument ID: CSGQ									
Total/NA	Analysis	Moisture		1			359740	11/20/14 14:14	HML	TAL SAV
	Instrument ID: NOEQUIP									

Client Sample ID: GP-90(12.5-13.5)(111914)

Lab Sample ID: 680-107453-22

Date Collected: 11/19/14 10:50
Matrix: Solid
Date Received: 11/20/14 09:28
Percent Solids: 81.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			7.22 g	5.00 g	237702	11/23/14 10:00	CAR	TAL PEN
Total/NA	Analysis	8260B		1	7.22 g	5.00 g	237692	11/23/14 17:27	CAR	TAL PEN
	Instrument ID: CH_WASP									
Total/NA	Prep	3546			30.02 g	1 mL	359773	11/20/14 17:57	JMV	TAL SAV
Total/NA	Analysis	8270D		1	30.02 g	1 mL	360248	11/24/14 16:25	LEG	TAL SAV
	Instrument ID: CMSN									
Total/NA	Prep	5035			6.47 g	5 mL	359819	11/20/14 16:38	FES	TAL SAV
Total/NA	Analysis	8015C		1	6.47 g	5 mL	360082	11/23/14 16:41	AJMC	TAL SAV
	Instrument ID: CVGWFID1									
Total/NA	Prep	3546			30.03 g	1 mL	359812	11/20/14 17:57	JMV	TAL SAV
Total/NA	Analysis	8015C		1	30.03 g	1 mL	359980	11/22/14 02:12	SSP	TAL SAV
	Instrument ID: CSGQ									
Total/NA	Analysis	Moisture		1			359740	11/20/14 14:14	HML	TAL SAV
	Instrument ID: NOEQUIP									

Client Sample ID: GP-91(11-12)(111914)

Lab Sample ID: 680-107453-23

Date Collected: 11/19/14 11:50
Matrix: Solid
Date Received: 11/20/14 09:28
Percent Solids: 81.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			6.88 g	5.00 g	238370	12/01/14 09:24	LRC	TAL PEN
Total/NA	Analysis	8260B		50	6.88 g	5.00 g	238333	12/01/14 17:58	LRC	TAL PEN
	Instrument ID: CH_WASP									
Total/NA	Prep	3546			30.04 g	1 mL	359773	11/20/14 17:57	JMV	TAL SAV
Total/NA	Analysis	8270D		1	30.04 g	1 mL	360248	11/24/14 16:47	LEG	TAL SAV
	Instrument ID: CMSN									
Total/NA	Prep	5035			5.48 g	15 mL	359819	11/20/14 16:38	FES	TAL SAV

Client Sample ID: GP-91(11-12)(111914)

Lab Sample ID: 680-107453-23

Date Collected: 11/19/14 11:50
Matrix: Solid
Date Received: 11/20/14 09:28
Percent Solids: 81.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8015C		100	5.48 g	15 mL	361045	12/01/14 16:11	AJMC	TAL SAV
	Instrument ID: CVGWFID1									
Total/NA	Prep	3546			30.01 g	1 mL	359812	11/20/14 17:57	JMV	TAL SAV
Total/NA	Analysis	8015C		1	30.01 g	1 mL	359980	11/22/14 03:40	SSP	TAL SAV
	Instrument ID: CSGQ									
Total/NA	Analysis	Moisture		1			359740	11/20/14 14:14	HML	TAL SAV
	Instrument ID: NOEQUIP									

Client Sample ID: GP-91(15-16)(111914)

Lab Sample ID: 680-107453-24

Date Collected: 11/19/14 11:55
Matrix: Solid
Date Received: 11/20/14 09:28
Percent Solids: 81.3

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			7.06 g	5.00 g	238370	12/01/14 09:24	LRC	TAL PEN
Total/NA	Analysis	8260B		50	7.06 g	5.00 g	238333	12/01/14 18:22	LRC	TAL PEN
	Instrument ID: CH_WASP									
Total/NA	Prep	3546			30.08 g	1 mL	359773	11/20/14 17:57	JMV	TAL SAV
Total/NA	Analysis	8270D		1	30.08 g	1 mL	360248	11/24/14 17:10	LEG	TAL SAV
	Instrument ID: CMSN									
Total/NA	Prep	5035			3.48 g	15 mL	359819	11/20/14 16:38	FES	TAL SAV
Total/NA	Analysis	8015C		250	3.48 g	15 mL	361045	12/01/14 14:44	AJMC	TAL SAV
	Instrument ID: CVGWFID1									
Total/NA	Prep	3546			29.99 g	1 mL	359812	11/20/14 17:57	JMV	TAL SAV
Total/NA	Analysis	8015C		10	29.99 g	1 mL	360265	11/24/14 20:39	SSP	TAL SAV
	Instrument ID: CSGQ									
Total/NA	Analysis	Moisture		1			359740	11/20/14 14:14	HML	TAL SAV
	Instrument ID: NOEQUIP									

Client Sample ID: GP-92(14-15)(111914)

Lab Sample ID: 680-107453-25

Date Collected: 11/19/14 13:35
Matrix: Solid
Date Received: 11/20/14 09:28
Percent Solids: 82.8

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.79 g	5.00 g	238370	12/01/14 09:24	LRC	TAL PEN
Total/NA	Analysis	8260B		50	5.79 g	5.00 g	238333	12/01/14 18:47	LRC	TAL PEN
	Instrument ID: CH_WASP									
Total/NA	Prep	3546			29.98 g	1 mL	359773	11/20/14 17:57	JMV	TAL SAV
Total/NA	Analysis	8270D		1	29.98 g	1 mL	360248	11/24/14 17:33	LEG	TAL SAV
	Instrument ID: CMSN									
Total/NA	Prep	5035			5.567 g	5 mL	359819	11/20/14 16:38	FES	TAL SAV
Total/NA	Analysis	8015C		250	5.567 g	5 mL	361045	12/01/14 12:31	AJMC	TAL SAV
	Instrument ID: CVGWFID1									
Total/NA	Prep	3546			30.09 g	1 mL	359812	11/20/14 17:57	JMV	TAL SAV

Client Sample ID: GP-92(14-15)(111914)

Lab Sample ID: 680-107453-25

Date Collected: 11/19/14 13:35
Matrix: Solid
Date Received: 11/20/14 09:28
Percent Solids: 82.8

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8015C		10	30.09 g	1 mL	360265	11/24/14 20:53	SSP	TAL SAV
	Instrument ID: CSGQ									
Total/NA	Analysis	Moisture		1			359740	11/20/14 14:14	HML	TAL SAV
	Instrument ID: NOEQUIP									

Client Sample ID: GP-92(15.5-16.5)(111914)

Lab Sample ID: 680-107453-26

Date Collected: 11/19/14 13:40
Matrix: Solid
Date Received: 11/20/14 09:28
Percent Solids: 82.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			6.13 g	5.00 g	238370	12/01/14 09:24	LRC	TAL PEN
Total/NA	Analysis	8260B		50	6.13 g	5.00 g	238333	12/01/14 19:12	LRC	TAL PEN
	Instrument ID: CH_WASP									
Total/NA	Prep	3546			30.04 g	1 mL	359773	11/20/14 17:57	JMV	TAL SAV
Total/NA	Analysis	8270D		1	30.04 g	1 mL	360248	11/24/14 17:56	LEG	TAL SAV
	Instrument ID: CMSN									
Total/NA	Prep	5035			6.902 g	5 mL	359819	11/20/14 16:38	FES	TAL SAV
Total/NA	Analysis	8015C		250	6.902 g	5 mL	361045	12/01/14 13:37	AJMC	TAL SAV
	Instrument ID: CVGWFID1									
Total/NA	Prep	3546			30.06 g	1 mL	359812	11/20/14 17:57	JMV	TAL SAV
Total/NA	Analysis	8015C		10	30.06 g	1 mL	360265	11/24/14 21:08	SSP	TAL SAV
	Instrument ID: CSGQ									
Total/NA	Analysis	Moisture		1			359740	11/20/14 14:14	HML	TAL SAV
	Instrument ID: NOEQUIP									

Client Sample ID: GP-93(14-15)(111914)

Lab Sample ID: 680-107453-27

Date Collected: 11/19/14 14:25
Matrix: Solid
Date Received: 11/20/14 09:28
Percent Solids: 83.1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			6.2 g	5.00 g	238370	12/01/14 09:24	LRC	TAL PEN
Total/NA	Analysis	8260B		50	6.2 g	5.00 g	238333	12/01/14 19:36	LRC	TAL PEN
	Instrument ID: CH_WASP									
Total/NA	Prep	3546			30.04 g	1 mL	359773	11/20/14 17:57	JMV	TAL SAV
Total/NA	Analysis	8270D		10	30.04 g	1 mL	360400	11/25/14 15:05	LEG	TAL SAV
	Instrument ID: CMSE									
Total/NA	Prep	5035			3.626 g	5 mL	359819	11/20/14 16:38	FES	TAL SAV
Total/NA	Analysis	8015C		250	3.626 g	5 mL	361045	12/01/14 14:00	AJMC	TAL SAV
	Instrument ID: CVGWFID1									
Total/NA	Prep	3546			30.07 g	1 mL	359812	11/20/14 17:57	JMV	TAL SAV
Total/NA	Analysis	8015C		50	30.07 g	1 mL	360265	11/24/14 21:22	SSP	TAL SAV
	Instrument ID: CSGQ									
Total/NA	Analysis	Moisture		1			359740	11/20/14 14:14	HML	TAL SAV
	Instrument ID: NOEQUIP									

Client Sample ID: GP-93(15.5-16.5)(111914) — **Lab Sample ID: 680-107453-28**

Date Collected: 11/19/14 14:30 — **Matrix: Solid**

Date Received: 11/20/14 09:28 — **Percent Solids: 84.3**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			6.07 g	5.00 g	238370	12/01/14 09:24	LRC	TAL PEN
Total/NA	Analysis	8260B		50	6.07 g	5.00 g	238333	12/01/14 20:01	LRC	TAL PEN
	Instrument ID: CH_WASP									
Total/NA	Prep	3546			30.08 g	1 mL	359773	11/20/14 17:57	JMV	TAL SAV
Total/NA	Analysis	8270D		1	30.08 g	1 mL	360248	11/24/14 18:41	LEG	TAL SAV
	Instrument ID: CMSN									
Total/NA	Prep	5035			5.015 g	5 mL	359819	11/20/14 16:38	FES	TAL SAV
Total/NA	Analysis	8015C		20	5.015 g	5 mL	360539	11/28/14 16:21	AJMC	TAL SAV
	Instrument ID: CVGWFID1									
Total/NA	Prep	3546			30.09 g	1 mL	359812	11/20/14 17:57	JMV	TAL SAV
Total/NA	Analysis	8015C		10	30.09 g	1 mL	360265	11/24/14 21:37	SSP	TAL SAV
	Instrument ID: CSGQ									
Total/NA	Analysis	Moisture		1			359740	11/20/14 14:14	HML	TAL SAV
	Instrument ID: NOEQUIP									

Client Sample ID: GP-94(14-15)(111914) — **Lab Sample ID: 680-107453-29**

Date Collected: 11/19/14 15:05 — **Matrix: Solid**

Date Received: 11/20/14 09:28 — **Percent Solids: 82.0**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			6.73 g	5.00 g	237702	11/23/14 10:00	CAR	TAL PEN
Total/NA	Analysis	8260B		1	6.73 g	5.00 g	237692	11/23/14 17:52	CAR	TAL PEN
	Instrument ID: CH_WASP									
Total/NA	Prep	3546			29.99 g	1 mL	359773	11/20/14 17:57	JMV	TAL SAV
Total/NA	Analysis	8270D		1	29.99 g	1 mL	360248	11/24/14 19:04	LEG	TAL SAV
	Instrument ID: CMSN									
Total/NA	Prep	5035			3.61 g	15 mL	359819	11/20/14 16:38	FES	TAL SAV
Total/NA	Analysis	8015C		100	3.61 g	15 mL	361045	12/01/14 16:34	AJMC	TAL SAV
	Instrument ID: CVGWFID1									
Total/NA	Prep	3546			30.00 g	1 mL	359812	11/20/14 17:57	JMV	TAL SAV
Total/NA	Analysis	8015C		10	30.00 g	1 mL	360265	11/24/14 21:51	SSP	TAL SAV
	Instrument ID: CSGQ									
Total/NA	Analysis	Moisture		1			359740	11/20/14 14:14	HML	TAL SAV
	Instrument ID: NOEQUIP									

Client Sample ID: GP-94(13-14)(111914) — **Lab Sample ID: 680-107453-30**

Date Collected: 11/19/14 15:10 — **Matrix: Solid**

Date Received: 11/20/14 09:28 — **Percent Solids: 83.5**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			6.67 g	5.00 g	237702	11/23/14 10:00	CAR	TAL PEN
Total/NA	Analysis	8260B		1	6.67 g	5.00 g	237692	11/23/14 18:16	CAR	TAL PEN
	Instrument ID: CH_WASP									
Total/NA	Prep	3546			30.06 g	1 mL	359773	11/20/14 17:57	JMV	TAL SAV

Client Sample ID: GP-94(13-14)(111914) — **Lab Sample ID: 680-107453-30**
Date Collected: 11/19/14 15:10 — **Matrix: Solid**
Date Received: 11/20/14 09:28 — **Percent Solids: 83.5**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8270D		1	30.06 g	1 mL	360248	11/24/14 19:27	LEG	TAL SAV
	Instrument ID: CMSN									
Total/NA	Prep	5035			5.4 g	15 mL	359819	11/20/14 16:38	FES	TAL SAV
Total/NA	Analysis	8015C		20	5.4 g	15 mL	360539	11/28/14 21:53	AJMC	TAL SAV
	Instrument ID: CVGWFID1									
Total/NA	Prep	3546			30.03 g	1 mL	359812	11/20/14 17:57	JMV	TAL SAV
Total/NA	Analysis	8015C		1	30.03 g	1 mL	359980	11/22/14 05:21	SSP	TAL SAV
	Instrument ID: CSGQ									
Total/NA	Analysis	Moisture		1			359740	11/20/14 14:14	HML	TAL SAV
	Instrument ID: NOEQUIP									

Client Sample ID: GP-95(12-13)(111914) — **Lab Sample ID: 680-107453-31**
Date Collected: 11/19/14 15:55 — **Matrix: Solid**
Date Received: 11/20/14 09:28 — **Percent Solids: 84.0**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			6.86 g	5.00 g	237702	11/23/14 10:00	CAR	TAL PEN
Total/NA	Analysis	8260B		1	6.86 g	5.00 g	237692	11/23/14 18:41	CAR	TAL PEN
	Instrument ID: CH_WASP									
Total/NA	Prep	3546			30.03 g	1 mL	359773	11/20/14 17:57	JMV	TAL SAV
Total/NA	Analysis	8270D		1	30.03 g	1 mL	360248	11/24/14 19:50	LEG	TAL SAV
	Instrument ID: CMSN									
Total/NA	Prep	5035			5.87 g	5 mL	359819	11/20/14 16:38	FES	TAL SAV
Total/NA	Analysis	8015C		20	5.87 g	5 mL	360539	11/28/14 22:15	AJMC	TAL SAV
	Instrument ID: CVGWFID1									
Total/NA	Prep	3546			29.99 g	1 mL	359812	11/20/14 17:57	JMV	TAL SAV
Total/NA	Analysis	8015C		50	29.99 g	1 mL	360265	11/24/14 22:06	SSP	TAL SAV
	Instrument ID: CSGQ									
Total/NA	Analysis	Moisture		1			359740	11/20/14 14:14	HML	TAL SAV
	Instrument ID: NOEQUIP									

Client Sample ID: GP-95(15-16)(111914) — **Lab Sample ID: 680-107453-32**
Date Collected: 11/19/14 16:00 — **Matrix: Solid**
Date Received: 11/20/14 09:28 — **Percent Solids: 83.5**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			7 g	5.00 g	237702	11/23/14 10:00	CAR	TAL PEN
Total/NA	Analysis	8260B		1	7 g	5.00 g	237692	11/23/14 19:05	CAR	TAL PEN
	Instrument ID: CH_WASP									
Total/NA	Prep	3546			30.04 g	1 mL	359773	11/20/14 17:57	JMV	TAL SAV
Total/NA	Analysis	8270D		1	30.04 g	1 mL	360248	11/24/14 20:13	LEG	TAL SAV
	Instrument ID: CMSN									
Total/NA	Prep	5035			6.72 g	5 mL	359819	11/20/14 17:44	FES	TAL SAV

Client Sample ID: GP-95(15-16)(111914)

Lab Sample ID: 680-107453-32

Date Collected: 11/19/14 16:00
Matrix: Solid
Date Received: 11/20/14 09:28
Percent Solids: 83.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8015C		250	6.72 g	5 mL	361045	12/01/14 12:53	AJMC	TAL SAV
	Instrument ID: CVGWFID1									
Total/NA	Prep	3546			30.01 g	1 mL	359812	11/20/14 17:57	JMV	TAL SAV
Total/NA	Analysis	8015C		10	30.01 g	1 mL	360265	11/24/14 22:20	SSP	TAL SAV
	Instrument ID: CSGQ									
Total/NA	Analysis	Moisture		1			359740	11/20/14 14:14	HML	TAL SAV
	Instrument ID: NOEQUIP									

Client Sample ID: GP-96(7-8)(111914)

Lab Sample ID: 680-107453-33

Date Collected: 11/19/14 16:20
Matrix: Solid
Date Received: 11/20/14 09:28
Percent Solids: 82.2

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			6.68 g	5.00 g	237702	11/23/14 10:00	CAR	TAL PEN
Total/NA	Analysis	8260B		1	6.68 g	5.00 g	237692	11/23/14 19:30	CAR	TAL PEN
	Instrument ID: CH_WASP									
Total/NA	Prep	3546			29.99 g	1 mL	359773	11/20/14 17:57	JMV	TAL SAV
Total/NA	Analysis	8270D		1	29.99 g	1 mL	360248	11/24/14 20:35	LEG	TAL SAV
	Instrument ID: CMSN									
Total/NA	Prep	5035			6.44 g	5 mL	359819	11/20/14 17:44	FES	TAL SAV
Total/NA	Analysis	8015C		1	6.44 g	5 mL	360143	11/24/14 16:06	AJMC	TAL SAV
	Instrument ID: CVGWFID1									
Total/NA	Prep	3546			29.99 g	1 mL	359812	11/20/14 17:57	JMV	TAL SAV
Total/NA	Analysis	8015C		1	29.99 g	1 mL	359980	11/22/14 06:05	SSP	TAL SAV
	Instrument ID: CSGQ									
Total/NA	Analysis	Moisture		1			359740	11/20/14 14:14	HML	TAL SAV
	Instrument ID: NOEQUIP									

Client Sample ID: GP-96(15-16)(111914)

Lab Sample ID: 680-107453-34

Date Collected: 11/19/14 16:25
Matrix: Solid
Date Received: 11/20/14 09:28
Percent Solids: 81.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.34 g	5.00 g	237702	11/23/14 10:00	CAR	TAL PEN
Total/NA	Analysis	8260B		1	4.34 g	5.00 g	237692	11/23/14 19:54	CAR	TAL PEN
	Instrument ID: CH_WASP									
Total/NA	Prep	3546			30.11 g	1 mL	359773	11/20/14 17:57	JMV	TAL SAV
Total/NA	Analysis	8270D		1	30.11 g	1 mL	360248	11/24/14 20:58	LEG	TAL SAV
	Instrument ID: CMSN									
Total/NA	Prep	5030B			5.10 g	5 mL	361237	12/01/14 15:37	AJMC	TAL SAV
Total/NA	Analysis	8015C		20	5.10 g	5 mL	361045	12/01/14 17:40	AJMC	TAL SAV
	Instrument ID: CVGWFID1									
Total/NA	Prep	3546			30.01 g	1 mL	359812	11/20/14 17:57	JMV	TAL SAV

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: CSX C&O Canal Brunswick, MD

TestAmerica Job ID: 680-107453-1

Client Sample ID: GP-96(15-16)(111914)

Lab Sample ID: 680-107453-34

Date Collected: 11/19/14 16:25
Matrix: Solid
Date Received: 11/20/14 09:28
Percent Solids: 81.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8015C		1	30.01 g	1 mL	359980	11/22/14 06:19	SSP	TAL SAV
	Instrument ID: CSGQ									
Total/NA	Analysis	Moisture		1			359740	11/20/14 14:14	HML	TAL SAV
	Instrument ID: NOEQUIP									

Client Sample ID: TRIPBLANK(111914)

Lab Sample ID: 680-107453-35

Date Collected: 11/19/14 00:00
Matrix: Water
Date Received: 11/20/14 09:28

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	237866	11/25/14 08:32	WPD	TAL PEN
	Instrument ID: CH_CONAN									

Laboratory References:

TAL PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

TestAmerica Baltimore
7526 Connelley Drive Suite F
Hanover, MD 21076
Phone (410) 766-2516 Fax (410) xxx-xxxx

SHIP TO TEST AMERICA SAVANNAH
5102 LAROCHE AVE SAVANNAH, GA 31404
P: (912) 354-7858

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: LAUREN LAMP	Lab PM: Harvey, Lisa M	Carrier Tracking No(s):	COC No: ~~680-80198-28420.1~~ 111914-1
Client Contact: Joshua Wilson	Phone: 571.375.5180	E-Mail: lisa.harvey@testamericainc.com		Page: ~~Page 1 of 5~~ 1 OF 3
Company: ARCADIS U.S., Inc.				Job #:
Address: 1114 Benfield Blvd. Suite A	Due Date Requested: —			
City: Millersville	TAT Requested (days): CSXT STANDARD			
State, Zip: MD, 21108				
Phone:	PO #: ENV00000035683 LWON			
Email: joshua.wilson@arcadis-us.com	WO #: R9415381 CSXT PROJECT #			
Project Name: CSX C&O Canal Brunswick, MD	Project #: 68001180			
Site: BRUNSWICK RAIL YARD	SSOW#: MD000843.0011			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - (MOD) Full List VOCs (Site specific)	8015C_GRO - GRO - Gasoline Range Organics	8015C_DRO, 8270D	8260B - (MOD) TCLP	8260B - BTEX	8015C_DRO, 8081B, 8151A, 8270D	8082A - Routine PCBs	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	N	N	N	N	N	N		
GP-80 (18-19) (111814)	11.18.14	0940	G	Solid	N	N		X	X						
GP-80 (14-15) (111814)		0945	G	Solid	N	N		X	X						
GP-81 (13-14) (111814)		1105	G	Solid	N	N		X	X						
GP-81 (14-15) (111814)		1110	G	Solid	N	N		X	X						
GP-82 (14-15) (111814)		1150	G	Solid	N	N		X	X						
GP-82 (16.5-17.5) (111814)		1155	G	Solid	N	N		X	X						
GP-83 (13-14) (111814)		1310	G	Solid	N	N		X	X						
GP-83 (14-15) (111814)		1315	G	Solid	N	N		X	X						
GP-84 (14-15) (111814)		1400	G	Solid	N	N		X	X						
GP-84 (15.5-16.5) (111814)		1405	G	Solid	N	N		X	X						
GP-85 (6-7) (111814)	11.18.14	1450	G	Solid	N	N		X	X						

680-107453 Chain of Custody

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, (II), III, IV, Other (specify) CSXT STANDARD LEVEL II

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:		
Relinquished by:	Date/Time:	Company	Received by: [signature]	Date/Time: 11-20-14 0928	Company TAS
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: 680-107453 | Cooler Temperature(s) °C and Other Remarks: CUIR5 0.6/1.0 / CORR: 0.3/0.7°C

12/5/2014

TestAmerica Baltimore
7526 Connelley Drive Suite F
Hanover, MD 21076
Phone (410) 766-2516 Fax (410) xxx-xxxx

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: LAUREN LAMP	Lab PM: Harvey, Lisa M	Carrier Tracking No(s):	COC No: ~~680-60196-26420.1~~ 111914-1
Client Contact: Joshua Wilson	Phone: 571.375.5180	E-Mail: lisa.harvey@testamericainc.com		Page: ~~1 of 5~~ 2 of 3
Company: ARCADIS U.S., Inc.				Job #:
Address: 1114 Benfield Blvd. Suite A	Due Date Requested: —			
City: Millersville	TAT Requested (days): CSXT STANDARD			
State, Zip: MD, 21108				
Phone: BRUNSWICK RAIL YARD	PO #: ENV00000035683 LWON #			
Email: joshua.wilson@arcadis-us.com	WO #: R9415381 CSXT PROJECT #			
Project Name: CSX C&O Canal Brunswick, MD	Project #: 68001180			
Site: BRUNSWICK RAIL YARD	SSOW#: MD000843.0011			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - (MOD) Full List VOCs (Site specific)	8015C_GRO - GRO - Gasoline Range Organics	8015C_DRO, 8270D	8260B - (MOD) TCLP	8260B - BTEX	8015C_DRO, 8081B, 8151A, 8270D	8082A - Routine PCBs	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	N	N	N	N	N	N		
GP-85 (15.5-16.5) (111814)	11.18.14	1500	G	Solid	N	N		X	X						
GP-86 (14-15) (111814)	↓	1555	G	Solid	N	N		X	X						
GP-86 (16-17) (111814)	11.18.14	1600	G	Solid	N	N		X	X						
GP-87 (14-15) (111914)	11.19.14	0825	G	Solid	N	N		X	X						
GP-87 (16-17) (111914)		0830	G	Solid	N	N		X	X						
GP-88 (12-13) (111914)		0910	G	Solid	N	N		X	X						
GP-88 (15-16) (111914)		0915	G	Solid	N	N		X	X						
GP-89 (12-13) (111914)		1010	G	Solid	N	N		X	X						
GP-89 (15.5-16.5) (111914)		1015	G	Solid	N	N		X	X						
GP-90 (9-10) (111914)	↓	1045	G	Solid	N	N		X	X						
GP-90 (12.5-13.5) (111914)	11.19.14	1050	G	Solid	N	N		X	X						

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) CSXT STANDARD LEVEL II

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:		
Relinquished by:	Date/Time:	Company	Received by: [signature]	Date/Time: 11-2014 0928	Company TAS
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: 680-107453 | Cooler Temperature(s) °C and Other Remarks: CUIR5 0.6/1.0 / CORR: 0.3/0.7°C

12/5/2014

TestAmerica Baltimore
7526 Connelley Drive Suite F
Hanover, MD 21076
Phone (410) 766-2516 Fax (410) xxx-xxxx

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: LAUREN CAMP	Lab PM: Harvey, Lisa M	Carrier Tracking No(s):	COC No: ~~680-60496-26420.3~~ 111914-1
Client Contact: Joshua Wilson	Phone: 571.375.5180	E-Mail: lisa.harvey@testamericainc.com		Page: Page ~~3 of 5~~ 3 of 3
Company: ARCADIS U.S., Inc.				Job #:
Address: 1114 Benfield Blvd. Suite A	Due Date Requested:	Analysis Requested		
City: Millersville	TAT Requested (days): CSXT STANDARD			
State, Zip: MD, 21108	PO #: ENV00000035683 LWQN #			
Phone:	WO #: R9415381 CSXT P #			
Email: joshua.wilson@arcadis-us.com	Project #: 68001180			
Project Name: CSX C&O Canal Brunswick, MD	SSOW#: MD0000843.0011			
Site: BRUNSWICK RAK YARD				

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - (MOD) Full List VOCs (Site specific)	8015C_GRO - GRO - Gasoline Range Organics	8015C_DRO, 8270D	8260B - (MOD) TCLP	8260B - BTEX	8015C_DRO, 8081B, 8151A, 8270D	8082A - Routine PCBs	Total Number of containers	Special Instructions/Note:
				Preservation Code:			N	N	N	N	N	N	N		
GP-91 (11-12) (111914)	11.19.14	1150	G	Solid	N	N		X	X						
GP-91 (15-16) (111914)		1155	G	Solid	N	N		X	X						
GP-92 (14-15) (111914)		1335	G	Solid	N	N		X	X						
GP-92 (15.5-16.5) (111914)		1340	G	Solid	N	N		X	X						
GP-93 (14-15) (111914)		1425	G	Solid	N	N		X	X						
GP-93 (15.5-16.5) (111914)		1430	G	Solid	N	N		X	X						
GP-94 (14-15) (111914)		1505	G	Solid	N	N		X	X						
GP-94 (13-14) (111914)		1510	G	Solid	N	N		X	X						
GP-95 (12-13) (111914)		1555	G	Solid	N	N		X	X						
GP-95 (15-16) (111914)		1600	G	Solid	N	N		X	X						
GP-96 (7-8) (111914)		1620	G	Solid	N	N		X	X						
GP-96 (15-16) (111914)	11.19.14	1625	G	Solid	N	N		X	X						

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) CSXT STANDARD LEVEL 2

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
			[signature]	11-20-14 0928	TAS
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: △ Yes △ No | Custody Seal No.: 680-107453

Cooler Temperature(s) °C and Other Remarks: CUBES 0.6/1.0/CORR 0.3/0.7°c

12/5/2014

SHIP TO TA PENSACOLA
3355 McLEMORE ST. PENSACOLA, FL 32514

TestAmerica Baltimore
7526 Connelley Drive Suite F
Hanover, MD 21076
Phone (410) 766-2516 Fax (410) xxx-xxxx

Chain of Custody Record

TestAmerica

680-107453 COC

Client Information	Sampler: LAUREN LAMP	Lab PM: Harvey, Lisa M	COC No: ~~680-60196-26420.4~~ 111914-2
Client Contact: Joshua Wilson	Phone: 571.375.5180	E-Mail: lisa.harvey@testamericainc.com	Page: ~~Page 4 of 5~~ PG 1 OF 4
Company: ARCADIS U.S., Inc.		Analysis Requested	Job #:
Address: 1114 Benfield Blvd. Suite A	Due Date Requested:		
City: Millersville	TAT Requested (days): CSXT STANDARD		
State, Zip: MD, 21108			
Phone:	PO #: ENV00000035683 LUNCH		
Email: joshua.wilson@arcadis-us.com	WO #: R9415381 CSXT PROJECT #		
Project Name: CSX C&O Canal Brunswick, MD	Project #: 68001180		
Site: BRUNSWICK RAIL YARD	SSOW#: MD0005843.0011		

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - (MOD) Full List VOCs (Site specific)	8015C_GRO - GRO - Gasoline Range Organics	8015C_DRO, 8270D	8260B - (MOD) TCLP	8260B - BTEX	8015C_DRO, 8081B, 8151A, 8270D	8082A - Routine PCBs	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	N	N	N	N	N	N		
GP-80(18-19)(111814)	11.18.14	0940		Solid	N	N	X								
GP-80(14-15)(111814)		0945		Solid	N	N	X								
GP-81(13-14)(111814)		1105		Solid	N	N	X								
GP-81(14-15)(111814)		1110		Solid	N	N	X								
GP-82(14-15)(111814)		1150		Solid	N	N	X								
GP-82(16.5-17.5)(111814)		1155		Solid	N	N	X								
GP-83(13-14)(111814)		1310		Solid	N	N	X								
GP-83(14-15)(111814)		1315		~~S Water~~	N	N	X								
GP-84(14-15)(111814)		1400		~~S Water~~	N	N	X								
GP-84(15.5-16.5)(111814)		1405		~~S Water~~	N	N	X								
GP-85(6-7)(111814)	11.18.14	1450		~~S Water~~	N	N	X								

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) CSXT STANDARD

Special Instructions/QC Requirements:

Empty Kit Relinquished by: | Date: | Time: | Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
				11/20/14 0937	TA
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: △ Yes △ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks: IR 6 5.9°C

12/5/2014

TestAmerica Baltimore
7526 Connelley Drive Suite F
Hanover, MD 21076
Phone (410) 766-2516 Fax (410) xxx-xxxx

Chain of Custody Record

TestAmerica

Client Information	Sampler: LAUREN LAMP	Lab PM: Harvey, Lisa M	Carrier Tracking No(s):	COC No: ~~660-68406-26420.5~~ 111914-2
Client Contact: Joshua Wilson	Phone: 571.375.5180	E-Mail: lisa.harvey@testamericainc.com		Page: ~~Page 5 of 5~~ 2 OF 4
Company: ARCADIS U.S., Inc.		Analysis Requested		Job #:
Address: 1114 Benfield Blvd. Suite A	Due Date Requested: ———			Preservation Codes: A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)
City: Millersville	TAT Requested (days): CSXT STANDARD			
State, Zip: MD, 21108				
Phone:	PO #: ENV00000035683 LWCN			
Email: joshua.wilson@arcadis-us.com	WO #: R9415381 CSXT PROJECT #			Other:
Project Name: CSX C&O Canal Brunswick, MD	Project #: 68001180			
Site: BRUNSWICK RAIL YARD	SSOW#: MD000843.0011			

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - (MOD) Full List VOCs (Site specific)	8015C_GRO - GRO - Gasoline Range Organics	8015C_DRO, 8270D	8260B - (MOD) TCLP	8260B - BTEX	8015C_DRO, 8081B, 8151A, 8270D	8082A - Routine PCBs	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	N	N	N	N	N	N		
GP-85 (15.5-16.5) (111814)	11.18.14	1500	G	~~S Water~~	N	N	X								
GP-86 (14-15) (111814)	↓	1555		~~S Water~~	N	N	X								
GP-86 (16-17) (111814)	11.18.14	1600		~~S Water~~	N	N	X								
GP-87 (14-15) (111914)	11.19.14	0825		~~S Water~~	N	N	X								
GP-87 (16-17) (111914)		0830		~~S Water~~	N	N	X								
GP-88 (12-13) (111914)		0910		~~S Water~~	N	N	X								
GP-88 (15-16) (111914)		0915		SO	N	N	X								
GP-89 (12-13) (111914)		1010		SO	N	N	X								
GP-89 (15.5-16.5) (111914)		1015		SO	N	N	X								
GP-90 (9-10) (111914)	↓	1045	↓	SO	N	N	X								
GP-90 (12.5-13.5) (111914)	11.19.14	1050	G	SO	N	N	X								

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) CSXT STANDARD

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
				11/20/14 0927	TA
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks: IR 6 0927 5.9°C

TA 11-20-14

12/5/2014

TestAmerica Baltimore
7526 Connelley Drive Suite F
Hanover, MD 21076
Phone (410) 766-2516 Fax (410) xxx-xxxx

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: LAUREN CAMP	Lab PM: Harvey, Lisa M	Carrier Tracking No(s):	COC No: 111914-2 ~~660-68196-26429.1~~
Client Contact: Joshua Wilson	Phone: 571.375.5180	E-Mail: lisa.harvey@testamericainc.com		Page: ~~Page 4 of 5~~ 3 of 3
Company: ARCADIS U.S., Inc.				Job #:
Address: 1114 Benfield Blvd. Suite A	Due Date Requested:			
City: Millersville	TAT Requested (days): CSXT STANDARD			
State, Zip: MD, 21108				
Phone:	PO #: ENV00000035683 LUNCH			
Email: joshua.wilson@arcadis-us.com	WO #: R9415381 CSXT PN			
Project Name: CSX C&O Canal Brunswick, MD	Project #: 66001180			
Site: BRUNSWICK RAIL YARD	SSOW#: MD000843.0011			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - Di Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO8, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - (MOD) Full List VOCs (Site specific)	8015C_GRO - GRO - Gasoline Range Organics	8015C_DRO, 8270D	8260B - (MOD) TCLP	8260B - BTEX	8015C_DRO, 8081B, 8151A, 8270D	8082A - Routine PCBs	Total Number of containers	Special Instructions/Note:
			Preservation Code:												
GP-91 (11-12) (111914)	11.19.14	1150	G	Solid		N	N	N	N	N	N	N			
GP-91 (15-16) (111914)		1155		Solid											
GP-92 (14-15) (111914)		1335		Solid											
GP-92 (15.5-16.5) (111914)		1340		Solid											
GP-93 (14-15) (111914)		1425		Solid											
GP-93 (15.5-16.5) (111914)		1430		Solid											
GP-94 (14-15) (111914)		1505		Solid											
GP-94 (13-14) (111914)		1510		Solid											
GP-95 (12-13) (111914)		1555	↓	Solid											
GP-95 (15-16) (111914)	↓	1600	G	Solid											
GP-96 (7-8) (111914)	11.19.14	1620		Solid											

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:		Date:	Time:	Method of Shipment:	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 11/20/14 0927	Company TA
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: ER 6 5.9°C

12/5/2014

TestAmerica Baltimore
7526 Connelley Drive Suite F
Hanover, MD 21076
Phone (410) 766-2516 Fax (410) xxx-xxxx

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: LAUREN LAMP	Lab PM: Harvey, Lisa M	Carrier Tracking No(s):	COC No: 680-60196-26420.2
Client Contact: Joshua Wilson	Phone: 571.375.5180	E-Mail: lisa.harvey@testamericainc.com		Page: ~~Page 2 of 5~~ 4 OF 4
Company: ARCADIS U.S., Inc.				Job #:
Address: 1114 Benfield Blvd. Suite A	Due Date Requested: —			
City: Millersville	TAT Requested (days): CSXT STANDARD			
State, Zip: MD, 21108				
Phone:	PO #: ENV00000035683 LUCN			
Email: joshua.wilson@arcadis-us.com	WO #: R9415381 CSXT PN			
Project Name: CSX C&O Canal Brunswick, MD	Project #: 68001180			
Site: BRUNSWICK RAIL YARD	SSOW#: MD000843-0011			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - (MOD) Full List VOCs (Site specific)	8015C_GRO - GRO - Gasoline Range Organics	8015C_DRO_8270D	8260B - (MOD) TCLP	8260B - BTEX	8015C_DRO_3081B, 8151A, 8270D	8082A - Routine PCBs							Total Number of containers	Special Instructions/Note:
	Preservation Code:				N	N	N	N	N	N	N	N	N							X	
GP-96 (15-16)(111914)	11.19.14	1625	G	Solid	N	N	X														
TRIP BLANK(111914)	—	—	—	~~W~~ Solid	N	N	X														
				Solid																	
				Solid																	
				Solid																	
				Solid																	
				Solid																	
				Solid																	
				Solid																	
				Solid																	
				Solid																	

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
					11/20/14 0927	TA
	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: IR 6 5.9°c

12/5/2014

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 680-107453-1

Login Number: 107453

List Source: TestAmerica Savannah

List Number: 1

Creator: Banda, Christy S

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	False	Terracores for 8260 sampled 11/18 were not frozen within 48hrs
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 680-107453-1

Login Number: 107453
List Number: 2
Creator: Crawford, Lauren E

List Source: TestAmerica Pensacola
List Creation: 11/21/14 02:31 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: CSX C&O Canal Brunswick, MD

TestAmerica Job ID: 680-107453-1

Laboratory: TestAmerica Savannah

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Maryland	State Program	3	250	12-31-14 *

Laboratory: TestAmerica Pensacola

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Maryland	State Program	3	233	09-30-15

* Certification renewal pending - certification considered valid.

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Tel: (912)354-7858

TestAmerica Job ID: 680-108020-1
Client Project/Site: CSX Brunswick Rail Yard

For:
ARCADIS U.S., Inc.
1114 Benfield Blvd.
Suite A
Millersville, Maryland 21108

Attn: Ms. Megan Kellner

Authorized for release by:
12/17/2014 11:29:30 AM

Lisa Harvey, Project Manager II
(912)354-7858 e.3221
lisa.harvey@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Job ID: 680-108020-1

Laboratory: TestAmerica Savannah

Narrative

CASE NARRATIVE
Client: ARCADIS U.S., Inc.
Project: CSX Brunswick Rail Yard
Report Number: 680-108020-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In the event of interference or analytes present at high concentrations, samples may be diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

RECEIPT

The samples were received on 12/9/2014 9:59 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.5º C.

WC-Petroleum Impacted Water-120514 (680-108020-2): The COC indicated the sample to be analyzed for TCLP-SVOCS, however, per client, TCLP-VOCs were required.

Sample WC-Offspec Diesel-120514 (680-108020-3), Sample WC-Offspec Diesel-120514 (680-108020-4): This sample is the same sample. It was logged as a "water" for some tests, and re-logged as a "waste" for some tests depending on how the laboratory had to treat it in the prep stage.

TCLP VOLATILE ORGANIC COMPOUNDS (GC-MS)

Samples WC-Petroleum Impacted Soils-120514 (680-108020-1) and WC-Petroleum Impacted Water-120514 (680-108020-2) were analyzed for TCLP volatile organic compounds (GC-MS) in accordance with EPA SW-846 Methods 1311/8260B. The samples were leached on 12/09/2014 and analyzed on 12/10/2014 and 12/11/2014.

Method(s) 8260B: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with batches 362445, 362703.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TCLP SEMIVOLATILE ORGANIC COMPOUNDS (GC-MS)

Sample WC-Petroleum Impacted Soils-120514 (680-108020-1) was analyzed for TCLP semivolatile organic compounds (GC-MS) in accordance with EPA SW846 Methods 1311 / 8270D. The samples were leached on 12/09/2014, prepared on 12/11/2014 and analyzed on 12/15/2014.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

POLYCHLORINATED BIPHENYLS (PCBS)

Sample WC-Offspec Diesel-120514 (680-108020-4) was analyzed for polychlorinated biphenyls (PCBs) in accordance with EPA SW-846 Method 8082. The samples were prepared on 12/12/2014 and analyzed on 12/15/2014.

Method(s) 3520C: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with batch 362964.

Method(s) 3520C: Sample appeared bi-phasic, where there was a small oil layer on top and a larger liquid layer. The liquid layer was analyzed. 125 mL was removed for the parent bottle.

Method(s) 8082A: The following sample(s) was diluted due to the nature of the sample matrix: WC-Offspec Diesel-120514 (680-108020-4). Surrogates are not reported. Elevated reporting limits (RLs) are provided.
No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Job ID: 680-108020-1 (Continued)

Laboratory: TestAmerica Savannah (Continued)

METALS (ICP) - TCLP
Samples WC-Petroleum Impacted Soils-120514 (680-108020-1) and WC-Petroleum Impacted Water-120514 (680-108020-2) were analyzed for Metals (ICP) - TCLP in accordance with EPA SW-846 Methods 1311/6010C. The samples were leached on 12/09/2014, prepared on 12/10/2014 and 12/11/2014 and analyzed on 12/11/2014.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

METALS (ICP-MS)
Sample WC-Offspec Diesel-120514 (680-108020-3) was analyzed for Metals (ICP-MS) in accordance with SW 846. The samples were prepared on 12/11/2014 and analyzed on 12/12/2014.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

MERCURY - TCLP
Samples WC-Petroleum Impacted Soils-120514 (680-108020-1) and WC-Petroleum Impacted Water-120514 (680-108020-2) were analyzed for mercury - TCLP in accordance with EPA SW-846 Methods 1311/7470A. The samples were leached on 12/09/2014, prepared on 12/10/2014 and 12/15/2014 and analyzed on 12/11/2014 and 12/16/2014.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

IGNITABILITY
Sample WC-Offspec Diesel-120514 (680-108020-3) was analyzed for ignitability in accordance with EPA SW846 Method 1010A. The samples were analyzed on 12/11/2014.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

IGNITABILITY
Sample WC-Petroleum Impacted Water-120514 (680-108020-2) was analyzed for ignitability in accordance with EPA SW846 Method 1010A. The samples were analyzed on 12/11/2014.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PH
Sample WC-Petroleum Impacted Water-120514 (680-108020-2) was analyzed for pH in accordance with EPA SW-846 Method 9040C. The samples were analyzed on 12/14/2014.

pH for water samples have a hold time of 15 minutes. Sample was analyzed outside 15-minute hold time.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

CORROSIVITY (PH)
Sample WC-Offspec Diesel-120514 (680-108020-3) was analyzed for corrosivity (pH) in accordance with EPA SW-846 Method 9045D. The samples were analyzed on 12/12/2014.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TOTAL HALOGENS (WASTE)
Sample WC-Offspec Diesel-120514 (680-108020-3) was analyzed for total halogens (waste) in accordance with EPA SW-846 Method 9056A. The samples were prepared on 12/10/2014 and analyzed on 12/12/2014.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: CSX Brunswick Rail Yard

TestAmerica Job ID: 680-108020-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-108020-1	WC-Petroleum Impacted Soils-120514	Solid	12/05/14 10:00	12/09/14 09:59
680-108020-2	WC-Petroleum Impacted Water-120514	Water	12/05/14 10:30	12/09/14 09:59
680-108020-3	WC-Offspec Diesel-120514	Waste	12/05/14 11:00	12/09/14 09:59
680-108020-4	WC-Offspec Diesel-120514	Water	12/05/14 11:00	12/09/14 09:59

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: CSX Brunswick Rail Yard

TestAmerica Job ID: 680-108020-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL SAV
8270D	Semivolatile Organic Compounds (GC/MS)	SW846	TAL SAV
8082A	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	SW846	TAL SAV
9056A	Anions, Ion Chromatography	SW846	TAL SAV
6010C	Metals (ICP)	SW846	TAL SAV
6020A	Metals (ICP/MS)	SW846	TAL SAV
7470A	Mercury (CVAA)	SW846	TAL SAV
1010A	Ignitability, Pensky-Martens Closed Cup Method	SW846	TAL CAN
9040C	pH	SW846	TAL SAV
9045D	pH	SW846	TAL SAV

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

GC/MS Semi VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

GC Semi VOA

Qualifier	Qualifier Description
D	Surrogate or matrix spike recoveries were not obtained because the extract was diluted for analysis; also compounds analyzed at a dilution may be flagged with a D.
U	Indicates the analyte was analyzed for but not detected.

HPLC/IC

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Metals

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

General Chemistry

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample ID: WC-Petroleum Impacted Soils-120514
Date Collected: 12/05/14 10:00
Date Received: 12/09/14 09:59

Lab Sample ID: 680-108020-1
Matrix: Solid

Method: 8260B - Volatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.020	U	0.020	0.020	mg/L			12/11/14 16:01	20
2-Butanone	0.20	U	0.20	0.20	mg/L			12/11/14 16:01	20
Carbon tetrachloride	0.020	U	0.020	0.020	mg/L			12/11/14 16:01	20
Chlorobenzene	0.020	U	0.020	0.020	mg/L			12/11/14 16:01	20
Chloroform	0.020	U	0.020	0.020	mg/L			12/11/14 16:01	20
1,2-Dichloroethane	0.020	U	0.020	0.020	mg/L			12/11/14 16:01	20
1,1-Dichloroethene	0.020	U	0.020	0.020	mg/L			12/11/14 16:01	20
Tetrachloroethene	0.020	U	0.020	0.020	mg/L			12/11/14 16:01	20
Trichloroethene	0.020	U	0.020	0.020	mg/L			12/11/14 16:01	20
Vinyl chloride	0.020	U	0.020	0.020	mg/L			12/11/14 16:01	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*96*		*70 - 130*		*12/11/14 16:01*	*20*
Dibromofluoromethane (Surr)	*106*		*70 - 130*		*12/11/14 16:01*	*20*
1,2-Dichloroethane-d4 (Surr)	*110*		*70 - 130*		*12/11/14 16:01*	*20*
4-Bromofluorobenzene (Surr)	*95*		*70 - 130*		*12/11/14 16:01*	*20*

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	0.050	U	0.050	0.050	mg/L		12/11/14 15:57	12/15/14 21:02	1
2,4-Dinitrotoluene	0.050	U	0.050	0.050	mg/L		12/11/14 15:57	12/15/14 21:02	1
Hexachlorobenzene	0.050	U	0.050	0.050	mg/L		12/11/14 15:57	12/15/14 21:02	1
Hexachlorobutadiene	0.050	U	0.050	0.050	mg/L		12/11/14 15:57	12/15/14 21:02	1
Hexachloroethane	0.050	U	0.050	0.050	mg/L		12/11/14 15:57	12/15/14 21:02	1
2-Methylphenol	0.050	U	0.050	0.050	mg/L		12/11/14 15:57	12/15/14 21:02	1
3 & 4 Methylphenol	0.050	U	0.050	0.050	mg/L		12/11/14 15:57	12/15/14 21:02	1
Nitrobenzene	0.050	U	0.050	0.050	mg/L		12/11/14 15:57	12/15/14 21:02	1
Pentachlorophenol	0.25	U	0.25	0.25	mg/L		12/11/14 15:57	12/15/14 21:02	1
Pyridine	0.25	U	0.25	0.25	mg/L		12/11/14 15:57	12/15/14 21:02	1
2,4,5-Trichlorophenol	0.050	U	0.050	0.050	mg/L		12/11/14 15:57	12/15/14 21:02	1
2,4,6-Trichlorophenol	0.050	U	0.050	0.050	mg/L		12/11/14 15:57	12/15/14 21:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*66*		*38 - 130*	*12/11/14 15:57*	*12/15/14 21:02*	*1*
2-Fluorophenol (Surr)	*55*		*25 - 130*	*12/11/14 15:57*	*12/15/14 21:02*	*1*
Nitrobenzene-d5 (Surr)	*68*		*39 - 130*	*12/11/14 15:57*	*12/15/14 21:02*	*1*
Phenol-d5 (Surr)	*67*		*25 - 130*	*12/11/14 15:57*	*12/15/14 21:02*	*1*
Terphenyl-d14 (Surr)	*69*		*10 - 143*	*12/11/14 15:57*	*12/15/14 21:02*	*1*
2,4,6-Tribromophenol (Surr)	*72*		*31 - 141*	*12/11/14 15:57*	*12/15/14 21:02*	*1*

Method: 6010C - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.20	U	0.20	0.20	mg/L		12/11/14 07:09	12/11/14 18:25	1
Barium	1.0	U	1.0	1.0	mg/L		12/11/14 07:09	12/11/14 18:25	1
Cadmium	0.10	U	0.10	0.10	mg/L		12/11/14 07:09	12/11/14 18:25	1
Chromium	0.20	U	0.20	0.20	mg/L		12/11/14 07:09	12/11/14 18:25	1
Lead	0.20	U	0.20	0.20	mg/L		12/11/14 07:09	12/11/14 18:25	1
Selenium	0.50	U	0.50	0.50	mg/L		12/11/14 07:09	12/11/14 18:25	1
Silver	0.10	U	0.10	0.10	mg/L		12/11/14 07:09	12/11/14 18:25	1

Client: ARCADIS U.S., Inc.
Project/Site: CSX Brunswick Rail Yard

TestAmerica Job ID: 680-108020-1

Client Sample ID: WC-Petroleum Impacted Soils-120514
Date Collected: 12/05/14 10:00
Date Received: 12/09/14 09:59

Lab Sample ID: 680-108020-1
Matrix: Solid

Method: 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.020	U	0.020	0.020	mg/L		12/15/14 12:25	12/16/14 12:42	1

Client: ARCADIS U.S., Inc.
Project/Site: CSX Brunswick Rail Yard

TestAmerica Job ID: 680-108020-1

Client Sample ID: WC-Petroleum Impacted Water-120514
Date Collected: 12/05/14 10:30
Date Received: 12/09/14 09:59

Lab Sample ID: 680-108020-2
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane	0.020	U	0.020	0.020	mg/L			12/10/14 13:28	20
Chlorobenzene	0.020	U	0.020	0.020	mg/L			12/10/14 13:28	20
Tetrachloroethene	0.020	U	0.020	0.020	mg/L			12/10/14 13:28	20
Carbon tetrachloride	0.020	U	0.020	0.020	mg/L			12/10/14 13:28	20
Chloroform	0.020	U	0.020	0.020	mg/L			12/10/14 13:28	20
Benzene	0.020	U	0.020	0.020	mg/L			12/10/14 13:28	20
Vinyl chloride	0.020	U	0.020	0.020	mg/L			12/10/14 13:28	20
1,1-Dichloroethene	0.020	U	0.020	0.020	mg/L			12/10/14 13:28	20
2-Butanone	0.20	U	0.20	0.20	mg/L			12/10/14 13:28	20
Trichloroethene	0.020	U	0.020	0.020	mg/L			12/10/14 13:28	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*118*		*70 - 130*		*12/10/14 13:28*	*20*
Dibromofluoromethane (Surr)	*117*		*70 - 130*		*12/10/14 13:28*	*20*
1,2-Dichloroethane-d4 (Surr)	*116*		*70 - 130*		*12/10/14 13:28*	*20*
4-Bromofluorobenzene (Surr)	*84*		*70 - 130*		*12/10/14 13:28*	*20*

Method: 6010C - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.20	U	0.20	0.20	mg/L		12/10/14 07:11	12/11/14 01:01	1
Barium	1.0	U	1.0	1.0	mg/L		12/10/14 07:11	12/11/14 01:01	1
Cadmium	0.10	U	0.10	0.10	mg/L		12/10/14 07:11	12/11/14 01:01	1
Chromium	0.20	U	0.20	0.20	mg/L		12/10/14 07:11	12/11/14 01:01	1
Lead	0.20	U	0.20	0.20	mg/L		12/10/14 07:11	12/11/14 01:01	1
Selenium	0.50	U	0.50	0.50	mg/L		12/10/14 07:11	12/11/14 01:01	1
Silver	0.10	U	0.10	0.10	mg/L		12/10/14 07:11	12/11/14 01:01	1

Method: 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.020	U	0.020	0.020	mg/L		12/10/14 12:38	12/11/14 16:25	1

General Chemistry

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.62**	**H**			SU			12/14/14 14:31	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Flashpoint	**>200**		1.00	1.00	Degrees F			12/11/14 15:18	1

Client: ARCADIS U.S., Inc.
Project/Site: CSX Brunswick Rail Yard

TestAmerica Job ID: 680-108020-1

Client Sample ID: WC-Offspec Diesel-120514
Date Collected: 12/05/14 11:00
Date Received: 12/09/14 09:59

Lab Sample ID: 680-108020-3
Matrix: Waste

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Halogens	200	U	200	200	mg/Kg		12/10/14 11:44	12/12/14 04:31	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.24**		0.24	0.24	mg/Kg		12/11/14 08:45	12/12/14 05:04	1
Cadmium	0.049	U	0.049	0.049	mg/Kg		12/11/14 08:45	12/12/14 05:04	1
Chromium	0.49	U	0.49	0.49	mg/Kg		12/11/14 08:45	12/12/14 05:04	1
Lead	**2.3**		0.19	0.19	mg/Kg		12/11/14 08:45	12/12/14 05:04	1

General Chemistry

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
pH	**6.82**				SU			12/12/14 16:45	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Flashpoint	**>200**		1.00	1.00	Degrees F			12/11/14 15:56	1

Client: ARCADIS U.S., Inc.
Project/Site: CSX Brunswick Rail Yard

TestAmerica Job ID: 680-108020-1

Client Sample ID: WC-Offspec Diesel-120514
Lab Sample ID: 680-108020-4
Date Collected: 12/05/14 11:00
Matrix: Water
Date Received: 12/09/14 09:59

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	0.0099	U	0.0099	0.0023	mg/L		12/12/14 15:38	12/15/14 22:22	10
PCB-1221	0.0099	U	0.0099	0.0024	mg/L		12/12/14 15:38	12/15/14 22:22	10
PCB-1232	0.0099	U	0.0099	0.0025	mg/L		12/12/14 15:38	12/15/14 22:22	10
PCB-1242	0.0099	U	0.0099	0.0020	mg/L		12/12/14 15:38	12/15/14 22:22	10
PCB-1248	0.0099	U	0.0099	0.0027	mg/L		12/12/14 15:38	12/15/14 22:22	10
PCB-1254	0.0099	U	0.0099	0.0023	mg/L		12/12/14 15:38	12/15/14 22:22	10
PCB-1260	0.0099	U	0.0099	0.0023	mg/L		12/12/14 15:38	12/15/14 22:22	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*0*	*D*	*39 - 130*	*12/12/14 15:38*	*12/15/14 22:22*	*10*
DCB Decachlorobiphenyl	*0*	*D*	*10 - 130*	*12/12/14 15:38*	*12/15/14 22:22*	*10*

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 680-362445/9
Matrix: Water
Analysis Batch: 362445

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon tetrachloride	0.0010	U	0.0010	0.0010	mg/L			12/10/14 11:28	1
Chlorobenzene	0.0010	U	0.0010	0.0010	mg/L			12/10/14 11:28	1
Benzene	0.0010	U	0.0010	0.0010	mg/L			12/10/14 11:28	1
Chloroform	0.0010	U	0.0010	0.0010	mg/L			12/10/14 11:28	1
1,2-Dichloroethane	0.0010	U	0.0010	0.0010	mg/L			12/10/14 11:28	1
1,1-Dichloroethene	0.0010	U	0.0010	0.0010	mg/L			12/10/14 11:28	1
2-Butanone	0.010	U	0.010	0.010	mg/L			12/10/14 11:28	1
Tetrachloroethene	0.0010	U	0.0010	0.0010	mg/L			12/10/14 11:28	1
Trichloroethene	0.0010	U	0.0010	0.0010	mg/L			12/10/14 11:28	1
Vinyl chloride	0.0010	U	0.0010	0.0010	mg/L			12/10/14 11:28	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*70 - 130*		*12/10/14 11:28*	*1*
Dibromofluoromethane (Surr)	*111*		*70 - 130*		*12/10/14 11:28*	*1*
1,2-Dichloroethane-d4 (Surr)	*109*		*70 - 130*		*12/10/14 11:28*	*1*
4-Bromofluorobenzene (Surr)	*88*		*70 - 130*		*12/10/14 11:28*	*1*

Lab Sample ID: LCS 680-362445/4
Matrix: Water
Analysis Batch: 362445

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Carbon tetrachloride	0.0500	0.0475		mg/L		95	70 - 131
Chlorobenzene	0.0500	0.0509		mg/L		102	79 - 120
Benzene	0.0500	0.0538		mg/L		108	74 - 123
Chloroform	0.0500	0.0486		mg/L		97	76 - 128
1,2-Dichloroethane	0.0500	0.0523		mg/L		105	75 - 120
1,1-Dichloroethene	0.0500	0.0445		mg/L		89	73 - 134
2-Butanone	0.250	0.234		mg/L		94	55 - 142
Tetrachloroethene	0.0500	0.0452		mg/L		90	77 - 128
Trichloroethene	0.0500	0.0495		mg/L		99	80 - 120
Vinyl chloride	0.0500	0.0384		mg/L		77	58 - 141

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*99*		*70 - 130*
Dibromofluoromethane (Surr)	*99*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*102*		*70 - 130*
4-Bromofluorobenzene (Surr)	*83*		*70 - 130*

Lab Sample ID: LCSD 680-362445/5
Matrix: Water
Analysis Batch: 362445

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Carbon tetrachloride	0.0500	0.0531		mg/L		106	70 - 131	11	30
Chlorobenzene	0.0500	0.0500		mg/L		100	79 - 120	2	30
Benzene	0.0500	0.0537		mg/L		107	74 - 123	0	30

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 680-362445/5
Matrix: Water
Analysis Batch: 362445

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloroform			0.0500	0.0558		mg/L		112	76 - 128	14	30
1,2-Dichloroethane			0.0500	0.0533		mg/L		107	75 - 120	2	30
1,1-Dichloroethene			0.0500	0.0520		mg/L		104	73 - 134	16	30
2-Butanone			0.250	0.276		mg/L		110	55 - 142	16	30
Tetrachloroethene			0.0500	0.0510		mg/L		102	77 - 128	12	30
Trichloroethene			0.0500	0.0531		mg/L		106	80 - 120	7	30
Vinyl chloride			0.0500	0.0440		mg/L		88	58 - 141	14	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*100*		*70 - 130*
Dibromofluoromethane (Surr)	*109*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*102*		*70 - 130*
4-Bromofluorobenzene (Surr)	*81*		*70 - 130*

Lab Sample ID: MB 680-362703/9
Matrix: Solid
Analysis Batch: 362703

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon tetrachloride	0.0010	U	0.0010	0.0010	mg/L			12/11/14 11:22	1
Chlorobenzene	0.0010	U	0.0010	0.0010	mg/L			12/11/14 11:22	1
Benzene	0.0010	U	0.0010	0.0010	mg/L			12/11/14 11:22	1
Chloroform	0.0010	U	0.0010	0.0010	mg/L			12/11/14 11:22	1
1,2-Dichloroethane	0.0010	U	0.0010	0.0010	mg/L			12/11/14 11:22	1
1,1-Dichloroethene	0.0010	U	0.0010	0.0010	mg/L			12/11/14 11:22	1
2-Butanone	0.010	U	0.010	0.010	mg/L			12/11/14 11:22	1
Tetrachloroethene	0.0010	U	0.0010	0.0010	mg/L			12/11/14 11:22	1
Trichloroethene	0.0010	U	0.0010	0.0010	mg/L			12/11/14 11:22	1
Vinyl chloride	0.0010	U	0.0010	0.0010	mg/L			12/11/14 11:22	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*99*		*70 - 130*		*12/11/14 11:22*	*1*
Dibromofluoromethane (Surr)	*99*		*70 - 130*		*12/11/14 11:22*	*1*
1,2-Dichloroethane-d4 (Surr)	*97*		*70 - 130*		*12/11/14 11:22*	*1*
4-Bromofluorobenzene (Surr)	*96*		*70 - 130*		*12/11/14 11:22*	*1*

Lab Sample ID: LCS 680-362703/4
Matrix: Solid
Analysis Batch: 362703

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Carbon tetrachloride			0.0500	0.0476		mg/L		95	70 - 131		
Chlorobenzene			0.0500	0.0478		mg/L		96	79 - 120		
Benzene			0.0500	0.0497		mg/L		99	74 - 123		
Chloroform			0.0500	0.0501		mg/L		100	76 - 128		
1,2-Dichloroethane			0.0500	0.0507		mg/L		101	75 - 120		
1,1-Dichloroethene			0.0500	0.0483		mg/L		97	73 - 134		
2-Butanone			0.250	0.232		mg/L		93	55 - 142		

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 680-362703/4
Matrix: Solid
Analysis Batch: 362703

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Tetrachloroethene	0.0500	0.0438		mg/L		88	77 - 128
Trichloroethene	0.0500	0.0493		mg/L		99	80 - 120
Vinyl chloride	0.0500	0.0484		mg/L		97	58 - 141

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*92*		*70 - 130*
Dibromofluoromethane (Surr)	*99*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*96*		*70 - 130*
4-Bromofluorobenzene (Surr)	*87*		*70 - 130*

Lab Sample ID: LCSD 680-362703/5
Matrix: Solid
Analysis Batch: 362703

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Carbon tetrachloride	0.0500	0.0525		mg/L		105	70 - 131	10	30
Chlorobenzene	0.0500	0.0502		mg/L		100	79 - 120	5	30
Benzene	0.0500	0.0514		mg/L		103	74 - 123	3	30
Chloroform	0.0500	0.0515		mg/L		103	76 - 128	3	30
1,2-Dichloroethane	0.0500	0.0528		mg/L		106	75 - 120	4	30
1,1-Dichloroethene	0.0500	0.0530		mg/L		106	73 - 134	9	30
2-Butanone	0.250	0.241		mg/L		97	55 - 142	4	30
Tetrachloroethene	0.0500	0.0473		mg/L		95	77 - 128	8	30
Trichloroethene	0.0500	0.0521		mg/L		104	80 - 120	5	30
Vinyl chloride	0.0500	0.0529		mg/L		106	58 - 141	9	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*97*		*70 - 130*
Dibromofluoromethane (Surr)	*103*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*99*		*70 - 130*
4-Bromofluorobenzene (Surr)	*91*		*70 - 130*

Lab Sample ID: LB 680-362392/1-A
Matrix: Water
Analysis Batch: 362445

Client Sample ID: Method Blank
Prep Type: TCLP

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon tetrachloride	0.020	U	0.020	0.020	mg/L			12/10/14 12:20	20
Chlorobenzene	0.020	U	0.020	0.020	mg/L			12/10/14 12:20	20
Benzene	0.020	U	0.020	0.020	mg/L			12/10/14 12:20	20
Chloroform	0.020	U	0.020	0.020	mg/L			12/10/14 12:20	20
1,2-Dichloroethane	0.020	U	0.020	0.020	mg/L			12/10/14 12:20	20
1,1-Dichloroethene	0.020	U	0.020	0.020	mg/L			12/10/14 12:20	20
2-Butanone	0.20	U	0.20	0.20	mg/L			12/10/14 12:20	20
Tetrachloroethene	0.020	U	0.020	0.020	mg/L			12/10/14 12:20	20
Trichloroethene	0.020	U	0.020	0.020	mg/L			12/10/14 12:20	20
Vinyl chloride	0.020	U	0.020	0.020	mg/L			12/10/14 12:20	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LB 680-362392/1-A
Matrix: Water
Analysis Batch: 362445

Client Sample ID: Method Blank
Prep Type: TCLP

Surrogate	LB %Recovery	LB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	*102*		*70 - 130*		*12/10/14 12:20*	*20*
Dibromofluoromethane (Surr)	*110*		*70 - 130*		*12/10/14 12:20*	*20*
1,2-Dichloroethane-d4 (Surr)	*122*		*70 - 130*		*12/10/14 12:20*	*20*
4-Bromofluorobenzene (Surr)	*113*		*70 - 130*		*12/10/14 12:20*	*20*

Lab Sample ID: LB 680-362429/1-A
Matrix: Solid
Analysis Batch: 362703

Client Sample ID: Method Blank
Prep Type: TCLP

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon tetrachloride	0.020	U	0.020	0.020	mg/L			12/11/14 14:54	20
Chlorobenzene	0.020	U	0.020	0.020	mg/L			12/11/14 14:54	20
Benzene	0.020	U	0.020	0.020	mg/L			12/11/14 14:54	20
Chloroform	0.020	U	0.020	0.020	mg/L			12/11/14 14:54	20
1,2-Dichloroethane	0.020	U	0.020	0.020	mg/L			12/11/14 14:54	20
1,1-Dichloroethene	0.020	U	0.020	0.020	mg/L			12/11/14 14:54	20
2-Butanone	0.20	U	0.20	0.20	mg/L			12/11/14 14:54	20
Tetrachloroethene	0.020	U	0.020	0.020	mg/L			12/11/14 14:54	20
Trichloroethene	0.020	U	0.020	0.020	mg/L			12/11/14 14:54	20
Vinyl chloride	0.020	U	0.020	0.020	mg/L			12/11/14 14:54	20

Surrogate	LB %Recovery	LB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	*93*		*70 - 130*		*12/11/14 14:54*	*20*
Dibromofluoromethane (Surr)	*108*		*70 - 130*		*12/11/14 14:54*	*20*
1,2-Dichloroethane-d4 (Surr)	*110*		*70 - 130*		*12/11/14 14:54*	*20*
4-Bromofluorobenzene (Surr)	*93*		*70 - 130*		*12/11/14 14:54*	*20*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 680-362732/9-A
Matrix: Solid
Analysis Batch: 363155

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 362732

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	0.010	U	0.010	0.010	mg/L		12/11/14 15:57	12/15/14 20:37	1
2,4-Dinitrotoluene	0.010	U	0.010	0.010	mg/L		12/11/14 15:57	12/15/14 20:37	1
Hexachlorobenzene	0.010	U	0.010	0.010	mg/L		12/11/14 15:57	12/15/14 20:37	1
Hexachlorobutadiene	0.010	U	0.010	0.010	mg/L		12/11/14 15:57	12/15/14 20:37	1
Hexachloroethane	0.010	U	0.010	0.010	mg/L		12/11/14 15:57	12/15/14 20:37	1
2-Methylphenol	0.010	U	0.010	0.010	mg/L		12/11/14 15:57	12/15/14 20:37	1
3 & 4 Methylphenol	0.010	U	0.010	0.010	mg/L		12/11/14 15:57	12/15/14 20:37	1
Nitrobenzene	0.010	U	0.010	0.010	mg/L		12/11/14 15:57	12/15/14 20:37	1
Pentachlorophenol	0.050	U	0.050	0.050	mg/L		12/11/14 15:57	12/15/14 20:37	1
Pyridine	0.050	U	0.050	0.050	mg/L		12/11/14 15:57	12/15/14 20:37	1
2,4,5-Trichlorophenol	0.010	U	0.010	0.010	mg/L		12/11/14 15:57	12/15/14 20:37	1
2,4,6-Trichlorophenol	0.010	U	0.010	0.010	mg/L		12/11/14 15:57	12/15/14 20:37	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 680-362732/9-A
Matrix: Solid
Analysis Batch: 363155

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 362732

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl	65		38 - 130	12/11/14 15:57	12/15/14 20:37	1
2-Fluorophenol (Surr)	52		25 - 130	12/11/14 15:57	12/15/14 20:37	1
Nitrobenzene-d5 (Surr)	70		39 - 130	12/11/14 15:57	12/15/14 20:37	1
Phenol-d5 (Surr)	60		25 - 130	12/11/14 15:57	12/15/14 20:37	1
Terphenyl-d14 (Surr)	76		10 - 143	12/11/14 15:57	12/15/14 20:37	1
2,4,6-Tribromophenol (Surr)	72		31 - 141	12/11/14 15:57	12/15/14 20:37	1

Lab Sample ID: LCS 680-362732/10-A
Matrix: Solid
Analysis Batch: 363155

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 362732

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dichlorobenzene	0.100	0.0491		mg/L		49	43 - 130
2,4-Dinitrotoluene	0.100	0.0788		mg/L		79	63 - 130
Hexachlorobenzene	0.100	0.0818		mg/L		82	52 - 130
Hexachlorobutadiene	0.100	0.0533		mg/L		53	36 - 130
Hexachloroethane	0.100	0.0469		mg/L		47	39 - 130
2-Methylphenol	0.100	0.0692		mg/L		69	55 - 130
3 & 4 Methylphenol	0.100	0.0704		mg/L		70	35 - 130
Nitrobenzene	0.100	0.0725		mg/L		73	56 - 130
Pentachlorophenol	0.200	0.154		mg/L		77	42 - 138
Pyridine	0.100	0.050	U	mg/L		48	10 - 130
2,4,5-Trichlorophenol	0.100	0.0793		mg/L		79	61 - 130
2,4,6-Trichlorophenol	0.100	0.0783		mg/L		78	57 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Fluorobiphenyl	66		38 - 130
2-Fluorophenol (Surr)	55		25 - 130
Nitrobenzene-d5 (Surr)	68		39 - 130
Phenol-d5 (Surr)	61		25 - 130
Terphenyl-d14 (Surr)	76		10 - 143
2,4,6-Tribromophenol (Surr)	76		31 - 141

Lab Sample ID: LB2 680-362344/4-B
Matrix: Solid
Analysis Batch: 363155

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 362732

Analyte	LB2 Result	LB2 Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	0.049	U	0.049	0.049	mg/L		12/11/14 15:57	12/15/14 20:12	1
2,4-Dinitrotoluene	0.049	U	0.049	0.049	mg/L		12/11/14 15:57	12/15/14 20:12	1
Hexachlorobenzene	0.049	U	0.049	0.049	mg/L		12/11/14 15:57	12/15/14 20:12	1
Hexachlorobutadiene	0.049	U	0.049	0.049	mg/L		12/11/14 15:57	12/15/14 20:12	1
Hexachloroethane	0.049	U	0.049	0.049	mg/L		12/11/14 15:57	12/15/14 20:12	1
2-Methylphenol	0.049	U	0.049	0.049	mg/L		12/11/14 15:57	12/15/14 20:12	1
3 & 4 Methylphenol	0.049	U	0.049	0.049	mg/L		12/11/14 15:57	12/15/14 20:12	1
Nitrobenzene	0.049	U	0.049	0.049	mg/L		12/11/14 15:57	12/15/14 20:12	1
Pentachlorophenol	0.25	U	0.25	0.25	mg/L		12/11/14 15:57	12/15/14 20:12	1
Pyridine	0.25	U	0.25	0.25	mg/L		12/11/14 15:57	12/15/14 20:12	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LB2 680-362344/4-B
Matrix: Solid
Analysis Batch: 363155

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 362732

Analyte	LB2 Result	LB2 Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,5-Trichlorophenol	0.049	U	0.049	0.049	mg/L		12/11/14 15:57	12/15/14 20:12	1
2,4,6-Trichlorophenol	0.049	U	0.049	0.049	mg/L		12/11/14 15:57	12/15/14 20:12	1

Surrogate	*LB2 %Recovery*	*LB2 Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*66*		*38 - 130*	*12/11/14 15:57*	*12/15/14 20:12*	*1*
2-Fluorophenol (Surr)	*55*		*25 - 130*	*12/11/14 15:57*	*12/15/14 20:12*	*1*
Nitrobenzene-d5 (Surr)	*66*		*39 - 130*	*12/11/14 15:57*	*12/15/14 20:12*	*1*
Phenol-d5 (Surr)	*64*		*25 - 130*	*12/11/14 15:57*	*12/15/14 20:12*	*1*
Terphenyl-d14 (Surr)	*74*		*10 - 143*	*12/11/14 15:57*	*12/15/14 20:12*	*1*
2,4,6-Tribromophenol (Surr)	*72*		*31 - 141*	*12/11/14 15:57*	*12/15/14 20:12*	*1*

Lab Sample ID: 680-108020-1 MS
Matrix: Solid
Analysis Batch: 363155

Client Sample ID: WC-Petroleum Impacted Soils-120514
Prep Type: TCLP
Prep Batch: 362732

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dichlorobenzene	0.050	U	0.495	0.271		mg/L		55	43 - 130
2,4-Dinitrotoluene	0.050	U	0.495	0.375		mg/L		76	63 - 130
Hexachlorobenzene	0.050	U	0.495	0.291		mg/L		59	52 - 130
Hexachlorobutadiene	0.050	U	0.495	0.229		mg/L		46	36 - 130
Hexachloroethane	0.050	U	0.495	0.257		mg/L		52	39 - 130
2-Methylphenol	0.050	U	0.495	0.312		mg/L		63	55 - 130
3 & 4 Methylphenol	0.050	U	0.495	0.319		mg/L		64	35 - 130
Nitrobenzene	0.050	U	0.495	0.326		mg/L		66	56 - 130
Pentachlorophenol	0.25	U	0.990	0.687		mg/L		69	42 - 138
Pyridine	0.25	U	0.495	0.262		mg/L		53	10 - 130
2,4,5-Trichlorophenol	0.050	U	0.495	0.369		mg/L		75	61 - 130
2,4,6-Trichlorophenol	0.050	U	0.495	0.366		mg/L		74	57 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2-Fluorobiphenyl	*62*		*38 - 130*
2-Fluorophenol (Surr)	*50*		*25 - 130*
Nitrobenzene-d5 (Surr)	*61*		*39 - 130*
Phenol-d5 (Surr)	*54*		*25 - 130*
Terphenyl-d14 (Surr)	*63*		*10 - 143*
2,4,6-Tribromophenol (Surr)	*73*		*31 - 141*

Lab Sample ID: 680-108020-1 MSD
Matrix: Solid
Analysis Batch: 363155

Client Sample ID: WC-Petroleum Impacted Soils-120514
Prep Type: TCLP
Prep Batch: 362732

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,4-Dichlorobenzene	0.050	U	0.491	0.251		mg/L		51	43 - 130	8	50
2,4-Dinitrotoluene	0.050	U	0.491	0.381		mg/L		78	63 - 130	1	50
Hexachlorobenzene	0.050	U	0.491	0.379		mg/L		77	52 - 130	26	50
Hexachlorobutadiene	0.050	U	0.491	0.266		mg/L		54	36 - 130	15	50
Hexachloroethane	0.050	U	0.491	0.247		mg/L		50	39 - 130	4	50
2-Methylphenol	0.050	U	0.491	0.327		mg/L		67	55 - 130	5	50

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 680-108020-1 MSD | **Client Sample ID: WC-Petroleum Impacted Soils-120514**
Matrix: Solid | **Prep Type: TCLP**
Analysis Batch: 363155 | **Prep Batch: 362732**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
3 & 4 Methylphenol	0.050	U	0.491	0.344		mg/L		70	35 - 130	8	50
Nitrobenzene	0.050	U	0.491	0.335		mg/L		68	56 - 130	3	50
Pentachlorophenol	0.25	U	0.981	0.762		mg/L		78	42 - 138	10	50
Pyridine	0.25	U	0.491	0.280		mg/L		57	10 - 130	6	50
2,4,5-Trichlorophenol	0.050	U	0.491	0.403		mg/L		82	61 - 130	9	50
2,4,6-Trichlorophenol	0.050	U	0.491	0.397		mg/L		81	57 - 130	8	50

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2-Fluorobiphenyl	*69*		*38 - 130*
2-Fluorophenol (Surr)	*50*		*25 - 130*
Nitrobenzene-d5 (Surr)	*65*		*39 - 130*
Phenol-d5 (Surr)	*57*		*25 - 130*
Terphenyl-d14 (Surr)	*76*		*10 - 143*
2,4,6-Tribromophenol (Surr)	*75*		*31 - 141*

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 680-362964/10-A | **Client Sample ID: Method Blank**
Matrix: Water | **Prep Type: Total/NA**
Analysis Batch: 363253 | **Prep Batch: 362964**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	0.0010	U	0.0010	0.00023	mg/L		12/12/14 15:38	12/15/14 18:45	1
PCB-1221	0.0010	U	0.0010	0.00024	mg/L		12/12/14 15:38	12/15/14 18:45	1
PCB-1232	0.0010	U	0.0010	0.00025	mg/L		12/12/14 15:38	12/15/14 18:45	1
PCB-1242	0.0010	U	0.0010	0.00020	mg/L		12/12/14 15:38	12/15/14 18:45	1
PCB-1248	0.0010	U	0.0010	0.00027	mg/L		12/12/14 15:38	12/15/14 18:45	1
PCB-1254	0.0010	U	0.0010	0.00023	mg/L		12/12/14 15:38	12/15/14 18:45	1
PCB-1260	0.0010	U	0.0010	0.00023	mg/L		12/12/14 15:38	12/15/14 18:45	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*66*		*39 - 130*	*12/12/14 15:38*	*12/15/14 18:45*	*1*
DCB Decachlorobiphenyl	*55*		*10 - 130*	*12/12/14 15:38*	*12/15/14 18:45*	*1*

Lab Sample ID: LCS 680-362964/13-A | **Client Sample ID: Lab Control Sample**
Matrix: Water | **Prep Type: Total/NA**
Analysis Batch: 363253 | **Prep Batch: 362964**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
PCB-1016			0.0200	0.0144		mg/L		72	35 - 130		
PCB-1260			0.0200	0.0133		mg/L		66	33 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tetrachloro-m-xylene	*62*		*39 - 130*
DCB Decachlorobiphenyl	*40*		*10 - 130*

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 680-362521/1-A
Matrix: Waste
Analysis Batch: 363004

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 362521

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Halogens	200	U	200	200	mg/Kg		12/10/14 11:44	12/12/14 01:57	1

Lab Sample ID: LCS 680-362521/2-A
Matrix: Waste
Analysis Batch: 363004

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 362521

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Halogens	9840	10200		mg/Kg		104	70 - 130

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 680-362431/1-A
Matrix: Water
Analysis Batch: 362719

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 362431

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.020	U	0.020	0.020	mg/L		12/10/14 07:11	12/10/14 23:53	1
Barium	0.10	U	0.10	0.10	mg/L		12/10/14 07:11	12/10/14 23:53	1
Cadmium	0.010	U	0.010	0.010	mg/L		12/10/14 07:11	12/10/14 23:53	1
Chromium	0.020	U	0.020	0.020	mg/L		12/10/14 07:11	12/10/14 23:53	1
Lead	0.020	U	0.020	0.020	mg/L		12/10/14 07:11	12/10/14 23:53	1
Selenium	0.050	U	0.050	0.050	mg/L		12/10/14 07:11	12/10/14 23:53	1
Silver	0.010	U	0.010	0.010	mg/L		12/10/14 07:11	12/10/14 23:53	1

Lab Sample ID: LCS 680-362431/2-A
Matrix: Water
Analysis Batch: 362719

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 362431

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	2.00	2.03		mg/L		102	80 - 120
Barium	2.00	1.94		mg/L		97	80 - 120
Cadmium	1.00	0.967		mg/L		97	80 - 120
Chromium	2.00	2.02		mg/L		101	80 - 120
Lead	10.0	9.42		mg/L		94	80 - 120
Selenium	2.00	1.85		mg/L		92	80 - 120
Silver	1.00	0.974		mg/L		97	80 - 120

Lab Sample ID: MB 680-362692/1-A
Matrix: Solid
Analysis Batch: 363003

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 362692

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.020	U	0.020	0.020	mg/L		12/11/14 07:09	12/11/14 17:40	1
Barium	0.10	U	0.10	0.10	mg/L		12/11/14 07:09	12/11/14 17:40	1
Cadmium	0.010	U	0.010	0.010	mg/L		12/11/14 07:09	12/11/14 17:40	1
Chromium	0.020	U	0.020	0.020	mg/L		12/11/14 07:09	12/11/14 17:40	1
Lead	0.020	U	0.020	0.020	mg/L		12/11/14 07:09	12/11/14 17:40	1
Selenium	0.050	U	0.050	0.050	mg/L		12/11/14 07:09	12/11/14 17:40	1
Silver	0.010	U	0.010	0.010	mg/L		12/11/14 07:09	12/11/14 17:40	1

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: LCS 680-362692/2-A
Matrix: Solid
Analysis Batch: 363003

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 362692

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	2.00	2.13		mg/L		107	80 - 120
Barium	2.00	2.17		mg/L		109	80 - 120
Cadmium	1.00	1.08		mg/L		108	80 - 120
Chromium	2.00	2.19		mg/L		109	80 - 120
Lead	10.0	10.4		mg/L		104	80 - 120
Selenium	2.00	2.09		mg/L		105	80 - 120
Silver	1.00	1.05		mg/L		105	80 - 120

Lab Sample ID: LB 680-362143/1-D
Matrix: Water
Analysis Batch: 362719

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 362431

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.20	U	0.20	0.20	mg/L		12/10/14 07:11	12/11/14 00:43	1
Barium	1.0	U	1.0	1.0	mg/L		12/10/14 07:11	12/11/14 00:43	1
Cadmium	0.10	U	0.10	0.10	mg/L		12/10/14 07:11	12/11/14 00:43	1
Chromium	0.20	U	0.20	0.20	mg/L		12/10/14 07:11	12/11/14 00:43	1
Lead	0.20	U	0.20	0.20	mg/L		12/10/14 07:11	12/11/14 00:43	1
Selenium	0.50	U	0.50	0.50	mg/L		12/10/14 07:11	12/11/14 00:43	1
Silver	0.10	U	0.10	0.10	mg/L		12/10/14 07:11	12/11/14 00:43	1

Lab Sample ID: LB 680-362334/1-B
Matrix: Water
Analysis Batch: 362719

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 362431

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.20	U	0.20	0.20	mg/L		12/10/14 07:11	12/11/14 00:02	1
Barium	1.0	U	1.0	1.0	mg/L		12/10/14 07:11	12/11/14 00:02	1
Cadmium	0.10	U	0.10	0.10	mg/L		12/10/14 07:11	12/11/14 00:02	1
Chromium	0.20	U	0.20	0.20	mg/L		12/10/14 07:11	12/11/14 00:02	1
Lead	0.20	U	0.20	0.20	mg/L		12/10/14 07:11	12/11/14 00:02	1
Selenium	0.50	U	0.50	0.50	mg/L		12/10/14 07:11	12/11/14 00:02	1
Silver	0.10	U	0.10	0.10	mg/L		12/10/14 07:11	12/11/14 00:02	1

Lab Sample ID: LB 680-362344/1-B
Matrix: Solid
Analysis Batch: 363003

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 362692

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.20	U	0.20	0.20	mg/L		12/11/14 07:09	12/11/14 17:58	1
Barium	1.0	U	1.0	1.0	mg/L		12/11/14 07:09	12/11/14 17:58	1
Cadmium	0.10	U	0.10	0.10	mg/L		12/11/14 07:09	12/11/14 17:58	1
Chromium	0.20	U	0.20	0.20	mg/L		12/11/14 07:09	12/11/14 17:58	1
Lead	0.20	U	0.20	0.20	mg/L		12/11/14 07:09	12/11/14 17:58	1
Selenium	0.50	U	0.50	0.50	mg/L		12/11/14 07:09	12/11/14 17:58	1
Silver	0.10	U	0.10	0.10	mg/L		12/11/14 07:09	12/11/14 17:58	1

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 680-362714/1-A — **Client Sample ID: Method Blank**
Matrix: Waste — **Prep Type: Total/NA**
Analysis Batch: 362952 — **Prep Batch: 362714**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.24	U	0.24	0.24	mg/Kg		12/11/14 08:45	12/12/14 04:48	1
Cadmium	0.048	U	0.048	0.048	mg/Kg		12/11/14 08:45	12/12/14 04:48	1
Chromium	0.48	U	0.48	0.48	mg/Kg		12/11/14 08:45	12/12/14 04:48	1
Lead	0.19	U	0.19	0.19	mg/Kg		12/11/14 08:45	12/12/14 04:48	1

Lab Sample ID: LCS 680-362714/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Waste — **Prep Type: Total/NA**
Analysis Batch: 362952 — **Prep Batch: 362714**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	8.77	8.74		mg/Kg		100	75 - 125
Cadmium	4.39	4.41		mg/Kg		101	75 - 125
Chromium	8.77	8.27		mg/Kg		94	75 - 125
Lead	43.9	43.3		mg/Kg		99	75 - 125

Lab Sample ID: LCSD 680-362714/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Waste — **Prep Type: Total/NA**
Analysis Batch: 362952 — **Prep Batch: 362714**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	8.85	8.73		mg/Kg		99	75 - 125	0	20
Cadmium	4.42	4.31		mg/Kg		97	75 - 125	2	20
Chromium	8.85	8.18		mg/Kg		92	75 - 125	1	20
Lead	44.2	43.4		mg/Kg		98	75 - 125	0	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 680-362551/13-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 362936 — **Prep Batch: 362551**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.00020	U	0.00020	0.00020	mg/L		12/10/14 12:38	12/11/14 15:45	1

Lab Sample ID: LCS 680-362551/14-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 362936 — **Prep Batch: 362551**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.250	0.245		mg/L		98	80 - 120

Lab Sample ID: MB 680-363232/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 363475 — **Prep Batch: 363232**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.00020	U	0.00020	0.00020	mg/L		12/15/14 12:25	12/16/14 12:21	1

Method: 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: LCS 680-363232/2-A
Matrix: Solid
Analysis Batch: 363475

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 363232

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.250	0.265		mg/L		106	80 - 120

Lab Sample ID: LB 680-362143/1-E
Matrix: Water
Analysis Batch: 362936

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 362551

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.020	U	0.020	0.020	mg/L		12/10/14 12:38	12/11/14 16:12	1

Lab Sample ID: LB 680-362334/1-C
Matrix: Water
Analysis Batch: 362936

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 362551

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.020	U	0.020	0.020	mg/L		12/10/14 12:38	12/11/14 15:51	1

Lab Sample ID: LB 680-362344/1-C
Matrix: Solid
Analysis Batch: 363475

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 363232

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.020	U	0.020	0.020	mg/L		12/15/14 12:25	12/16/14 12:27	1

Lab Sample ID: LB2 680-362344/4-C
Matrix: Solid
Analysis Batch: 363475

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 363232

Analyte	LB2 Result	LB2 Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.020	U	0.020	0.020	mg/L		12/15/14 12:25	12/16/14 12:30	1

Method: 1010A - Ignitability, Pensky-Martens Closed Cup Method

Lab Sample ID: LCS 240-160616/1
Matrix: Waste
Analysis Batch: 160616

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Flashpoint	81.0	83.00		Degrees F		102	97 - 103

Lab Sample ID: 680-108020-3 DU
Matrix: Waste
Analysis Batch: 160616

Client Sample ID: WC-Offspec Diesel-120514
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Flashpoint	>200		>200		Degrees F		NC	20

Method: 9040C - pH

Lab Sample ID: LCS 680-363132/7
Matrix: Water
Analysis Batch: 363132

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
pH			7.00	7.010		SU		100	63 - 158		

Method: 9045D - pH

Lab Sample ID: LCS 680-363465/1
Matrix: Waste
Analysis Batch: 363465

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
pH			7.00	7.020		SU		100	79 - 126		

Lab Sample ID: 680-108020-3 DU
Matrix: Waste
Analysis Batch: 363465

Client Sample ID: WC-Offspec Diesel-120514
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
pH	6.82			6.760		SU				0.9	40

GC/MS VOA

Leach Batch: 362392

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-108020-2	WC-Petroleum Impacted Water-120514	TCLP	Water	1311	
LB 680-362392/1-A	Method Blank	TCLP	Water	1311	

Leach Batch: 362429

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-108020-1	WC-Petroleum Impacted Soils-120514	TCLP	Solid	1311	
LB 680-362429/1-A	Method Blank	TCLP	Solid	1311	

Analysis Batch: 362445

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-108020-2	WC-Petroleum Impacted Water-120514	TCLP	Water	8260B	362392
LB 680-362392/1-A	Method Blank	TCLP	Water	8260B	362392
LCS 680-362445/4	Lab Control Sample	Total/NA	Water	8260B	
LCSD 680-362445/5	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 680-362445/9	Method Blank	Total/NA	Water	8260B	

Analysis Batch: 362703

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-108020-1	WC-Petroleum Impacted Soils-120514	TCLP	Solid	8260B	362429
LB 680-362429/1-A	Method Blank	TCLP	Solid	8260B	362429
LCS 680-362703/4	Lab Control Sample	Total/NA	Solid	8260B	
LCSD 680-362703/5	Lab Control Sample Dup	Total/NA	Solid	8260B	
MB 680-362703/9	Method Blank	Total/NA	Solid	8260B	

GC/MS Semi VOA

Leach Batch: 362344

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-108020-1	WC-Petroleum Impacted Soils-120514	TCLP	Solid	1311	
680-108020-1 MS	WC-Petroleum Impacted Soils-120514	TCLP	Solid	1311	
680-108020-1 MSD	WC-Petroleum Impacted Soils-120514	TCLP	Solid	1311	
LB2 680-362344/4-B	Method Blank	TCLP	Solid	1311	

Prep Batch: 362732

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-108020-1	WC-Petroleum Impacted Soils-120514	TCLP	Solid	3520C	362344
680-108020-1 MS	WC-Petroleum Impacted Soils-120514	TCLP	Solid	3520C	362344
680-108020-1 MSD	WC-Petroleum Impacted Soils-120514	TCLP	Solid	3520C	362344
LB2 680-362344/4-B	Method Blank	TCLP	Solid	3520C	362344
LCS 680-362732/10-A	Lab Control Sample	Total/NA	Solid	3520C	
MB 680-362732/9-A	Method Blank	Total/NA	Solid	3520C	

Analysis Batch: 363155

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-108020-1	WC-Petroleum Impacted Soils-120514	TCLP	Solid	8270D	362732
680-108020-1 MS	WC-Petroleum Impacted Soils-120514	TCLP	Solid	8270D	362732
680-108020-1 MSD	WC-Petroleum Impacted Soils-120514	TCLP	Solid	8270D	362732
LB2 680-362344/4-B	Method Blank	TCLP	Solid	8270D	362732
LCS 680-362732/10-A	Lab Control Sample	Total/NA	Solid	8270D	362732
MB 680-362732/9-A	Method Blank	Total/NA	Solid	8270D	362732

GC Semi VOA

Prep Batch: 362964

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-108020-4	WC-Offspec Diesel-120514	Total/NA	Water	3520C	
LCS 680-362964/13-A	Lab Control Sample	Total/NA	Water	3520C	
MB 680-362964/10-A	Method Blank	Total/NA	Water	3520C	

Analysis Batch: 363253

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-108020-4	WC-Offspec Diesel-120514	Total/NA	Water	8082A	362964
LCS 680-362964/13-A	Lab Control Sample	Total/NA	Water	8082A	362964
MB 680-362964/10-A	Method Blank	Total/NA	Water	8082A	362964

HPLC/IC

Prep Batch: 362521

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-108020-3	WC-Offspec Diesel-120514	Total/NA	Waste	5050	
LCS 680-362521/2-A	Lab Control Sample	Total/NA	Waste	5050	
MB 680-362521/1-A	Method Blank	Total/NA	Waste	5050	

Analysis Batch: 363004

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-108020-3	WC-Offspec Diesel-120514	Total/NA	Waste	9056A	362521
LCS 680-362521/2-A	Lab Control Sample	Total/NA	Waste	9056A	362521
MB 680-362521/1-A	Method Blank	Total/NA	Waste	9056A	362521

Metals

Leach Batch: 362143

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LB 680-362143/1-D	Method Blank	TCLP	Water	1311	
LB 680-362143/1-E	Method Blank	TCLP	Water	1311	

Leach Batch: 362334

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-108020-2	WC-Petroleum Impacted Water-120514	TCLP	Water	1311	
LB 680-362334/1-B	Method Blank	TCLP	Water	1311	
LB 680-362334/1-C	Method Blank	TCLP	Water	1311	

Leach Batch: 362344

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-108020-1	WC-Petroleum Impacted Soils-120514	TCLP	Solid	1311	
LB 680-362344/1-B	Method Blank	TCLP	Solid	1311	
LB 680-362344/1-C	Method Blank	TCLP	Solid	1311	
LB2 680-362344/4-C	Method Blank	TCLP	Solid	1311	

Prep Batch: 362431

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-108020-2	WC-Petroleum Impacted Water-120514	TCLP	Water	3010A	362334
LB 680-362143/1-D	Method Blank	TCLP	Water	3010A	362143
LB 680-362334/1-B	Method Blank	TCLP	Water	3010A	362334
LCS 680-362431/2-A	Lab Control Sample	Total/NA	Water	3010A	

Metals (Continued)

Prep Batch: 362431 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 680-362431/1-A	Method Blank	Total/NA	Water	3010A	

Prep Batch: 362551

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-108020-2	WC-Petroleum Impacted Water-120514	TCLP	Water	7470A	362334
LB 680-362143/1-E	Method Blank	TCLP	Water	7470A	362143
LB 680-362334/1-C	Method Blank	TCLP	Water	7470A	362334
LCS 680-362551/14-A	Lab Control Sample	Total/NA	Water	7470A	
MB 680-362551/13-A	Method Blank	Total/NA	Water	7470A	

Prep Batch: 362692

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-108020-1	WC-Petroleum Impacted Soils-120514	TCLP	Solid	3010A	362344
LB 680-362344/1-B	Method Blank	TCLP	Solid	3010A	362344
LCS 680-362692/2-A	Lab Control Sample	Total/NA	Solid	3010A	
MB 680-362692/1-A	Method Blank	Total/NA	Solid	3010A	

Prep Batch: 362714

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-108020-3	WC-Offspec Diesel-120514	Total/NA	Waste	3050B	
LCS 680-362714/2-A	Lab Control Sample	Total/NA	Waste	3050B	
LCSD 680-362714/3-A	Lab Control Sample Dup	Total/NA	Waste	3050B	
MB 680-362714/1-A	Method Blank	Total/NA	Waste	3050B	

Analysis Batch: 362719

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-108020-2	WC-Petroleum Impacted Water-120514	TCLP	Water	6010C	362431
LB 680-362143/1-D	Method Blank	TCLP	Water	6010C	362431
LB 680-362334/1-B	Method Blank	TCLP	Water	6010C	362431
LCS 680-362431/2-A	Lab Control Sample	Total/NA	Water	6010C	362431
MB 680-362431/1-A	Method Blank	Total/NA	Water	6010C	362431

Analysis Batch: 362936

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-108020-2	WC-Petroleum Impacted Water-120514	TCLP	Water	7470A	362551
LB 680-362143/1-E	Method Blank	TCLP	Water	7470A	362551
LB 680-362334/1-C	Method Blank	TCLP	Water	7470A	362551
LCS 680-362551/14-A	Lab Control Sample	Total/NA	Water	7470A	362551
MB 680-362551/13-A	Method Blank	Total/NA	Water	7470A	362551

Analysis Batch: 362952

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-108020-3	WC-Offspec Diesel-120514	Total/NA	Waste	6020A	362714
LCS 680-362714/2-A	Lab Control Sample	Total/NA	Waste	6020A	362714
LCSD 680-362714/3-A	Lab Control Sample Dup	Total/NA	Waste	6020A	362714
MB 680-362714/1-A	Method Blank	Total/NA	Waste	6020A	362714

Analysis Batch: 363003

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-108020-1	WC-Petroleum Impacted Soils-120514	TCLP	Solid	6010C	362692
LB 680-362344/1-B	Method Blank	TCLP	Solid	6010C	362692

Metals (Continued)

Analysis Batch: 363003 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 680-362692/2-A	Lab Control Sample	Total/NA	Solid	6010C	362692
MB 680-362692/1-A	Method Blank	Total/NA	Solid	6010C	362692

Prep Batch: 363232

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-108020-1	WC-Petroleum Impacted Soils-120514	TCLP	Solid	7470A	362344
LB 680-362344/1-C	Method Blank	TCLP	Solid	7470A	362344
LB2 680-362344/4-C	Method Blank	TCLP	Solid	7470A	362344
LCS 680-363232/2-A	Lab Control Sample	Total/NA	Solid	7470A	
MB 680-363232/1-A	Method Blank	Total/NA	Solid	7470A	

Analysis Batch: 363475

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-108020-1	WC-Petroleum Impacted Soils-120514	TCLP	Solid	7470A	363232
LB 680-362344/1-C	Method Blank	TCLP	Solid	7470A	363232
LB2 680-362344/4-C	Method Blank	TCLP	Solid	7470A	363232
LCS 680-363232/2-A	Lab Control Sample	Total/NA	Solid	7470A	363232
MB 680-363232/1-A	Method Blank	Total/NA	Solid	7470A	363232

General Chemistry

Analysis Batch: 160616

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-108020-2	WC-Petroleum Impacted Water-120514	Total/NA	Water	1010A	
680-108020-3	WC-Offspec Diesel-120514	Total/NA	Waste	1010A	
680-108020-3 DU	WC-Offspec Diesel-120514	Total/NA	Waste	1010A	
LCS 240-160616/1	Lab Control Sample	Total/NA	Waste	1010A	

Analysis Batch: 363132

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-108020-2	WC-Petroleum Impacted Water-120514	Total/NA	Water	9040C	
LCS 680-363132/7	Lab Control Sample	Total/NA	Water	9040C	

Analysis Batch: 363465

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-108020-3	WC-Offspec Diesel-120514	Total/NA	Waste	9045D	
680-108020-3 DU	WC-Offspec Diesel-120514	Total/NA	Waste	9045D	
LCS 680-363465/1	Lab Control Sample	Total/NA	Waste	9045D	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: CSX Brunswick Rail Yard

TestAmerica Job ID: 680-108020-1

Client Sample ID: WC-Petroleum Impacted Soils-120514

Lab Sample ID: 680-108020-1

Date Collected: 12/05/14 10:00

Matrix: Solid

Date Received: 12/09/14 09:59

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			20.16 g	400 mL	362429	12/09/14 21:03	DSF	TAL SAV
TCLP	Analysis	8260B		20	5 mL	5 mL	362703	12/11/14 16:01	MMT	TAL SAV
	Instrument ID: CMSO2									
TCLP	Leach	1311			100.04 g	2000 mL	362344	12/09/14 18:40	WRB	TAL SAV
TCLP	Prep	3520C			200.4 mL	1.0 mL	362732	12/11/14 15:57	RBS	TAL SAV
TCLP	Analysis	8270D		1	200.4 mL	1.0 mL	363155	12/15/14 21:02	LEG	TAL SAV
	Instrument ID: CMST									
TCLP	Leach	1311			100.04 g	2000 mL	362344	12/09/14 18:40	WRB	TAL SAV
TCLP	Prep	3010A			5 mL	50 mL	362692	12/11/14 07:09	SP	TAL SAV
TCLP	Analysis	6010C		1	5 mL	50 mL	363003	12/11/14 18:25	BCB	TAL SAV
	Instrument ID: ICPE									
TCLP	Leach	1311			100.04 g	2000 mL	362344	12/09/14 18:40	WRB	TAL SAV
TCLP	Prep	7470A			0.5 mL	50 mL	363232	12/15/14 12:25	JKL	TAL SAV
TCLP	Analysis	7470A		1	0.5 mL	50 mL	363475	12/16/14 12:42	JKL	TAL SAV
	Instrument ID: LEEMAN2									

Client Sample ID: WC-Petroleum Impacted Water-120514

Lab Sample ID: 680-108020-2

Date Collected: 12/05/14 10:30

Matrix: Water

Date Received: 12/09/14 09:59

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			1.0 g	1.0 mL	362392	12/09/14 17:56	DSF	TAL SAV
TCLP	Analysis	8260B		20	5 mL	5 mL	362445	12/10/14 13:28	MMT	TAL SAV
	Instrument ID: CMSP2									
TCLP	Leach	1311			1.0 g	1.0 mL	362334	12/09/14 18:30	WRB	TAL SAV
TCLP	Prep	3010A			5 mL	50 mL	362431	12/10/14 07:11	SP	TAL SAV
TCLP	Analysis	6010C		1	5 mL	50 mL	362719	12/11/14 01:01	BCB	TAL SAV
	Instrument ID: ICPE									
TCLP	Leach	1311			1.0 g	1.0 mL	362334	12/09/14 18:30	WRB	TAL SAV
TCLP	Prep	7470A			0.5 mL	50 mL	362551	12/10/14 12:38	JKL	TAL SAV
TCLP	Analysis	7470A		1	0.5 mL	50 mL	362936	12/11/14 16:25	JKL	TAL SAV
	Instrument ID: LEEMAN2									
Total/NA	Analysis	1010A		1	70 mL	70 mL	160616	12/11/14 15:18	SEM	TAL CAN
	Instrument ID: WHITEY									
Total/NA	Analysis	9040C		1			363132	12/14/14 14:31	LBH	TAL SAV
	Instrument ID: MANTECH									

Client Sample ID: WC-Offspec Diesel-120514

Lab Sample ID: 680-108020-3

Date Collected: 12/05/14 11:00

Matrix: Waste

Date Received: 12/09/14 09:59

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5050			000.5061 g	100 mL	362521	12/10/14 11:44	JRJ	TAL SAV

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: CSX Brunswick Rail Yard

TestAmerica Job ID: 680-108020-1

Client Sample ID: WC-Offspec Diesel-120514

Lab Sample ID: 680-108020-3

Date Collected: 12/05/14 11:00

Matrix: Waste

Date Received: 12/09/14 09:59

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1	000.5061 g	100 mL	363004	12/12/14 04:31	DAS	TAL SAV
	Instrument ID: CICH									
Total/NA	Prep	3050B			1.03 g	500 mL	362714	12/11/14 08:45	CRW	TAL SAV
Total/NA	Analysis	6020A		1	1.03 g	500 mL	362952	12/12/14 05:04	BWR	TAL SAV
	Instrument ID: ICPMSC									
Total/NA	Analysis	1010A		1	70 mL	70 mL	160616	12/11/14 15:56	SEM	TAL CAN
	Instrument ID: WHITEY									
Total/NA	Analysis	9045D		1	20 mL	20 mL	363465	12/12/14 16:45	JJW	TAL SAV
	Instrument ID: GEpHM2									

Client Sample ID: WC-Offspec Diesel-120514

Lab Sample ID: 680-108020-4

Date Collected: 12/05/14 11:00

Matrix: Water

Date Received: 12/09/14 09:59

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			126.8 mL	2.5 mL	362964	12/12/14 15:38	RBS	TAL SAV
Total/NA	Analysis	8082A		10	126.8 mL	2.5 mL	363253	12/15/14 22:22	JCK	TAL SAV
	Instrument ID: CSGAA									

Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

1.4

CSX TRANSPORTATION

CHAIN OF CUSTODY

LABORATORY INFORMATION

- ☐ TestAmerica Savannah - 5102 LaRoche Avenue, Savannah, GA 31404 P: 912-354-7858 F: 912-352-0165
- ☐ TestAmerica North Canton - 4101 Shuffel Drive NW, North Canton, OH 44720 P: 330-497-9396 F: 330-497-0772
- ☐ TestAmerica Tampa - 6712 Benjamin Road, Suite 100, Tampa, FL 33634 P: 813-885-7427 F: 813-885-7049
- ☐ TestAmerica Pensacola - 3355 McLemore Drive, Pensacola, FL 32514 P: 850-474-1001 F: 850-478-2671
- ☐ TestAmerica Buffalo - 10 Hazelwood Drive, Suite 106, Amherst, NY 14228 P: 716-691-2600 F: 716-961-7991
- ☐ TestAmerica Chicago - 2417 Bond Street, University Park, IL 60466 P: 708-534-5200 F: 708-534-5211

COC # 120514-1

SHIPMENT INFORMATION

Shipment Method:

Shipment Tracking No:

CSXT PROJECT INFORMATION

Proj. State (State of Origin): MD

CSXT Project Number: R

Proj. City: BRUNSWICK

CSXT Project Name: BRUNSWICK RAIL YARD

CSXT Contact: RAGHU CHATRATHI

LWON: ENV0000035683

CONSULTANT INFORMATION

Project #: MD000843.0011.00010

Company: ARCADIS

PM: MEGAN KELLNER

Address: 1114 BENFIELD BLVD

Email: megan.kellner@arcadis-us.com

City, State, Zip: MILLERSVILLE, MD 21108

Phone: 571.375.5180

Fax:

Turnaround Time:

- ☐ 1 Day Rush
- ☐ 2 Day Rush
- ☐ 3 Day Rush
- ☒ Standard 6-13 Days
- Specify # Days _____
- ☐ Standard 14 Days
- ☐ Other _____

Preservative Codes:

0 = No Preservatives
1 = Hydrochloric Acid
2 = Nitric Acid
3 = Sulfuric Acid
4 = Sodium Thiosulfate
5 = Sodium Hydroxide
6 = Other _____

Note ➡ Pres. Code

Deliverables:

- ☒ CSXT Standard (Level II)
- ☐ Level III
- ☐ Level IV
- ☐ Other Deliv: _____
- ☐ EDD Required, Format: _____

Matrix Codes:

GW = Groundwater
WW = Waste Water
SW = Surface Water
SO = Soil
SL = Sludge
OI = Oil
SOL = Other Solid
LIQ = Liquid

SAMPLE INFORMATION

Sample Identification	Containers Number & Type	Sample Collection Date	Time	Sampler	Filtered Y or N	Type Comp or Grab	Matrix Code	1010A-FLASHPOINT	6010C, 7470A	8260B-TCLP	9040C-pH	8082A-PCBs	6020A, 9045D, 9056A-TOXICITY	8270D-TCLP		COMMENTS	LAB USE
WC-PETROLEUM IMPACTED SOILS-120514	3, SOIL JARS	12.5.14	1000	JJ	N	C	SO		X	X				X			
WC-PETROLEUM IMPACTED WATER-120514	2, 1L Ambers, 2 125ML Ambers	12.5.14	1030	JJ	N	C	GW	X	X		X			X			
WC-OFFSPEC DIESEL-120514	4, 250-ML Ambers	12.5.14	1100	JJ	N	C	WW	X			X	X	X				

METHODS FOR ANALYSIS

680-108020 Chain of Custody

Relinquished By:	Date/Time:	Received By:	Date/Time:
[signature]	12.5.14/1320	[signature]	12/5/14/1320
[signature]	12/5/14/1850	[signature]	12-6-14 10:40
Received By Laboratory: [signature]	12/09/14 0959	Lab Remarks:	

Comments & Special Analytical Requirements:

2.8/2.5
680-108020

LAB USE: ☐ Yes Custody Intact ☐ No

Custody Seal # #

LAB Log Number #

ORIGINAL – RETURN TO LABORATORY WITH SAMPLES

INVOICE MUST BE SUBMITTED TO CSXT WITH ORIGINAL COC

TAL-6006 (0509)

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 680-108020-1

Login Number: 108020

List Source: TestAmerica Savannah

List Number: 1

Creator: Conner, Keaton

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: CSX Brunswick Rail Yard

TestAmerica Job ID: 680-108020-1

Laboratory: TestAmerica Savannah

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Maryland	State Program	3	250	12-31-14 *

Laboratory: TestAmerica Canton

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
California	NELAP	9	01144CA	06-30-14 *
California	State Program	9	2927	04-30-15
Connecticut	State Program	1	PH-0590	12-31-14
Florida	NELAP	4	E87225	06-30-15
Georgia	State Program	4	N/A	06-30-15
Illinois	NELAP	5	200004	07-31-15
Kansas	NELAP	7	E-10336	01-31-15
Kentucky (UST)	State Program	4	58	06-30-15
L-A-B	DoD ELAP		L2315	07-18-16
Minnesota	NELAP	5	039-999-348	12-31-14
Nevada	State Program	9	OH-000482008A	07-31-15
New Jersey	NELAP	2	OH001	06-30-15
New York	NELAP	2	10975	03-31-15
Ohio VAP	State Program	5	CL0024	10-31-15
Pennsylvania	NELAP	3	68-00340	08-31-15
Texas	NELAP	6		08-31-15
USDA	Federal		P330-13-00319	11-26-16
Virginia	NELAP	3	460175	09-14-15
Washington	State Program	10	C971	01-12-15
West Virginia DEP	State Program	3	210	12-31-14
Wisconsin	State Program	5	999518190	08-31-15

* Certification renewal pending - certification considered valid.

ARCADIS

Appendix C

Geotechnical Laboratory Reports

PTS Laboratories, Inc.

8100 Secura Way • Santa Fe Springs, CA 90670
Telephone (562) 347-2500 • Fax (562) 907-3610

January 6, 2015

Megan Kellner
ARCADIS U.S., Inc.
1114 Benfield Blvd., Suite A
Millersville, MD 21108

Re: PTS File No: 44822
Physical Properties Data
Brunswick Rail Yard; MD000843.0011.00010

Dear Ms. Kellner:

Please find enclosed report for Physical Properties analyses conducted upon samples received from your Brunswick Rail Yard; MD000843.0011.00010 project. All analyses were performed by applicable ASTM, EPA, or API methodologies. An electronic version of the report has previously been sent to your attention via the internet. The samples are currently in storage and will be retained for thirty days past completion of testing at no charge. Please note that the samples will be disposed of at that time. You may contact me regarding storage, disposal, or return of the samples.

PTS Laboratories appreciates the opportunity to be of service. If you have any questions or require additional information, please give me a call at (562) 347-2502.

Sincerely,
PTS Laboratories, Inc.

Michael Mark Brady, P.G.
Laboratory Director

Encl.

PTS Laboratories

Project Name: Brunswick Rail Yard
Project Number: MD000843.0011.00010

PTS File No: 44822
Client: ARCADIS U.S., Inc.

TEST PROGRAM - 20141211

CORE ID	Depth ft.	Core Recovery ft.	Grain Size Analysis w/ hydrometer	Atterberg Limits ASTM D4318	USCS Soil Classification ASTM D2487	Moisture Content ASTM D2216			Comments
		Plugs:	Grab	Grab	Calc.	Grab			
Date Received: 20141211									
GB-01 (4-6)(120914)	**N/A**	**N/A**	**X**	**X**	**X**	**X**			
GB-01 (12-14)(120914)	**N/A**	**N/A**	**X**	**X**	**X**	**X**			
GB-01 (22-23)(120914)	**N/A**	**N/A**	**X**	**X**	**X**	**X**			
GB-02 (6-8)(120914)	**N/A**	**N/A**	**X**	**X**	**X**	**X**			
GB-02 (14-16)(120914)	**N/A**	**N/A**	**X**	**X**	**X**	**X**			
GB-02 (24-26)(120914)	**N/A**	**N/A**	**X**	**X**	**X**	**X**			
TOTALS:	**6 jars**	**N/A**	**6**	**6**	**6**	**6**			**6**

Laboratory Test Program Notes
Contaminant identification: _____

Standard TAT for basic analysis is 15 business days.

USCS Soil Classification by ASTM D2487 requires Atterberg Limits and Grain Size Analysis.

CLIENT CONFIDENTIAL

PTS Laboratories

PTS File No: 44822
Client: ARCADIS U.S., Inc.
Report Date: 01/06/15

ATTERBERG LIMITS DATA - FINE FRACTION < No. 40 SIEVE

Project Name: Brunswick Rail Yard
Project No: MD000843.0011.00010

		METHODS:	ASTM D4318			ASTM D4318	ASTM D2487
			ATTERBERG LIMITS			USCS / PLASTICITY	USCS
SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	CHART SYMBOL (Fines: <#40 Sieve)	CLASSIFICATION, Group Symbol: Name
GB-01 (4-6)(120914)	N/A	20141223	26.0	Non-Plastic		NP	GW-GM: Well-graded gravel with silt and sand
GB-01 (12-14)(120914)	N/A	20141222	17.2	Non-Plastic		NP	ML: Sandy silt
GB-01 (22-23)(120914)	N/A	20141229	13.5	Non-Plastic		NP	GM: Silty gravel with sand
GB-02 (6-8)(120914)	N/A	20141223	32.5	18.2	14.3	CL	CL: Lean clay with sand
GB-02 (14-16)(120914)	N/A	20141223	22.1	16.4	5.7	CL	CL-ML: Sandy silty clay
GB-02 (24-26)(120914)	N/A	20141229	15.0	Non-Plastic		NP	SM: Silty sand with gravel

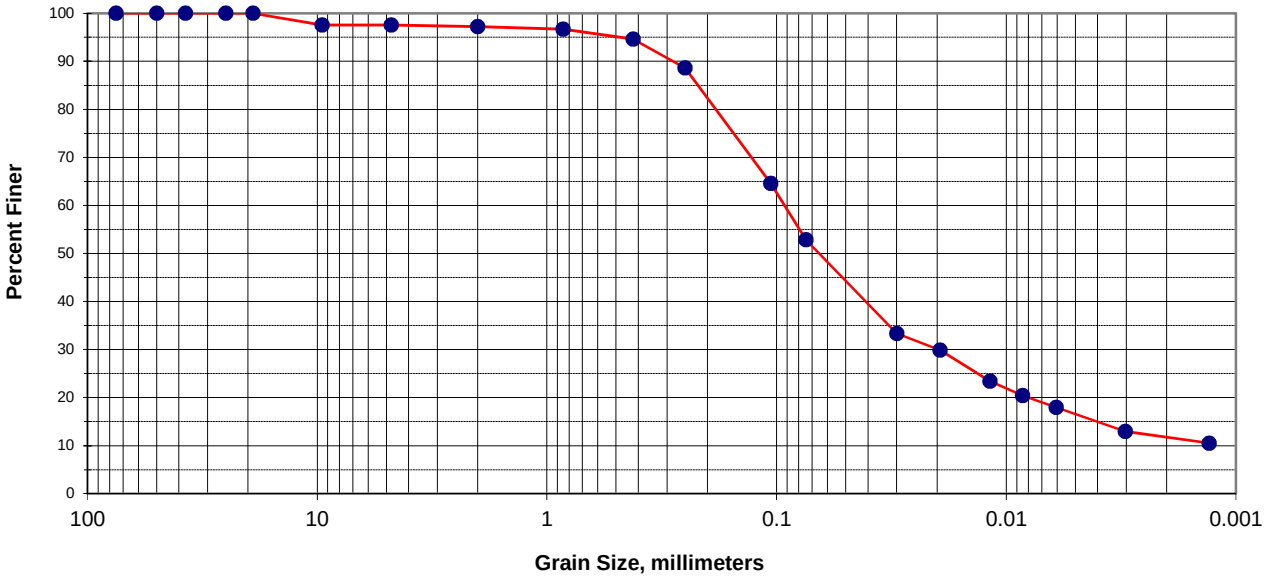
USCS: Unified Soil Classification System

PTS Laboratories, Inc.

Particle Size Distribution - ASTM D422: Sieve/Hydrometer

Client:	ARCADIS U.S., Inc.	**PTS File No:**	44822
Project:	Brunswick Rail Yard	**Sample ID:**	GB-01 (12-14)(120914)
Project No:	MD000843.0011.00010	**Depth, ft:**	N/A

SIEVE - HYDROMETER ANALYSIS



Opening		Phi of	U.S. Sieve	Incremental Percent	Percent	Cumulative Percent
Inches	Millimeters	Screen	No.	Finer	Finer	Retained
2.95	75.0	-6.23	3"	0.0	100.0	0.0
1.97	50.0	-5.64	2"	0.0	100.0	0.0
1.48	37.5	-5.23	1-1/2"	0.0	100.0	0.0
0.984	25.0	-4.64	1"	0.0	100.0	0.0
0.748	19.0	-4.25	3/4"	0.0	100.0	0.0
0.374	9.50	-3.25	3/8"	2.4	97.6	2.4
0.187	4.76	-2.25	4	0.0	97.6	2.4
0.0787	2.00	-1.00	10	0.4	97.2	2.8
0.0335	0.850	0.23	20	0.5	96.7	3.3
0.0166	0.420	1.25	40	2.1	94.6	5.4
0.0098	0.250	2.00	60	6.0	88.7	11.3
0.0042	0.106	3.24	140	24.0	64.6	35.4
0.0029	0.074	3.75	200	11.7	52.9	47.1
0.0012	0.030	5.06	Hydrometer	19.6	33.3	66.7
0.00077	0.019	5.69	Hydrometer	3.5	29.9	70.1
0.00046	0.012	6.41	Hydrometer	6.4	23.4	76.6
0.00033	0.0085	6.88	Hydrometer	3.0	20.4	79.6
0.00024	0.0061	7.37	Hydrometer	2.5	18.0	82.0
0.00012	0.0030	8.37	Hydrometer	5.0	12.9	87.1
0.00005	0.0013	9.58	Hydrometer	2.4	10.5	89.5
			"PAN"	10.5		100.0
TOTALS				100.0		100.0

Cumulative Percent greater than (retained)			
Weight	Phi	Particle Size	
percent	Value	Inches	Millimeters
5	1.06	0.0188	0.478
10	1.83	0.0111	0.281
16	2.24	0.0083	0.212
25	2.70	0.0060	0.154
40	3.44	0.0036	0.092
50	3.94	0.0026	0.065
60	4.62	0.0016	0.041
75	6.23	0.0005	0.013
84	7.76	0.0002	0.005
90	9.11	0.0001	0.002
95			

Measure	Trask	Inman	Folk-Ward
Median, phi	3.94	3.94	3.94
Median, in.	0.0026	0.0026	0.0026
Median, mm	0.065	0.065	0.065
Mean, phi	3.58	5.00	4.65
Mean, in.	0.0033	0.0012	0.0016
Mean, mm	0.083	0.031	0.040
Sorting	3.396	2.759	
Skewness	0.696	0.382	
Kurtosis	0.251		

Grain Size Description (ASTM-USCS Scale)	Silt (based on Trask Median)

Description	Retained on Sieve #	Weight Percent
Gravel	4	2.4
Coarse Sand	10	0.4
Medium Sand	40	2.6
Fine Sand	200	41.7
Silt/Clay	<200	52.9
	Total	100

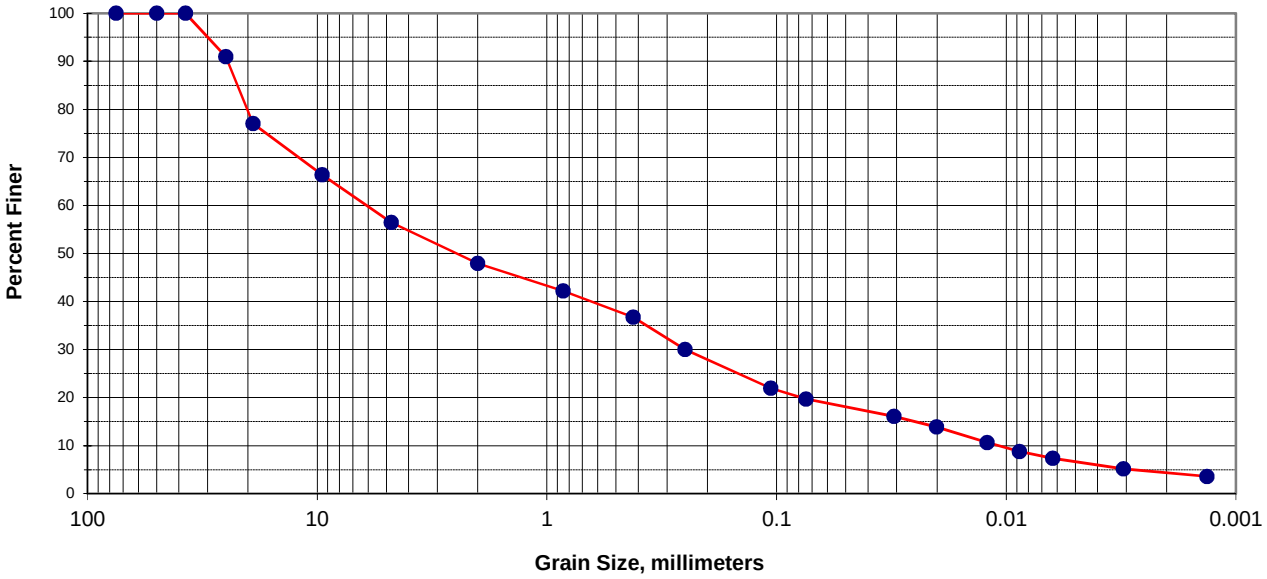
© PTS Laboratories, Inc.
Phone: (562) 347-2500
Fax: (562) 907-3610

PTS Laboratories, Inc.

Particle Size Distribution - ASTM D422: Sieve/Hydrometer

Client:	ARCADIS U.S., Inc.	**PTS File No:**	44822
Project:	Brunswick Rail Yard	**Sample ID:**	GB-01 (22-23)(120914)
Project No:	MD000843.0011.00010	**Depth, ft:**	N/A

SIEVE - HYDROMETER ANALYSIS



Opening		Phi of	U.S. Sieve	Incremental Percent	Percent	Cumulative Percent
Inches	Millimeters	Screen	No.	Finer	Finer	Retained
2.95	75.0	-6.23	3"	0.0	100.0	0.0
1.97	50.0	-5.64	2"	0.0	100.0	0.0
1.48	37.5	-5.23	1-1/2"	0.0	100.0	0.0
0.984	25.0	-4.64	1"	9.0	91.0	9.0
0.748	19.0	-4.25	3/4"	13.9	77.1	22.9
0.374	9.50	-3.25	3/8"	10.7	66.4	33.6
0.187	4.76	-2.25	4	9.9	56.5	43.5
0.0787	2.00	-1.00	10	8.5	48.0	52.0
0.0335	0.850	0.23	20	5.7	42.2	57.8
0.0166	0.420	1.25	40	5.5	36.8	63.2
0.0098	0.250	2.00	60	6.7	30.0	70.0
0.0042	0.106	3.24	140	8.0	22.0	78.0
0.0029	0.074	3.75	200	2.3	19.7	80.3
0.0012	0.031	5.02	Hydrometer	3.6	16.1	83.9
0.00079	0.020	5.64	Hydrometer	2.2	13.9	86.1
0.00048	0.012	6.37	Hydrometer	3.3	10.6	89.4
0.00034	0.0087	6.84	Hydrometer	1.9	8.7	91.3
0.00025	0.0063	7.31	Hydrometer	1.4	7.4	92.6
0.00012	0.0031	8.34	Hydrometer	2.2	5.2	94.8
0.00005	0.0013	9.55	Hydrometer	1.6	3.6	96.4
			"PAN"	3.6		100.0
TOTALS				100.0		100.0

Cumulative Percent greater than (retained)			
Weight	Phi	Particle Size	
percent	Value	Inches	Millimeters
5	-4.90	1.1795	29.959
10	-4.62	0.9656	24.526
16	-4.45	0.8578	21.789
25	-4.06	0.6547	16.631
40	-2.61	0.2397	6.087
50	-1.30	0.0969	2.460
60	0.65	0.0251	0.638
75	2.78	0.0058	0.146
84	5.04	0.0012	0.030
90	6.53	0.0004	0.011
95	8.48	0.0001	0.003

Measure	Trask	Inman	Folk-Ward
Median, phi	-1.30	-1.30	-1.30
Median, in.	0.0969	0.0969	0.0969
Median, mm	2.460	2.460	2.460
Mean, phi	-3.07	0.30	-0.23
Mean, in.	0.3302	0.0320	0.0463
Mean, mm	8.388	0.814	1.177
Sorting	10.669	4.743	4.399
Skewness	0.634	0.337	0.399
Kurtosis	0.336	0.411	0.803

Grain Size Description (ASTM-USCS Scale)	Coarse sand (based on Trask Median)

Description	Retained on Sieve #	Weight Percent
Gravel	4	43.5
Coarse Sand	10	8.5
Medium Sand	40	11.2
Fine Sand	200	17.1
Silt/Clay	<200	19.7
	Total	100

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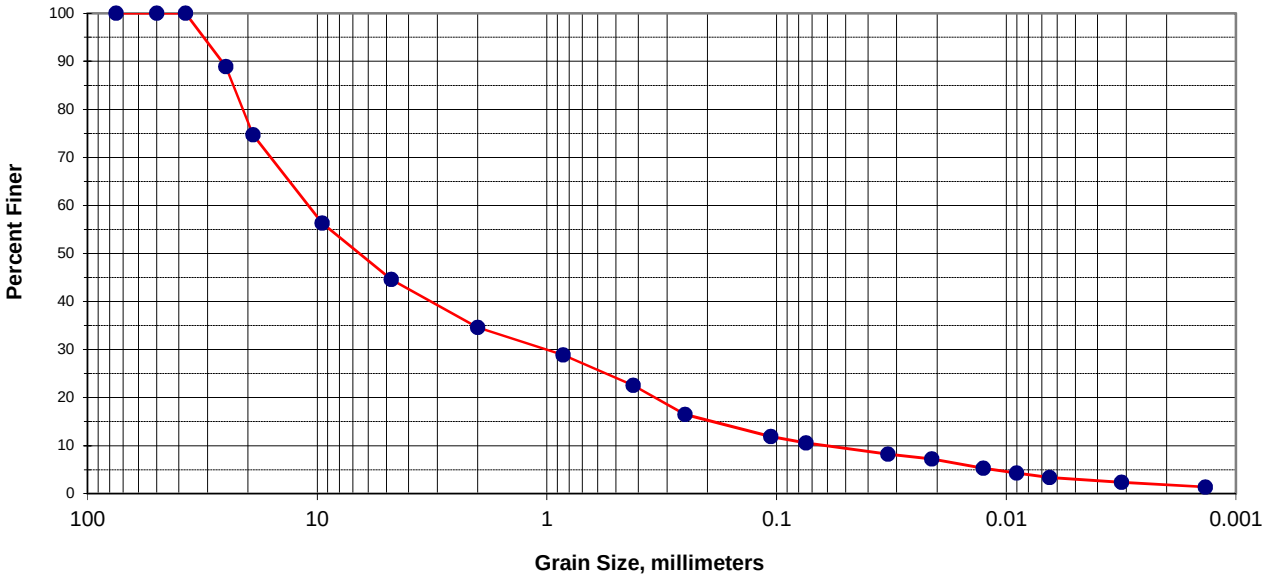
Particle Size Distribution - ASTM D422: Sieve/Hydrometer

Client:	ARCADIS U.S., Inc.	**PTS File No:**	44822
Project:	Brunswick Rail Yard	**Sample ID:**	GB-01 (4-6)(120914)
Project No:	MD000843.0011.00010	**Depth, ft:**	N/A

SIEVE - HYDROMETER ANALYSIS



Opening		Phi of	U.S. Sieve	Incremental Percent	Percent	Cumulative Percent
Inches	Millimeters	Screen	No.	Finer	Finer	Retained
2.95	75.0	-6.23	3"	0.0	100.0	0.0
1.97	50.0	-5.64	2"	0.0	100.0	0.0
1.48	37.5	-5.23	1-1/2"	0.0	100.0	0.0
0.984	25.0	-4.64	1"	11.1	88.9	11.1
0.748	19.0	-4.25	3/4"	14.2	74.7	25.3
0.374	9.50	-3.25	3/8"	18.4	56.3	43.7
0.187	4.76	-2.25	4	11.7	44.6	55.4
0.0787	2.00	-1.00	10	10.0	34.6	65.4
0.0335	0.850	0.23	20	5.8	28.9	71.1
0.0166	0.420	1.25	40	6.3	22.5	77.5
0.0098	0.250	2.00	60	6.0	16.5	83.5
0.0042	0.106	3.24	140	4.6	11.9	88.1
0.0029	0.074	3.75	200	1.3	10.6	89.4
0.0013	0.033	4.93	Hydrometer	2.4	8.2	91.8
0.00083	0.021	5.57	Hydrometer	1.0	7.2	92.8
0.00049	0.013	6.31	Hydrometer	1.9	5.3	94.7
0.00036	0.0090	6.79	Hydrometer	1.0	4.3	95.7
0.00025	0.0065	7.27	Hydrometer	1.0	3.3	96.7
0.00012	0.0032	8.31	Hydrometer	1.0	2.4	97.6
0.00005	0.0014	9.52	Hydrometer	1.0	1.4	98.6
			"PAN"	1.4		100.0
TOTALS				100.0		100.0

Cumulative Percent greater than (retained)			
Weight	Phi	Particle Size	
percent	Value	Inches	Millimeters
5	-4.97	1.2306	31.257
10	-4.70	1.0257	26.054
16	-4.51	0.8957	22.752
25	-4.26	0.7525	19.113
40	-3.45	0.4298	10.917
50	-2.71	0.2578	6.548
60	-1.68	0.1257	3.194
75	0.85	0.0218	0.553
84	2.13	0.0090	0.228
90	4.05	0.0024	0.061
95	6.46	0.0004	0.011

Measure	Trask	Inman	Folk-Ward
Median, phi	-2.71	-2.71	-2.71
Median, in.	0.2578	0.2578	0.2578
Median, mm	6.548	6.548	6.548
Mean, phi	-3.30	-1.19	-1.69
Mean, in.	0.3871	0.0896	0.1275
Mean, mm	9.833	2.276	3.237
Sorting	5.878	3.321	3.391
Skewness	0.497	0.459	0.532
Kurtosis	0.357	0.720	0.916

Grain Size Description (ASTM-USCS Scale)	Gravel (based on Trask Median)

Description	Retained on Sieve #	Weight Percent
Gravel	4	55.4
Coarse Sand	10	10.0
Medium Sand	40	12.1
Fine Sand	200	11.9
Silt/Clay	<200	10.6
	Total	100

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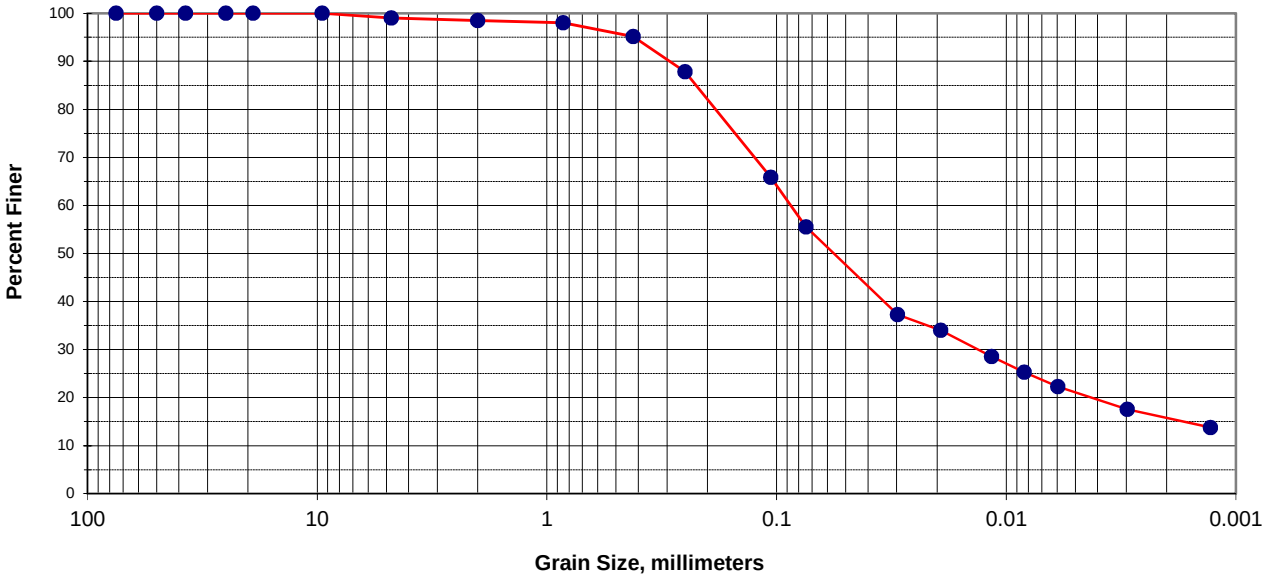
Particle Size Distribution - ASTM D422: Sieve/Hydrometer

Client:	ARCADIS U.S., Inc.	**PTS File No:**	44822
Project:	Brunswick Rail Yard	**Sample ID:**	GB-02 (14-16)(120914)
Project No:	MD000843.0011.00010	**Depth, ft:**	N/A

SIEVE - HYDROMETER ANALYSIS



Opening		Phi of	U.S. Sieve	Incremental Percent	Percent	Cumulative Percent
Inches	Millimeters	Screen	No.	Finer	Finer	Retained
2.95	75.0	-6.23	3"	0.0	100.0	0.0
1.97	50.0	-5.64	2"	0.0	100.0	0.0
1.48	37.5	-5.23	1-1/2"	0.0	100.0	0.0
0.984	25.0	-4.64	1"	0.0	100.0	0.0
0.748	19.0	-4.25	3/4"	0.0	100.0	0.0
0.374	9.50	-3.25	3/8"	0.0	100.0	0.0
0.187	4.76	-2.25	4	1.0	99.0	1.0
0.0787	2.00	-1.00	10	0.5	98.5	1.5
0.0335	0.850	0.23	20	0.5	98.0	2.0
0.0166	0.420	1.25	40	2.8	95.1	4.9
0.0098	0.250	2.00	60	7.3	87.8	12.2
0.0042	0.106	3.24	140	22.0	65.8	34.2
0.0029	0.074	3.75	200	10.3	55.5	44.5
0.0012	0.030	5.07	Hydrometer	18.2	37.3	62.7
0.00076	0.019	5.70	Hydrometer	3.3	34.0	66.0
0.00046	0.012	6.43	Hydrometer	5.5	28.6	71.4
0.00033	0.0084	6.90	Hydrometer	3.3	25.3	74.7
0.00023	0.0060	7.39	Hydrometer	3.0	22.3	77.7
0.00012	0.0030	8.40	Hydrometer	4.8	17.6	82.4
0.00005	0.0013	9.60	Hydrometer	3.8	13.8	86.2
			"PAN"	13.8		100.0
TOTALS				100.0		100.0

Cumulative Percent greater than (retained)			
Weight	Phi	Particle Size	
percent	Value	Inches	Millimeters
5	1.26	0.0164	0.416
10	1.78	0.0115	0.291
16	2.22	0.0085	0.215
25	2.72	0.0060	0.152
40	3.53	0.0034	0.087
50	4.15	0.0022	0.056
60	4.88	0.0013	0.034
75	6.95	0.0003	0.008
84	8.89	0.0001	0.002
90			
95			

Measure	Trask	Inman	Folk-Ward
Median, phi	4.15	4.15	4.15
Median, in.	0.0022	0.0022	0.0022
Median, mm	0.056	0.056	0.056
Mean, phi	3.65	5.55	5.09
Mean, in.	0.0031	0.0008	0.0012
Mean, mm	0.080	0.021	0.029
Sorting	4.326	3.338	
Skewness	0.622	0.420	
Kurtosis			

Grain Size Description (ASTM-USCS Scale)	Silt (based on Trask Median)

Description	Retained on Sieve #	Weight Percent
Gravel	4	1.0
Coarse Sand	10	0.5
Medium Sand	40	3.3
Fine Sand	200	39.6
Silt/Clay	<200	55.5
	Total	100

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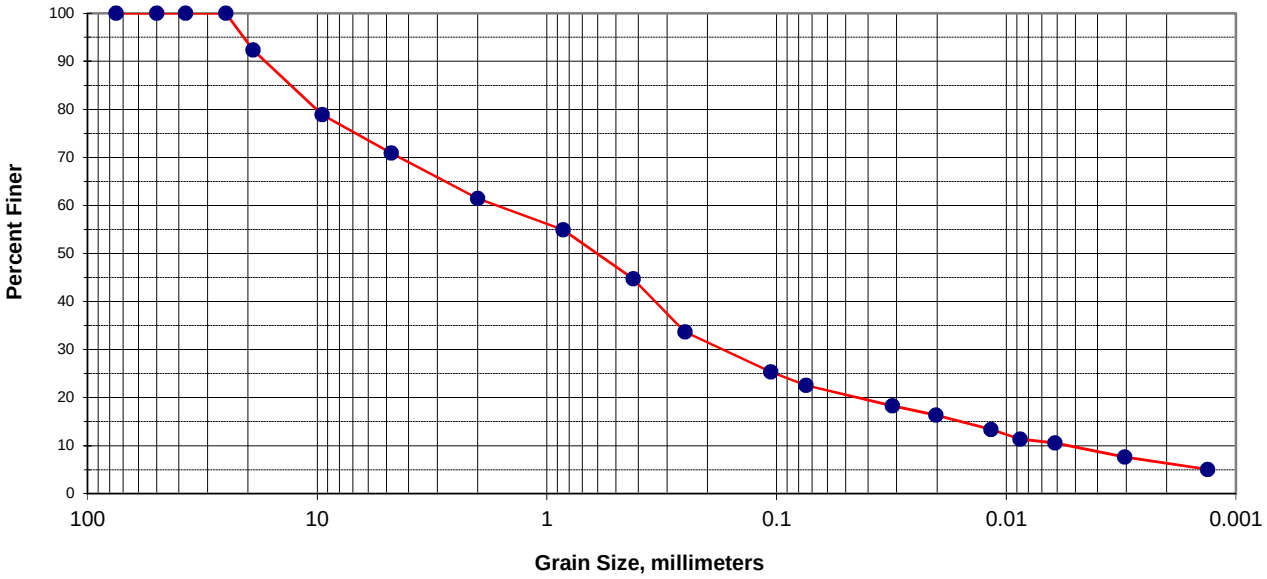
Particle Size Distribution - ASTM D422: Sieve/Hydrometer

Client:	ARCADIS U.S., Inc.	**PTS File No:**	44822
Project:	Brunswick Rail Yard	**Sample ID:**	GB-02 (24-26)(120914)
Project No:	MD000843.0011.00010	**Depth, ft:**	N/A

SIEVE - HYDROMETER ANALYSIS



Opening		Phi of	U.S. Sieve	Incremental Percent	Percent	Cumulative Percent
Inches	Millimeters	Screen	No.	Finer	Finer	Retained
2.95	75.0	-6.23	3"	0.0	100.0	0.0
1.97	50.0	-5.64	2"	0.0	100.0	0.0
1.48	37.5	-5.23	1-1/2"	0.0	100.0	0.0
0.984	25.0	-4.64	1"	0.0	100.0	0.0
0.748	19.0	-4.25	3/4"	7.7	92.3	7.7
0.374	9.50	-3.25	3/8"	13.4	78.9	21.1
0.187	4.76	-2.25	4	8.0	70.9	29.1
0.0787	2.00	-1.00	10	9.5	61.4	38.6
0.0335	0.850	0.23	20	6.5	54.9	45.1
0.0166	0.420	1.25	40	10.2	44.7	55.3
0.0098	0.250	2.00	60	11.1	33.6	66.4
0.0042	0.106	3.24	140	8.3	25.4	74.6
0.0029	0.074	3.75	200	2.8	22.6	77.4
0.0012	0.031	5.00	Hydrometer	4.2	18.3	81.7
0.00080	0.020	5.63	Hydrometer	2.0	16.3	83.7
0.00046	0.012	6.42	Hydrometer	3.0	13.3	86.7
0.00034	0.0087	6.85	Hydrometer	2.0	11.4	88.6
0.00024	0.0061	7.35	Hydrometer	0.8	10.6	89.4
0.00012	0.0031	8.36	Hydrometer	2.9	7.7	92.3
0.00005	0.0013	9.56	Hydrometer	2.6	5.0	95.0
			"PAN"	5.0		100.0
TOTALS				100.0		100.0

Cumulative Percent greater than (retained)			
Weight	Phi	Particle Size	
percent	Value	Inches	Millimeters
5	-4.39	0.8228	20.899
10	-4.07	0.6627	16.833
16	-3.63	0.4859	12.343
25	-2.76	0.2666	6.771
40	-0.73	0.0651	1.655
50	0.72	0.0238	0.605
60	1.57	0.0133	0.337
75	3.31	0.0040	0.101
84	5.71	0.0007	0.019
90	7.54	0.0002	0.005
95	9.47	0.0001	0.001

Measure	Trask	Inman	Folk-Ward
Median, phi	0.72	0.72	0.72
Median, in.	0.0238	0.0238	0.0238
Median, mm	0.605	0.605	0.605
Mean, phi	-1.78	1.04	0.94
Mean, in.	0.1353	0.0191	0.0206
Mean, mm	3.436	0.485	0.522
Sorting	8.181	4.670	4.434
Skewness	1.367	0.069	0.165
Kurtosis	0.198	0.483	0.936

Grain Size Description (ASTM-USCS Scale)	Medium sand (based on Trask Median)

Description	Retained on Sieve #	Weight Percent
Gravel	4	29.1
Coarse Sand	10	9.5
Medium Sand	40	16.7
Fine Sand	200	22.2
Silt/Clay	<200	22.6
	Total	100

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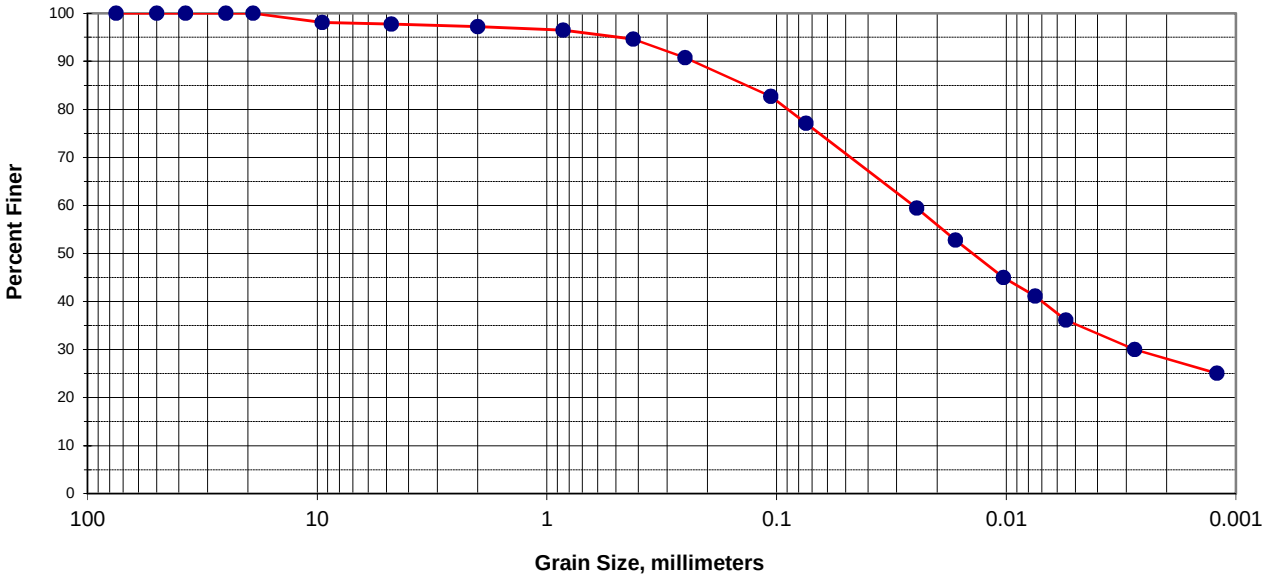
PTS Laboratories, Inc.

Particle Size Distribution - ASTM D422: Sieve/Hydrometer

Client:	ARCADIS U.S., Inc.	**PTS File No:**	44822
Project:	Brunswick Rail Yard	**Sample ID:**	GB-02 (6-8)(120914)
Project No:	MD000843.0011.00010	**Depth, ft:**	N/A

SIEVE - HYDROMETER ANALYSIS



Opening		Phi of	U.S. Sieve	Incremental Percent	Percent	Cumulative Percent
Inches	Millimeters	Screen	No.	Finer	Finer	Retained
2.95	75.0	-6.23	3"	0.0	100.0	0.0
1.97	50.0	-5.64	2"	0.0	100.0	0.0
1.48	37.5	-5.23	1-1/2"	0.0	100.0	0.0
0.984	25.0	-4.64	1"	0.0	100.0	0.0
0.748	19.0	-4.25	3/4"	0.0	100.0	0.0
0.374	9.50	-3.25	3/8"	1.9	98.1	1.9
0.187	4.76	-2.25	4	0.3	97.8	2.2
0.0787	2.00	-1.00	10	0.5	97.2	2.8
0.0335	0.850	0.23	20	0.7	96.5	3.5
0.0166	0.420	1.25	40	1.9	94.6	5.4
0.0098	0.250	2.00	60	3.8	90.7	9.3
0.0042	0.106	3.24	140	8.1	82.7	17.3
0.0029	0.074	3.75	200	5.5	77.1	22.9
0.0010	0.025	5.35	Hydrometer	17.7	59.4	40.6
0.00065	0.017	5.91	Hydrometer	6.7	52.8	47.2
0.00040	0.010	6.60	Hydrometer	7.8	45.0	55.0
0.00030	0.0075	7.06	Hydrometer	3.9	41.1	58.9
0.00022	0.0055	7.51	Hydrometer	5.0	36.2	63.8
0.00011	0.0028	8.50	Hydrometer	6.2	30.0	70.0
0.00005	0.0012	9.69	Hydrometer	4.9	25.1	74.9
			"PAN"	25.1		100.0
TOTALS				100.0		100.0

Cumulative Percent greater than (retained)			
Weight	Phi	Particle Size	
percent	Value	Inches	Millimeters
5	1.04	0.0192	0.488
10	2.11	0.0091	0.231
16	3.03	0.0048	0.122
25	3.94	0.0026	0.065
40	5.30	0.0010	0.025
50	6.16	0.0006	0.014
60	7.16	0.0003	0.007
75	9.67	0.0000	0.001
84			
90			
95			

Measure	Trask	Inman	Folk-Ward
Median, phi	6.16	6.16	6.16
Median, in.	0.0006	0.0006	0.0006
Median, mm	0.014	0.014	0.014
Mean, phi	4.92		
Mean, in.	0.0013		
Mean, mm	0.033		
Sorting	7.267		
Skewness	0.640		
Kurtosis			

Grain Size Description (ASTM-USCS Scale)	Silt (based on Trask Median)

Description	Retained on Sieve #	Weight Percent
Gravel	4	2.2
Coarse Sand	10	0.5
Medium Sand	40	2.7
Fine Sand	200	17.5
Silt/Clay	<200	77.1
	Total	100

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PTS File No: 44822
Client: ARCADIS U.S., Inc.
Report Date: 01/06/15

WATER (MOISTURE) CONTENT OF SOIL OR ROCK BY MASS

(Methodology: ASTM D 2216)

Project Name: Brunswick Rail Yard
Project No: MD000843.0011.00010

SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE	ANALYSIS TIME	MATRIX	TARE WEIGHT, grams	WET SAMPLE + TARE WT., grams	DRY SAMPLE + TARE WT., grams	MOISTURE CONTENT, % dry weight
GB-01 (4-6)(120914)	N/A	20141222	1345	Soil	15.52	54.22	46.60	24.5
GB-01 (12-14)(120914)	N/A	20141222	1345	Soil	15.32	62.14	53.58	22.4
GB-01 (22-23)(120914)	N/A	20141222	1345	Soil	15.41	67.31	60.58	14.9
GB-02 (6-8)(120914)	N/A	20141222	1345	Soil	15.50	72.28	61.87	22.4
GB-02 (14-16)(120914)	N/A	20141222	1345	Soil	15.45	64.67	56.32	20.4
GB-02 (24-26)(120914)	N/A	20141222	1345	Soil	15.51	66.39	60.57	12.9

44822
COC #

CSX TRANSPORTATION — CHAIN OF CUSTODY

LABORATORY INFORMATION

- ☐ TestAmerica Savannah - 5102 LaRoche Avenue, Savannah, GA 31404 P: 912-354-7858 F: 912-352-0165
- ☐ TestAmerica North Canton - 4101 Shuffel Drive NW, North Canton, OH 44720 P: 330-497-9396 F: 330-497-0772
- ☐ TestAmerica Tampa - 6712 Benjamin Road, Suite 100, Tampa, FL 33634 P: 813-885-7427 F: 813-885-7049
- ☐ TestAmerica Pensacola - 3355 McLemore Drive, Pensacola, FL 32514 P: 850-474-1001 F: 850-478-2671
- ☐ TestAmerica Buffalo - 10 Hazelwood Drive, Suite 106, Amherst, NY 14228 P: 716-691-2600 F: 716-961-7991
- ☐ TestAmerica Chicago - 2417 Bond Street, University Park, IL 60466 P: 708-534-5200 F: 708-534-5211

SHIPMENT INFORMATION

Shipment Method:

Shipment Tracking No:

CSXT PROJECT INFORMATION

Proj. State (State of Origin): MD

CSXT Project Number: 94153381

Proj. City: BRUNSWICK

CSXT Project Name: BRUNSWICK RAIL YARD

CSXT Contact: PAUL KURZANSKI

LWON: ENV33683

CONSULTANT INFORMATION

Project #: MD000843.0011.00010

Company: ARCADIS

PM: MEGAN KELLNER

Address: 1114 BENFIELD BLVD, STE A

Email: megan.kellner@arcadis-us.com

City, State, Zip: Millersville MD 21108

Phone:

Fax:

Turnaround Time:
- ☐ 1 Day Rush
- ☐ 2 Day Rush
- ☐ 3 Day Rush
- ☒ Standard 6-13 Days
- Specify # Days ____
- ☐ Standard 14 Days
- ☐ Other ____

Preservative Codes:
0 = No Preservatives; 1 = Hydrochloric Acid; 2 = Nitric Acid; 3 = Sulfuric Acid; 4 = Sodium Thiosulfate; 5 = Sodium Hydroxide; 6 = Other ____

Note ➡ Pres. Code: 0 0 0 0

Deliverables:
- ☒ CSXT Standard (Level II)
- ☐ Level III
- ☐ Level IV
- ☐ Other Deliv: ____
- ☐ EDD Required, Format: ____

Matrix Codes:
GW = Groundwater; WW = Waste Water; SW = Surface Water; SO = Soil; SL = Sludge; OI = Oil; SOL = Other Solid; LIQ = Liquid

SAMPLE INFORMATION

Sample Identification	Containers Number & Type	Sample Collection Date	Time	Sampler	Filtered Y or N	Type Comp or Grab	Matrix Code	METHODS FOR ANALYSIS: Grain Size/Hydrometer ASTM D422	Moisture ASTM D2216	Atterberg Limits ASTM D4318	Soil Classification ASTM D2487	COMMENTS	LAB USE
GB-01(4-6)(120914)	1	12-9-14	1330	RB	N	G	SO	X	X	X	X		
GB-01(12-14)(120914)	1		1405										
GB-01(22-23)(120914)	1		1530										
GB-02(6-8)(120914)	1		1045										
GB-02(14-16)(120914)	1		1110										
GB-02(24-26)(120914)	1		1440										

	Date/Time:	Received By:	Date/Time:	Comments & Special Analytical Requirements:
Relinquished By:	12-10-14	FedEx	12-10-14	
Relinquished By:	—	PTS LABS	12/11/14 14:54	40.2°F
Relinquished By:	Date/Time:	Received By:	Date/Time:	
Received By Laboratory:	Date/Time:	Lab Remarks:	LAB USE: ☐ Yes ☐ Custody Intact ☐ No	Custody Seal # # / LAB Log Number #

ORIGINAL – RETURN TO LABORATORY WITH SAMPLES

INVOICE MUST BE SUBMITTED TO CSXT WITH ORIGINAL COC

TAL-6006 (0509)

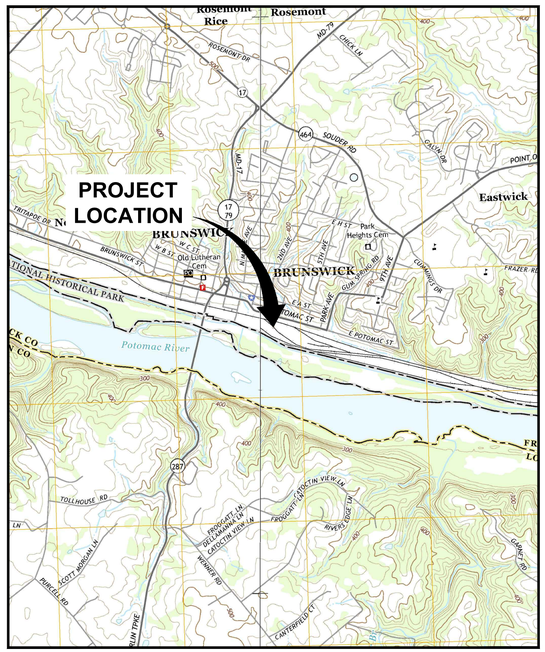
Appendix D

Design Drawings

CITY: DIV/GROUP: DB: LD: PIC: PM: TM: LYR:ON=*;OFF=*REF*
G:\ENVCAD\SYRACUSE\ACTIVE\MD000843\0010\00007\MD0843Q01.dwg LAYOUT: COVER SAVED: 2/23/2015 12:42 PM ACADVER: 18.1S (LMS TECH) PAGESETUP: PLTCONT1 PLOTSTYLETABLE: PLTCONT1.CTB PLOTTED: 2/23/2015 2:06 PM BY: DAVIS, KATHI

DESIGN DRAWINGS

CSX BRUNSWICK PIPE REPLACEMENT



REFERENCE: BASE MAP USGS 7.5 MINUTE QUADRANGLE,
POINT OF ROCKS, MARYLAND-VIRGINIA, 1970, PHOTOINSPECTED 1981
AND HARPERS FERRY, VIRGINIA-MARYLAND, 1969, PHOTOINSPECTED 1988

LOCATION MAP



0 2000' 4000'
GRAPHIC SCALE

KEY CONTACTS:

PROJECT SITE:
CSX TRANSPORTATION
100 SOUTH MAPLE AVENUE
BRUNSWICK, MARYLAND 21716
TELEPHONE: 904.359.3200
CONTACT: STUART BOYKIN

OWNER:
CSX TRANSPORTATION
500 WATER STREET, J275
JACKSONVILLE, FLORIDA 32202
TELEPHONE: 904.359.3200
CONTACT: STUART BOYKIN

ENGINEER:
ARCADIS
114 BENFIELD BLVD.
SUITE A
MILLERSVILLE, MARYLAND 21108
TELEPHONE: 410.923.7815
CONTACT: RAMZI KHURI

DATE ISSUED / DATE REVISED
FEBRUARY 2015

CSX TRANSPORTATION RAIL YARD
BRUNSWICK, MARYLAND

ARCADIS

ARCADIS U.S., INC.

INDEX TO DRAWINGS

1. GENERAL NOTES AND SEQUENCE OF CONSTRUCTION
2. EXISTING CONDITIONS
3. TRAFFIC CONTROL PLAN
4. PIPE REPLACEMENT AND EROSION AND SEDIMENT CONTROL PLAN
5. PIPING DETAIL AND PROFILE
6. MANHOLE DETAILS
7. EROSION AND SEDIMENT CONTROL DETAILS AND NOTES

THE FEATURES SHOWN ON THESE DESIGN DRAWINGS SHALL BE CONSTRUCTED ACCORDING TO THE SEQUENCE PRESENTED BELOW:

I. SITE PREPARATION

1. CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING MARYLAND MISS UTILITY (800–257–7777) A MINIMUM OF FIVE (5) BUSINESS DAYS PRIOR TO LAND DISTURBANCE. CONTRACTOR SHALL CONTRACT WITH A PRIVATE UTILITY LOCATE FIRM TO LOCATE POTENTIAL SUBSURFACE UTILITIES OR STRUCTURES WITHIN THE LIMIT OF DISTURBANCE. CONTRACTOR SHALL RE–NOTIFY MARYLAND MISS UTILITY AND RE–ESTABLISH ACTIVE UTILITY TICKETS AS REQUIRED. THE LOCATION OF ALL UTILITIES WITHIN AND IMMEDIATELY ADJACENT TO THE SITE SHALL BE VERIFIED AND FLAGGED IN THE FIELD.

2. A MARYLAND LICENSED SURVEYOR SHALL CONDUCT A COMPLETE BOUNDARY SURVEY OF THE SITE PRIOR TO INITIATING REMEDIAL ACTION CONSTRUCTION ACTIVITIES. SURVEYOR SHALL CLEARLY DEMARK THE LIMITS OF DISTURBANCE AND LIMITS OF EXCAVATION.

3. FURNISH AND INSTALL STABILIZED CONSTRUCTION ENTRANCE.

4. INSTALL CHAIN–LINK FENCE AROUND PERIMETER OF LIMIT OF DISTURBANCE AND REMOVE CHAIN–LINK FENCE WITHIN THE SITE THAT WILL INHIBIT CONDUCTANCE OF THE WORK.

5. INSTALL EROSION AND SEDIMENT CONTROLS IN ACCORDANCE WITH THE DESIGN DRAWINGS AND NOTES. NO SITE DISTURBANCE SHALL BE CONDUCTED UNTIL EROSION AND SEDIMENT CONTROLS ARE PROPERLY INSTALLED. EROSION AND SEDIMENT CONTROLS AROUND PERIMETER OF THE LIMITS OF DISTURBANCE SHALL NOT BE REMOVED UNTIL ALL DISTURBED AREAS ARE VEGETATED OR STABILIZED IN ANOTHER MANNER. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING AND REPAIRING ALL EROSION AND SEDIMENT CONTROLS THROUGHOUT CONSTRUCTION.

6. ESTABLISH DUST AND ODOR MONITORING CONTROLS.

7. CONTRACTOR SHALL INDEPENDENTLY DETERMINE THE LOCATION OF THE BRICK AND MORTAR PIPE (BAMP) ALONG ITS ALIGNMENT AND ITS DOWNGRADIENT EXTENT VIA TEST HOLES. CONTRACTOR SHALL ALSO VERIFY THE LOCATION AND DEPTH OF ALL UTILITIES WHICH CROSS WITHIN 10 FEET OF THE BAMP VIA TEST HOLES

II. SOIL EXCAVATION AND BRICK AND MORTAR PIPE REPLACEMENT

1. PERFORM EXCAVATION OF SOILS AND DEMOLITION OF BAMP NECESSARY TO REPLACE PIPE FOR OFF–SITE DISPOSAL UTILIZING MODULAR SHORING. SOILS SHALL BE DIRECTLY LOADED INTO TRUCKS OR ROLLOFFS FOR TRANSPORTATION, AND DISPOSAL. MINIMIZE SIZE OF OPEN EXCAVATION TO MITIGATE ODORS AND DUST. IMPLEMENT ODOR AND DUST CONTROLS, AS NECESSARY.

2. DURING THE PROCESS OF SOIL EXCAVATION, DEMOLISH AND REMOVE BAMP AND ASSOCIATED MATERIAL WITHIN LIMITS OF EXCAVATION, AS INDICATED ON DESIGN DRAWING.

3. PRIOR TO DEMOLISHING THE BAMP, ENSURE THAT THE PIPING SYSTEM FROM THE MTA/MARC ASTS AND FUELING STATIONS TO THE OWS LIFT STATION HAS BEEN FLUSHED, DRAINED AND TAKEN OFFLINE.

4. EXTRACT, CONTAINERIZE, SAMPLE, TREAT, AND DISPOSE STORMWATER THAT HAS ENTERED THE EXCAVATION AND COME IN CONTACT WITH POTENTIALLY–IMPACTED MATERIALS.

5. SECTIONS OF THE BAMP WILL BE REMOVED AND REPLACED SEQUENTIALLY AS THE MODULAR SHORING ALLOWS.

6. THE BAMP WILL BE REPLACED WITH WELDED 30 INCH DIAMETER SDR 17 HDPE PIPE.

7. A SERIES OF THREE CONCRETE MANHOLES WILL BE PLACED ALONG THE ALIGNMENT OF THE HDPE PIPE. THE LOCATIONS OF THESE MANHOLES CAN BE SEEN ON DRAWINGS 4 AND 5.

IV. SITE RESTORATION

1. CONTRACTOR SHALL SAMPLE AND TEST IMPORTED SOILS IN ACCORDANCE WITH THE MARYLAND DEPARTMENT OF ENVIRONMENTAL CLEAN IMPORTED FILL MATERIAL GUIDANCE. ENGINEER SHALL APPROVE RESULTS PRIOR TO SHIPMENT OF ANY OF THOSE RESPECTIVE MATERIALS TO THE SITE.

2. BACKFILL AND RESTORE EXCAVATION AREA IN ACCORDANCE WITH DRAWING 5.

3. DISMANTLE STAGING AREA, CONDITIONING PAD, CONSTRUCTION ENTRANCES, AND ACCESS ROAD.

4. PLACE SEED AND INSTALL TEMPORARY EROSION MATTING OVER DISTURBED AREAS.

GENERAL NOTES:

1. SCALES ARE INDICATED ON EACH DRAWING. COORDINATES ARE BASED UPON MARYLAND STATE PLANE ZONE 1900, (FOOT). HORIZONTAL DATUM IS NORTH AMERICAN DATUM OF 1983 (NAD83), VERTICAL DATUM IS NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).

2. THE CONTRACTOR SHALL PREPARE, IMPLEMENT, AND BE RESPONSIBLE FOR ALL REQUIREMENTS OF THE HEALTH AND SAFETY PROGRAM THROUGHOUT CONSTRUCTION. CONTRACTOR SHALL COMPLY WITH ALL OSHA REQUIREMENTS. THE CONTRACTOR SHALL MAINTAIN, AND IMPLEMENT THE SITE HEALTH AND SAFETY PLAN IN CONFORMANCE WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL LAWS, RULES, AND REGULATIONS. THE CONTRACTOR SHALL ENSURE THAT THEIR EMPLOYEES AND SUBCONTRACTORS ARE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) TRAINED ACCORDING TO CFR 1910:120 AND HAVE THE CAPABILITIES OF IMPLEMENTING THE HEALTH AND SAFETY PLAN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THE HEALTH AND SAFETY OF THE CONTRACTOR'S EMPLOYEES AND SUBCONTRACTORS.

3. SITE TOPOGRAPHY MAY HAVE BEEN ALTERED SINCE DEVELOPMENT OF THESE DRAWINGS. ALL EXISTING DIMENSIONS, CONTOUR LINES, AND FIELD CONDITIONS SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO START OF ANY CONSTRUCTION.

4. THE CONTRACTOR IS RESPONSIBLE FOR THE MEANS AND METHODS FOR IMPLEMENTATION OF THE REMEDIATION ACTIVITIES WITHIN THE LIMITS OF DISTURBANCE.

CONTRACTOR SUBMITTALS:

1. THE CONTRACTOR SHALL SUBMIT A PIPE REPLACEMENT MEMO AT LEAST FIFTEEN (15) DAYS PRIOR TO DELIVERY OF PIPE TO THE SITE. THIS MEMO SHALL INCLUDE AT A MINIMUM:
   A. MATERIAL SPECIFICATION FROM HDPE VENDOR INCLUDING PIPE RESIN AND SCHEDULE.
   B. PROPOSED WELDING METHODS FOR PIPE.
   C. PROPOSED METHOD FOR MAINTAINING THE PIPE CURVATURE SHOWN ON THESE DRAWINGS DURING PLACEMENT.

2. THE CONTRACTOR AND ENGINEER SHALL PERFORM A JOINT INSPECTION OF EXISTING STRUCTURES WITHIN AND NEAR THE LIMITS OF DISTURBANCE THAT ARE TO REMAIN IN PLACE. THE CONTRACTOR SHALL PREPARE AND SUBMIT A MEMO THAT PROVIDES PHOTOGRAPHIC AND GRAPHIC DOCUMENTATION OF THE EXISTING UTILITIES AND STRUCTURES THAT ARE TO REMAIN IN PLACE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL STRUCTURES FROM DAMAGE. AT THE CONCLUSION OF CONSTRUCTION, THE CONTRACTOR AND ENGINEER SHALL PERFORM A POST–CONSTRUCTION INSPECTION OF STRUCTURES. ANY DAMAGE REALIZED TO STRUCTURES OR UTILITIES DURING CONSTRUCTION SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

3. THE CONTRACTOR SHALL PROVIDE A LIST OF MEANS, METHODS, MATERIALS, AND EQUIPMENT TO BE USED TO PROTECT EXISTING UTILITIES AND STRUCTURES THAT ARE TO REMAIN IN–PLACE AND FREE FROM DAMAGE DURING THE IMPLEMENTATION OF THE EXCAVATION

4. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION OF AGREEMENT WITH MODULAR SHORING SYSTEM MANUFACTURER FOR PROVISIONS OF QUALITY CONTROL SERVICES DURING INSTALLATION. AGREEMENT SHALL DOCUMENT THAT MANUFACTURER WILL PROVIDE SHORING DESIGN DRAWINGS SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF MARYLAND.

5. THE CONTRACTOR MAY ALTER THE SIZE AND LOCATION OF THE MATERIAL STAGING AREAS. PRIOR TO UTILIZING ALTERNATIVE STAGING AREAS, THE CONTRACTOR MUST OBTAIN APPROVAL BY THE ENGINEER AND/OR OWNER.

6. THE CONTRACTOR SHALL SUBMIT AN EXCAVATION PLAN TO THE ENGINEER FOR REVIEW PRIOR TO THE START OF CONSTRUCTION. THE EXCAVATION PLAN SHALL INCLUDE, AT A MINIMUM, THE FOLLOWING ITEMS:
   A. CONTRACTOR'S PROPOSED METHODS FOR ALL EXCAVATION TYPES.
   B. CONTRACTOR'S PROPOSED EQUIPMENT.
   C. CONTRACTOR'S PROPOSED PHASING OF EXCAVATIONS.
   D. CONTRACTOR'S PRODUCTS AND MATERIALS TO BE INSTALLED. CONTRACTOR'S PROPOSED METHODS AND LOCATIONS FOR MANAGING EXCAVATED MATERIALS (E.G., STOCKPILES, DIRECT REMOVAL/PLACEMENT OF REUSE MATERIALS, DISPOSAL OF WASTE MATERIALS, ETC.). THIS SHALL INCLUDE CONSIDERATION FOR MANAGING SATURATED MATERIALS THAT MAY BE ENCOUNTERED.
   E. CONTRACTOR'S PROPOSED EQUIPMENT AND METHOD FOR COMPACTION.

7. THE ENGINEER WILL COORDINATE DIRECTLY WITH THE WASTE FACILITY FOR THE DISPOSAL OF WASTE MATERIAL, ESTABLISH AND FINALIZE WASTE PROFILES AND SIGN AND MANAGE MANIFESTS ON BEHALF OF THE OWNER.

8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION AND PAYMENT FOR TRANSPORTATION TO DISPOSAL FACILITY.

9. THE CONTRACTOR SHALL SUBMIT THE FOLLOWING INFORMATION TO THE ENGINEER FOR REVIEW AND APPROVAL NO LESS THAN TWO WEEKS PRIOR TO IMPORTING FILL MATERIALS TO THE SITE:
   A. IDENTIFICATION OF PROPOSED OFF–SITE FILL SOURCES (NAMES, ADDRESSES, AND ANY STATE OR LOCAL APPROVALS AS FILL SOURCES
   B. LABORATORY TEST REPORT FOR EACH PROPOSED FILL MATERIAL IN ACCORDANCE WITH DRAWING 5.
   C. BILLS OF LADING SHALL INCLUDE (AT A MINIMUM) THE FOLLOWING INFORMATION FOR IMPORTED FILL MATERIAL:
      I. SOURCE ADDRESS.
      II. NAME OF SHIPPING COMPANY.
      III. TRANSPORTER'S NAME.
      IV. LOAD DESCRIPTION (FILL MATERIAL TYPE).
      V. GROSS AND NET WEIGHT OF LOAD.

10. THE WASTE DISPOSAL CONTRACTOR SHALL SUBMIT COPIES OF ALL MANIFESTS TO CSXT REPRESENTATIVE FOR APPROVAL AND SIGNATURES. COPIES OF THE FINAL WASTE MANIFESTS AND WEIGHT TICKETS SHALL ALSO BE PROVIDED.

EXCAVATION NOTES:

1. EXCAVATION SUPPORT AND PROTECTION SYSTEMS SHALL CONSIST OF A MODULAR SHORING SYSTEM DESIGNED TO SUPPORT EXCAVATION SIDEWALLS, AND RESIST SOIL AND HYDROSTATIC PRESSURES AND SUPERIMPOSED CONSTRUCTION LOADS.

2. EXCAVATIONS WILL NOT EXTEND BELOW THE LIMITS DEPICTED ON THE DESIGN DRAWINGS UNLESS THE OVERSIGHT ENGINEER (IN CONSULTATION WITH THE OWNER) DETERMINES THAT SUCH WORK IS NECESSARY AND CAN BE CONDUCTED IN A SAFE MANNER.

3. EXISTING FACILITIES ENCOUNTERED WITHIN AN EXCAVATED AREA THAT ARE NOT SPECIFIED FOR REMOVAL SHALL BE ADEQUATELY SUPPORTED, BLOCKED AND/OR BRACED IN A MANNER APPROVED BY THE OWNER OF THE FACILITY. DAMAGE TO EXISTING FACILITIES DURING EXCAVATION AND BACKFILLING ACTIVITIES SHALL BE REPAIRED TO MATCH OR EXCEED PRE–EXISTING CONDITIONS AT NO COST TO THE OWNER.

4. THE CONTRACTOR SHALL NOT CLAIM, NOR SHALL HE BE ENTITLED TO RECEIVE COMPENSATION FOR, DAMAGES SUSTAINED BY REASON OF INACCURACY OF THE INFORMATION GIVEN OR BY REASON OF THE CONTRACTOR'S FAILURE TO PROPERLY MAINTAIN AND SUPPORT OF EXISTING FACILITIES.

5. IMMEDIATELY NOTIFY ANY UTILITY OWNER OF ANY DAMAGE TO OWNERS UNDERGROUND FACILITIES RESULTING FROM THE CONTRACTOR'S OPERATIONS, AND ARRANGE FOR REPAIRS TO BE MADE AS SOON AS POSSIBLE, AS COORDINATED WITH THE OWNERS OF THE DAMAGED UTILITIES AND AS REVIEWED WITH THE ENGINEER. ALL COSTS ASSOCIATED WITH REPAIR OF DAMAGED UTILITIES SHALL BE BORNE BY THE CONTRACTOR.

6. IF, IN THE OPINION OF THE ENGINEER, THE CONTRACTOR DOES NOT PROPERLY CONTROL GROUNDWATER OR OTHERWISE NEGLECTS TO CONDUCT THE EXCAVATION WORK PROPERLY SUCH THAT THE SOILS AT THE REQUIRED EXCAVATION LEVEL ARE NOT PRESERVED IN AN UNDISTURBED STATE, THE CONTRACTOR SHALL REMOVE THE UNSUITABLE MATERIAL AND REPLACE IT WITH FILTER FABRIC AND ACCEPTABLE BACKFILL AT THE CONTRACTOR'S EXPENSE SO THAT THE CONDITION OF THE SUBGRADE MEETS THE SPECIFIED REQUIREMENTS BEFORE ANY WORK IS PLACED THEREON.

BACKFILL NOTES

1. BACKFILL ABOVE THE WATER TABLE SHALL BE PLACED IN A MAXIMUM LOOSE LIFT OF 12 INCHES, RESULTING IN A MAXIMUM COMPACTED LIFT OF 10–INCHES. DENSIFICATION SHALL BE ACCOMPLISHED BY COMPACTION EQUIPMENT, THE TYPE AND WEIGHT OF WHICH SHALL BE SUBMITTED BY THE CONTRACTOR IN WRITING AND ACCEPTED BY THE ENGINEER PRIOR TO USE.

2. BACKFILL ABOVE THE WATER TABLE SHALL BE COMPACTED TO A MINIMUM OF 90 PERCENT OF THE MAXIMUM DRY DENSITY FOR GENERAL FILL ON THE SITE, AS DETERMINED BY ASTM D–698. THE FILL SHALL BE COMPACTED WITH A RANGE OF 1 PERCENT BELOW TO 3 PERCENT ABOVE THE OPTIMUM MOISTURE CONTENT AS DETERMINED BY ASTM D–698.

3. BACKFILL SHALL BE PLACED IN APPROXIMATELY HORIZONTAL LIFTS AND COMPACTED PRIOR TO PROCEEDING WITH THE NEXT OVERLYING LIFT.

4. THE FINAL GRADE FOLLOWING COMPLETION OF BACKFILLING AND COMPACTION SHALL CONFORM TO EXISTING GRADES SHOWN ON THESE DRAWINGS.

5. THE CONTRACTOR SHALL MAINTAIN THE EXCAVATION IN A DEWATERED CONDITION THROUGH THE BACKFILLING PROCESS.

6. AS BACKFILL PROGRESSES, THE SURFACE SHALL BE GRADED SUCH THAT NO PONDING OF WATER SHALL OCCUR ON THE SURFACE OF THE FILL.

7. BACKFILL MATERIAL SHALL BE INSPECTED BY THE ENGINEER PRIOR TO PLACEMENT AND ALL OBJECTIONABLE ROOTS, VEGETATION, ORGANIC MATTER, AND OTHER FOREIGN DEBRIS SHALL BE REMOVED.

8. FIELD DENSITY VERIFICATION SHALL BE PERFORMED USING A NUCLEAR DENSITY GAUGE IN ACCORDANCE WITH ASTM D2922, ONCE PER LIFT OF CERTIFIED CLEAN FILL PLACED.

WASTE HANDLING, TRANSPORT AND DISPOSAL NOTES

1. ENGINEER WILL COORDINATE WITH WASTE DISPOSAL FACILITY AND TRUCKING/ROLLOFFS TO DISPOSAL FACILITY.

2. EXCAVATED MATERIAL SHALL BE DIRECTLY LOADED INTO ROLLOFFS OR TRUCKS TO BE TRANSPORTED TO OWNER APPROVED DISPOSAL FACILITIES.

3. ALL VEHICLES TRANSPORTING EXCAVATED MATERIALS OFF–SITE FOR TREATMENT–DISPOSAL SHALL BE FULLY LINED WITH 10–MIL POLYETHYLENE SHEETING, AN EQUIVALENT MATERIAL, OR OTHERWISE WATER–TIGHT AND EQUIPPED WITH FUNCTIONING TAILGATE LOCKS AND NON–MESH (SOLID), WATERPROOF TARPAULINS.

4. VEHICLES SHALL BE LOADED IN SUCH A MANNER AS TO AVOID CONTAMINATION OF THEIR EXTERIORS, INCLUDING TIRES (E.G., LOADED WITH 10–MIL POLYETHYLENE SHEETING DRAPED OVER THE SIDE OF THE TRUCK).

5. WASTE CHARACTERIZATION SAMPLING WILL BE CONDUCTED BY THE ENGINEER TO CHARACTERIZE SOILS AND ESTIMATE HAZARD CLASSIFICATIONS FOR OFF–SITE TREATMENT/DISPOSAL AT A OWNER–SELECTED FACILITY AND/OR LANDFILL.

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Professional Engineer's Name

Professional Engineer's No.

State	Date Signed	Project Mgr.
MD		
Designed by	Drawn by	Checked by
	ALS	

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BRUNSWICK, MARYLAND
DESIGN DRAWINGS

GENERAL NOTES AND SEQUENCE OF CONSTRUCTION

ARCADIS Project No.
MD000843.0010.00007

Date
FEBRUARY 2015

ARCADIS
1114 BENFIELD BOULEVARD
SUITE A
MILLERSVILLE, MD, 21108
TEL. 410.987.0032

1

LEGEND:

- CSXT MONITORING WELL LOCATION
- CONTOUR
- FENCE LINE
- VEGETATION
- OVERHEAD UTILITY POLE
- EXISTING MANHOLE
- RAILROAD TRACKS
- 100-YEAR FLOOD PLAIN
- APPROXIMATE LOCATION OF BRICK AND MORTAR PIPE
- PIPE FROM FUELING ISLAND PRIOR TO CONVERGING WITH PIPE FROM MARC TANK CONTAINMENT
- PIPE FROM MARC TANK CONTAINMENT PRIOR TO CONVERGING WITH PIPE FROM FUEL ISLAND
- VCP PIPE LEADING TO OIL WATER SEPARATOR LIFT STATION
- ELECTRICAL LINE
- WATER LINE
- SANITARY SEWER
- STORM DRAIN
- UNKNOWN UTILITY

NOTES:

1. APPROXIMATE DEPTH OF BRICK AND MORTAR PIPE VARIES ALONG ALIGNMENT, AS IS SHOWN ON DRAWING 5.
2. THE LOCATION OF THE ELECTRICAL LINE, WATER LINE, SANITARY SEWER, STORM DRAIN, AND THE UNKNOWN UTILITIES ARE APPROXIMATE AND WILL BE CONFIRMED PRIOR TO THE START OF CONSTRUCTION.

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Designed by	Drawn by: ALS	Checked by

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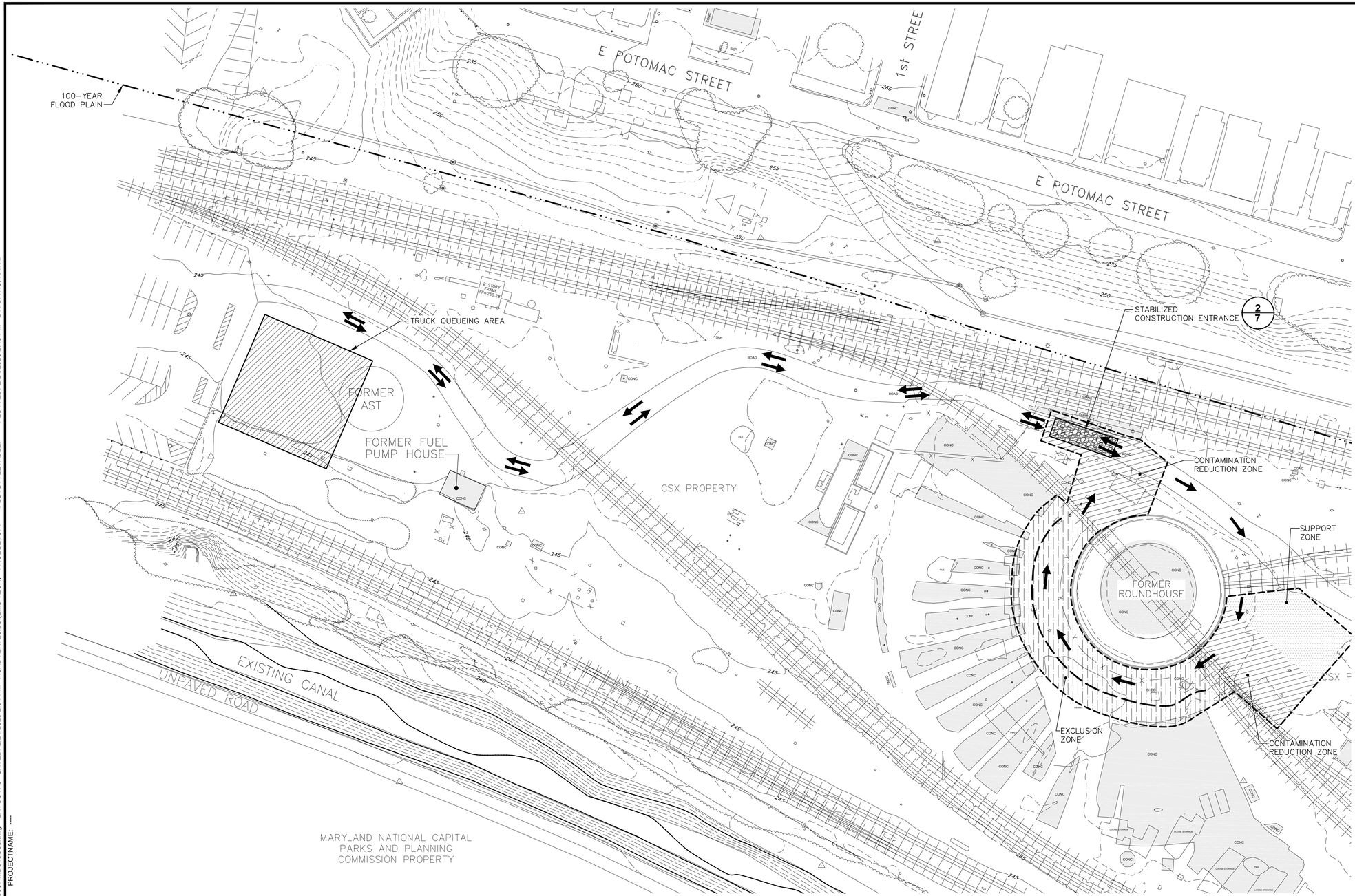

LEGEND:

- 100-YEAR FLOOD PLAIN
- DIRECTION OF TRAFFIC
- CONCRETE
- LIMITS OF DISTURBANCE
- APPROXIMATE LOCATION OF BRICK AND MORTAR PIPE
- SUPPORT ZONE
- EXCLUSION ZONE
- CONTAMINATION REDUCTION ZONE

NOTES:

1. SOIL AND MATERIALS REMOVED DURING PIPE REPLACEMENT TO BE DIRECTLY LOADED FOR TRANSPORTATION AND DISPOSAL.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR MANAGING AND DIRECTING ALL CONSTRUCTION TRAFFIC, INCLUDING INSTALLATION OF SIGNAGE.
3. A CSXT REPRESENTATIVE WILL REVIEW, APPROVE, AND SIGN THE WASTE PROFILES AND MANIFESTS PRIOR TO THE TRANSPORTATION OF WASTE FROM THE SITE.
4. ALL MATERIAL TRANSPORTERS WILL BE APPROPRIATELY LICENSED, PERMITTED, AND IN COMPLIANCE WITH FEDERAL, STATE, AND LOCAL REGULATIONS.
5. ENGINEER WILL COORDINATE WITH WASTE DISPOSAL FACILITY AND CONTRACTOR SHALL COORDINATE TRUCKING/ROLLOFFS TO DISPOSAL FACILITY.
6. MATERIAL DISPOSAL SHALL OCCUR ONLY AT CLIENT APPROVED FACILITIES.
7. DISPOSAL COSTS INCURRED FROM THE CLIENT APPROVED LANDFILL WILL BE DIRECTLY BILLED TO THE CLIENT.

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Professional Engineer's No.		
State: MD	Date Signed	Project Mgr.
Designed by	Drawn by: ALS	Checked by

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TRAFFIC CONTROL PLAN

ARCADIS Project No.
MD000843.0010.00007

Date
FEBRUARY 2015

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1114 BENFIELD BOULEVARD
SUITE A
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TEL. 410.987.0032

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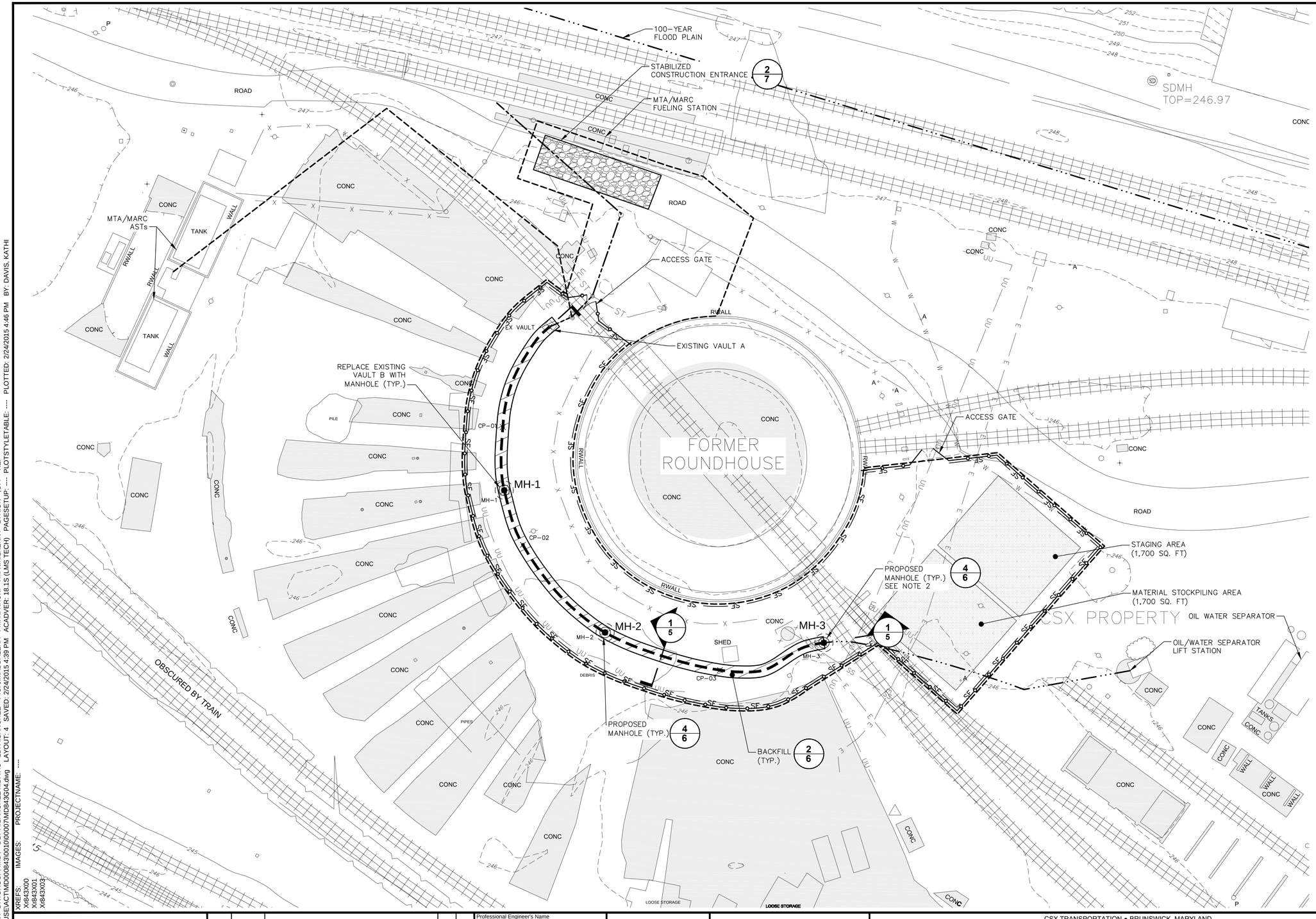

LEGEND:

- CONTOUR
- FENCE LINE
- VEGETATION
- OVERHEAD UTILITY POLE
- RAILROAD TRACKS
- 100-YEAR FLOOD PLAIN
- APPROXIMATE LOCATION OF BRICK AND MORTAR PIPE
- PIPE FROM FUELING ISLAND PRIOR TO CONVERGING WITH PIPE FROM MARC TANK CONTAINMENT
- PIPE FROM MARC TANK CONTAINMENT PRIOR TO CONVERGING WITH PIPE FROM FUEL ISLAND
- VCP PIPE LEADING TO OIL WATER SEPARATOR LIFT STATION
- E — ELECTRICAL LINE
- W — WATER LINE
- SS — SANITARY SEWER
- ST — STORM DRAIN
- UU — UNKNOWN UTILITY
- PROPOSED MANHOLE
- TEMPORARY CHAIN LINK FENCE
- SF — SILT FENCE
- LIMITS OF DISTURBANCE
- APPROXIMATE AREA OF EXCAVATION FOR PIPE LINE REPLACEMENT
- CP-01 — CONTROL POINT

NOTES:

1. PRIOR TO ANY LAND DISTURBANCE, CONTRACTOR SHALL INSTALL ALL EROSION AND SEDIMENT CONTROL MEASURES IN ACCORDANCE WITH THIS PLAN AND THE LATEST VERSION OF THE STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL IN MARYLAND. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING AND REPAIRING EROSION AND SEDIMENT CONTROLS THROUGHOUT CONSTRUCTION.
2. PRIOR TO EXCAVATION ACTIVITIES, CONTRACTOR SHALL CONFIRM THE LOCATION OF THE TRANSITION FROM BAMP TO REINFORCED CONCRETE PIPING THAT LEADS TO THE OIL-WATER SEPARATOR LIFT STATION. CONTRACTOR SHALL USE SOFT-DIG TECHNIQUES TO INSTALL TEST HOLES ALONG THE ALIGNMENT OF THE PIPING TO DETERMINE THE LOCATION OF THE PIPING MATERIAL TRANSITION. MANHOLE 3 IS TO BE INSTALLED AT THIS TRANSITION LOCATION.
3. THE AREA OF EXCAVATION IS APPROXIMATELY 1,230 SQUARE FEET. THE VOLUME OF SOIL TO BE EXCAVATED IS APPROXIMATELY 370 CUBIC YARDS.
4. THE AREA WITHIN THE LIMITS OF DISTURBANCE IS 23,398 SQUARE FEET (0.54 AC.). THE MAJORITY OF EXISTING GROUND SURFACE WITHIN THE LIMITS OF DISTURBANCE IS NOT VEGETATED AND IS BARE GROUND COVER.
5. THE LOCATION OF THE ELECTRICAL LINE, WATER LINE, SANITARY SEWER, STORM DRAIN, AND THE UNKNOWN UTILITIES ARE APPROXIMATE AND WILL BE CONFIRMED PRIOR TO THE START OF CONSTRUCTION.
6. STOCKPILE AREA MUST BE KEPT FREE OF EROSION WITH SIDE SLOPES NO STEEPER THAN 2H:1V.

CONTROL POINTS		
ID	NORTHING	EASTING
CP-01	599445.46	1135735.62
CP-02	599396.95	1135743.88
CP-03	599345.36	1135825.02
EX VAULT	599486.69	1135754.83
MH-1	599419.44	1135736.19
MH-2	599360.88	1135777.72
MH-3	599356.63	1135867.81

CITY: SYRACUSE, NY DIV/GROUP: IMDV DB: A.SANCHEZ K.DAVIS LD: A.SANCHEZ PIC: J.MADDALENA PM: R. KHURI TM: R.KILKENNY LYR:ON=*;OFF=*REF*
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Professional Engineer's No.

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MD		
Designed by	Drawn by	Checked by
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BRUNSWICK, MARYLAND
DESIGN DRAWINGS

PIPE REPLACEMENT AND EROSION AND SEDIMENT CONTROL PLAN

ARCADIS Project No.
MD000843.0010.00007

Date
FEBRUARY 2015

ARCADIS
1114 BENFIELD BOULEVARD
SUITE A
MILLERSVILLE, MD, 21108
TEL. 410.987.0032

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HDPE PIPING

GENERAL

1. EXISTING BAMP APPROXIMATELY 5 TO 8–FEET BELOW GROUND SURFACE.

2. THE LOCATION OF THE ELECTRICAL LINE, WATER LINE, SANITARY SEWER, STORM DRAIN, AND THE UNKNOWN UTILITIES ARE APPROXIMATE AND WILL BE CONFIRMED PRIOR TO THE START OF CONSTRUCTION.

HANDLING

1. MATERIALS SHALL BE HANDLED IN SUCH A MANNER AS TO ENSURE PLACEMENT IN SOUND, UNDAMAGED CONDITION. PIPE SHALL BE CARRIED TO THE TRENCH, NOT DRAGGED.

PIPING MATERIAL

1. THE PIPE SHALL BE MANUFACTURED FROM HIGH DENSITY POLYETHYLENE RESIN COMPOUND QUALIFIED AS TO MEET OR EXCEED CELL CLASSIFICATION 345464C AS DETERMINED BY ASTM D–3350 AND WHICH HAS A PPI RATING OF PE 3408 BY THE PLASTIC PIPE INSTITUTE.
2. THE POLYETHYLENE COMPOUND SHALL BE SUITABLY PROTECTED AGAINST DEGRADATION BY ULTRAVIOLET LIGHT AS REQUIRED BY ASTM D–1603.
3. THE RESIN COMPOUND SHALL CONTAIN NO ADDITIVES, ADULTERANTS, EXTENDERS OR REWORKED COMPOUNDS, AND SHALL CONTAIN AN EFFECTIVE ANTIOXIDANT.
4. THE RESIN COMPOUND SHALL HAVE A MINIMUM RESISTANCE OF 125 HOURS WHEN TESTED FOR ENVIRONMENTAL STRESS CRACKING IN ACCORDANCE WITH THE REQUIREMENTS OF ASTM D–1693, PROCEDURE B.
5. JOINTS: INSTALLED USING HEAT FUSION BUTT–WELDING IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS..
6. HDPE PIPING SHALL HAVE AN SDR OF 17.

BEDDING MATERIAL

1. AASHTO #57 CRUSHED STONE SHALL BE USED AS BEDDING MATERIAL, AS NECESSARY TO CREATE STABLE AND UNIFORM FOUNDATION FOR PIPE.
2. BEDDING MATERIAL SHALL BE TAMPED IN PLACE WITH AN EXCAVATOR BUCKET AND INSPECTED BY THE ON–SITE ENGINEER. THE FINAL SURFACE ELEVATION OF THE BEDDING MATERIAL MUST BE SURVEYED TO BE LEVEL AND AT THE APPROPRIATE ELEVATION.

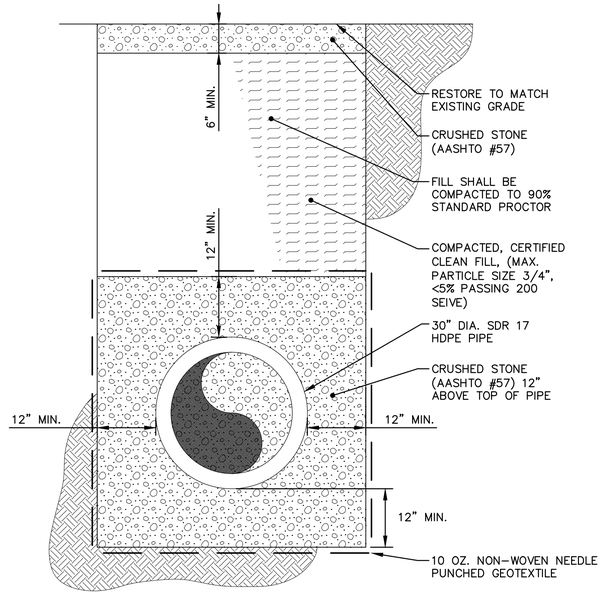
WELDING AND PLACEMENT

1. ALL COUPLINGS AND FITTINGS SHALL BE INSPECTED BY THE ENGINEER PRIOR TO PLACEMENT OF PIPE. PIPE OR COUPLINGS THAT ARE DEFECTIVE OR DAMAGED, SHALL NOT BE USED. PIPELINES SHALL BE LAID TO THE GRADES AND ALIGNMENT INDICATED. PROPER FACILITIES SHALL BE PROVIDED FOR LOWERING SECTIONS OF PIPE INTO TRENCHES. DIVERSION OF DRAINAGE OR DEWATERING OF TRENCHES DURING CONSTRUCTION SHALL BE PROVIDED AS NECESSARY. ALL IN–PLACE PIPE SHALL BE INSPECTED BEFORE BACKFILLING, AND THOSE PIPES DAMAGED DURING PLACEMENT SHALL BE REMOVED AND REPLACED AT CONTRACTOR EXPENSE.
2. ALL PIPING SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS, THE DRAWINGS, THESE SPECIFICATIONS AND AS DIRECTED BY THE ENGINEER.
3. LAY PIPE TO SLOPE GRADIENTS INDICATED ON PROFILE BELOW WITH MAXIMUM ALLOWABLE VARIATION FROM TRUE SLOPE OF 0.05 FEET.
4. AFTER THE HDPE PIPE HAS BEEN PROPERLY BEDDED, GRANULAR MATERIAL SHALL BE PLACED ALONG BOTH SIDES OF PIPE IN LAYERS NOT EXCEEDING 6 INCHES IN COMPACTED DEPTH. THE BACKFILL SHALL BE BROUGHT UP EVENLY ON BOTH SIDES OF PIPE FOR THE FULL LENGTH OF PIPE. EACH LAYER SHALL BE THOROUGHLY COMPACTED WITH MECHANICAL TAMPERS OR RAMMERS TO THE SATISFACTION OF THE FIELD ENGINEER. THIS METHOD OF FILLING AND COMPACTING SHALL CONTINUE UNTIL THE FILL HAS REACHED AN ELEVATION OF AT LEAST 12 INCHES ABOVE THE TOP OF THE PIPE. CLEAN FILL SOILS SHALL BE PLACED IN THE REMAINDER OF THE TRENCH AND COMPACTED BY SPREADING AND ROLLING, OR COMPACTED BY MECHANICAL RAMMERS OR TAMPERS IN LAYERS NOT EXCEEDING 12 INCHES TO A DENSITY THAT IS ACCEPTABLE BY THE FIELD ENGINEER.

		GEOTEXTILE			
		NON–WOVEN		WOVEN SLIT FILM	
PROPERTY	TEST METHOD	MINIMUM AVERAGE ROLL VALUE[1]		MINIMUM AVERAGE ROLL VALUE[1]	
		MD	CD	MD	CD
GRAB TENSILE STRENGTH	ASTM–D–4632	200 LB.	200 LB.	200 LB.	200 LB.
GRAB TENSILE ELONGATION	ASTM D–4632	50%	50%	13%	10%
TRAPEZOIDAL TEAR STRENGTH	ASTM D–4533	80 LB	80 LB.	75 LB.	75 LB.
PUNCTURE STRENGTH	ASTM D–6241	450 LB.		450 LB	
APPARENT OPENING SIZE [2]	ASTM D–4751	US SIEVE 70 (0.21 MM)		US SIEVE 30 (0.59 MIN.)	
PERMITIVITY	ASTM D–4491	1.1 SEC. $^{-1}$		0.05 SEC $^{-1}$	
ULTRAVIOLET RESISTANCE RETAINED AT 500 HOURS	ASTM D–4355	70% STRENGTH		70% STRENGHT	

NOTES:

1. ALL NUMERIC VALUES EXCEPT APPARENT OPENING SIZE (AOS) REPRESENT MINIMUM ROLL VALUES (MARV). MARV IS CALCULATED AS THE TYPICAL MINUS TWO STANDARD DEVIATIONS. MD IS MACHINE DIRECTION; CD IS CROSS DIRECTION.
2. VALUES FOR AOS REPRESENT THE AVERAGE MAXIMUM OPENING.
3. GEOTEXTILES MUST BE EVALUATED BY THE NATIONAL TRANSPORTATION PRODUCT EVALUATION PROGRAM (NTPEP) AND CONFORM TO VALUES IN THE TABLE ABOVE.
4. THE GEOTEXTILE MUST BE INERT TO COMMONLY ENCOUNTERED CHEMICALS AND HYDROCARBONS AND MUST BE ROT AND MILDEW RESISTANT. THE GEOTEXTILE MUST BE MANUFACTURED FROM FIBERS CONSISTING OF LONG CHAIN SYNTHETIC POLYMERS AND COMPOSED OF A MINIMUM OF 95 PERCENT BY WEIGHT OF POLYOLEFINS OR POLYESTERS, AND FORMED INTO A STABLE NETWORK SO THE FILAMENTS OR YARNS RETAIN THEIR DIMENSIONAL STABILITY RELATIVE TO EACH OTHER, INCLUDING SELVAGES.
5. WHEN MORE THAN ONE SECTION OF GEOTEXTILE IS NECESSARY, OVERLAP THE SECTIONS BY AT LEAST ONE FOOT. THE GEOTEXTILE MUST BE PULLED TAUT OVER THE APPLIED SURFACE. EQUIPMENT MUST NOT RUN OVER EXPOSED FABRIC. WHEN PLACING RIPRAP ON GEOTEXTILE, DO NOT EXCEED A ONE FOOT DROP HEIGHT.



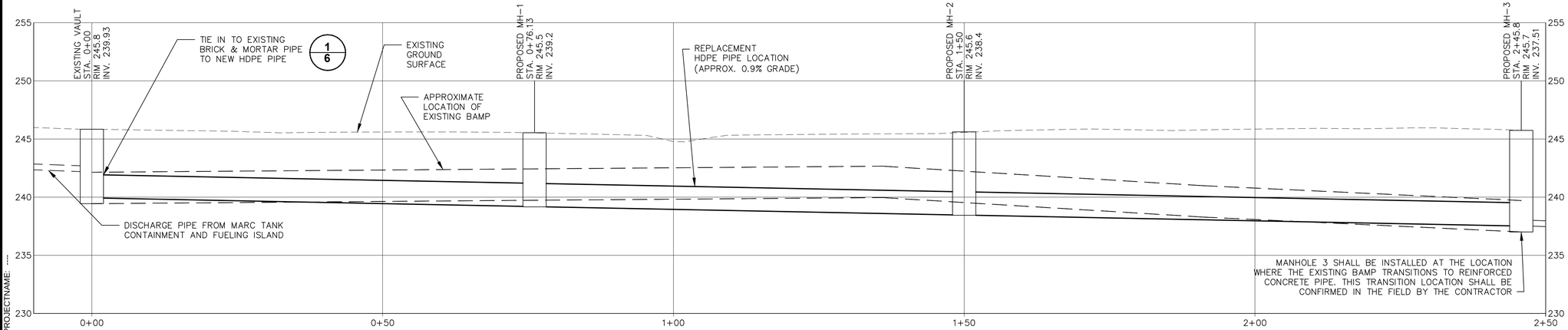
HDPE PIPE BACKFILL DETAIL

NOT TO SCALE

2

IMPORTED SOIL TESTING:

1. THE CONTRACTOR SHALL PROVIDE ALL TEST RESULTS TO THE ENGINEER A MINIMUM OF ONE WEEK PRIOR TO SHIPMENT TO THE SITE.
2. IMPORTED SOIL SHALL BE SUBJECT TO THE FOLLOWING GEOTECHNICAL TESTS PRIOR TO SHIPMENT AND ONCE EVERY 500 CUBIC YARDS OF MATERIAL THEREAFTER:
   A. MOISTURE CONTENT (ASTM D–2216)
   B. ATTERBERG LIMITS (ASTM D–4318)
   C. SOIL CLASSIFICATION (ASTM D–2487)
   D. PARTICLE SIZE ANALYSIS (ASTM D–422)
   E. STANDARD PROCTOR (ASTM D–698)
3. IMPORTED SOIL SHALL BE SUBJECT TO THE FOLLOWING ANALYTICAL TESTS PRIOR TO SHIPMENT AND ONCE EVERY 250 CUBIC YARDS OF MATERIAL THEREAFTER:
   A. VOCs (USEPA METHOD 8260B)
   B. SVOCs (USEPA METHOD 8270)
   C. LEAD (EPA METHOD 6020)
   D. PAHs (EPA METHOD 8270C)
   E. TPH (MODIFIED EPA METHOD 8015)
   F. pH
   G. ASBESTOS (POLARIZED LIGHT MICROSCOPY)
   H. PESTICIDES
      i ORGANOCHLORINE PESTICIDES (EPA METHOD 8081A OR 8080A)
      ii ORGANOPHOSPHORUS PESTICIDES (EPA METHOD 8141A)
      iii CHLORINATED HERBICIDES (EPA METHOD 8151A)
   I. HEAVY METALS (EPA METHOD 6020)
   J. PCBS (USEPA METHOD 8082)



PIPE REPLACEMENT PROFILE

HORIZONTAL SCALE: 1" = 10'
VERTICAL SCALE: 1" = 5'

1

CITY: SYRACUSE-NJ DIV/GROUP: ENVCAD DB:A.SANCHEZ LD: PIC: PM: TM: LYR:ON=*OFF=*REF*
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1"=5' 5' 0 5' 10'
1"=10' 10' 0 10' 20'

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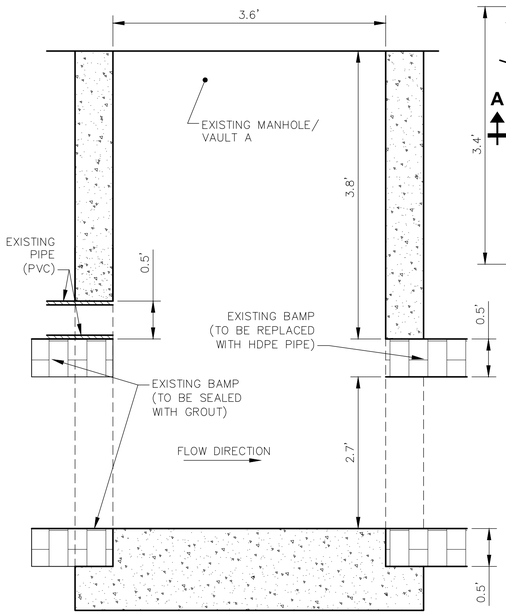
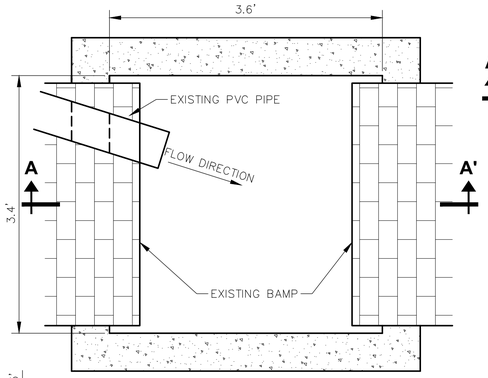


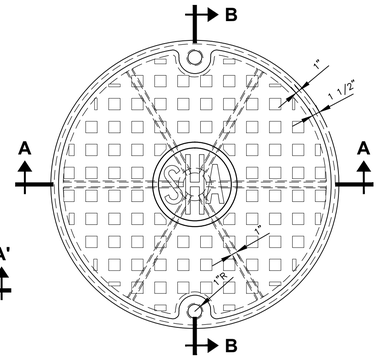
SECTION A-A'



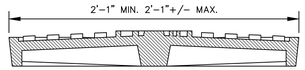
PLAN

NOTES:

1. NEW HDPE PIPE SHALL REPLACE EXISTING BAMP STARTING AT THE OUTLET OF VAULT A.
2. REPLACEMENT HDPE PIPE WILL BE SEALED INTO EXISTING VAULT A USING NON-SHRINK HYDRAULIC CEMENT.



PLAN



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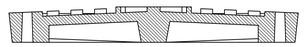


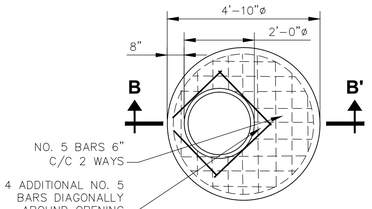
SECTION B-B'

NOTE:

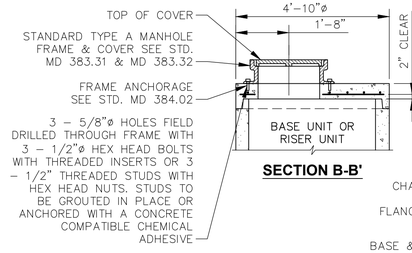
1. MANUFACTURER TO VERIFY THAT MANHOLE COVER IS DESIGNED FOR HS-25 LOADING.
2. MATERIAL – CAST IRON APPROXIMATE WEIGHT 170 LBS.

MANHOLE COVER DETAIL 2

NOT TO SCALE



FLAT SLAB TOP
(SHOWN WITHOUT FRAME & COVER)



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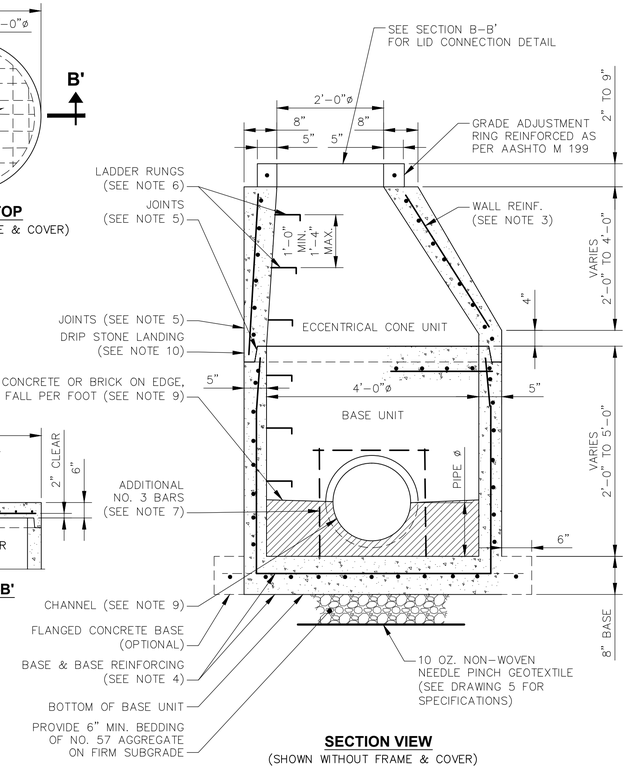

SECTION VIEW
(SHOWN WITHOUT FRAME & COVER)

NOTES:

1. MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE WITH AASHTO M 199.
2. CONCRETE SHALL BE MIX NO. 6 (4,500 PSI).
3. WALL REINFORCEMENT FOR BASE UNITS, RISER UNITS AND ECCENTRICAL CONE UNITS SHALL BE REINFORCEMENT BARS OR WELDED WIRE FABRIC WITH A MINIMUM AREA OF 0.12 IN/FT AND MAXIMUM SPACING OF 12" FOR THE 48" DIAMETER MANHOLES. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A 185 AND A 52. REINFORCEMENT SHALL MEET ASTM A 615, GRADE 60.
4. BASE REINFORCEMENT SHALL BE REINFORCEMENT BARS OR WELDED WIRE FABRIC WITH A MINIMUM AREA OF 0.20 IN/FT AND A MAXIMUM SPACING OF 10" WITH 2" COVER FROM THE TOP OF BASE. THE BASE SHALL BE CAST MONOLITHIC WITH THE UNIT OR JOINTED PER THE MANUFACTURER'S DESIGN.
5. THE MANUFACTURER SHALL FORM MALE AND FEMALE ENDS OF JOINTS USING THEIR DESIGN. THE JOINTS SHALL BE SEALED BY THE CONTRACTOR AND MADE WATERTIGHT USING (WHERE APPLICABLE) MORTAR, RUBBER O-RING GASKETS MEETING ASTM C 361 AND C 443 OR FLEXIBLE PLASTIC GASKETS MEETING AASHTO M 198 TYPE B.
6. LADDER RUNGS SHALL BE INSTALLED IN VERTICAL ALIGNMENT AT 1'-4" MAXIMUM C/C. RUNG TYPES SHALL BE IN ACCORDANCE WITH STANDARDS MD 383.91 OR MD 383.92. LADDER RUNGS SHALL BE INCIDENTAL TO THE COST OF THE MANHOLE.
7. WHEN THE DISTANCE BETWEEN MULTIPLE OPENINGS IN THE BASE UNIT OR ANY RISER UNIT IS LESS THAN 6" ADDITIONAL NO. 3 BARS ARE REQUIRED AROUND OPENINGS.
8. LIFT HOLES OR LIFT EYES SHALL BE PROVIDED IN EACH SECTION FOR HANDLING.
9. MIX NO. 2 CONCRETE OR BRICK CHANNEL SHALL BE PROVIDED IN THE FIELD AND SHALL SLOPE 2" PER FOOT TOWARD OUTLET OR AS DIRECTED BY THE ENGINEER.
10. THE DRIP STONE LANDING SHALL BE USED ONLY WHEN THERE ARE PIPES CONNECTED TO THE RISER UNITS. SEE STANDARD MD 384.13 FOR DETAILS.
11. MANHOLE HAS BEEN DESIGNED FOR HS-25 LOADING, ACCORDING TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

PIPE INLET CONNECTION DETAIL 1

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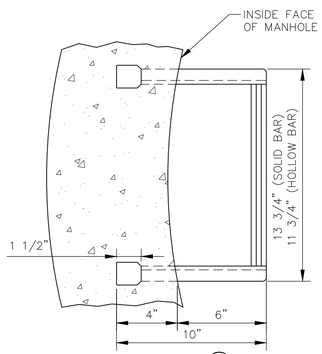
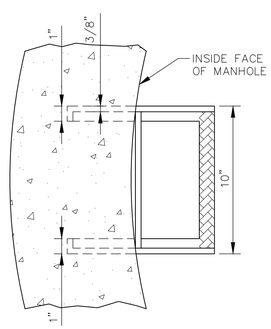


PLAN 1



PLAN 2

STANDARD METAL LADDER RUNGS MISCELLANEOUS STRUCTURES 3

NOT TO SCALE

MANHOLE DETAIL 4

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Professional Engineer's No.		
State: MD	Date Signed	Project Mgr.
Designed by	Drawn by: ALS	Checked by

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MANHOLE DETAILS

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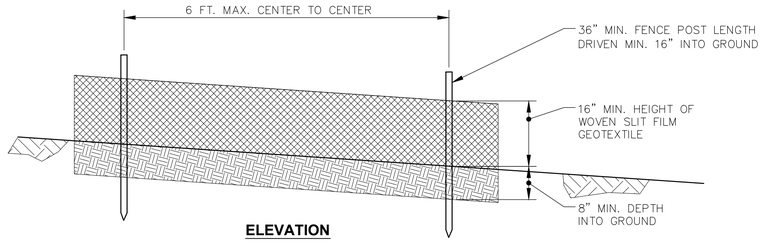
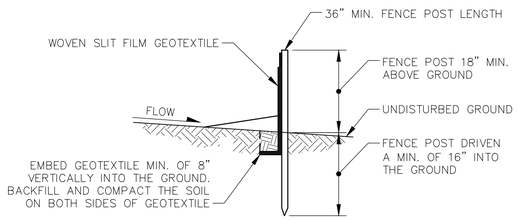
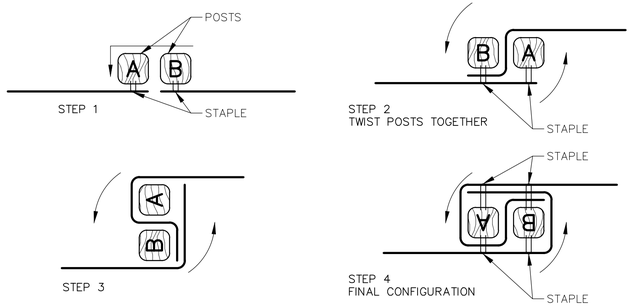


ELEVATION



CROSS SECTION



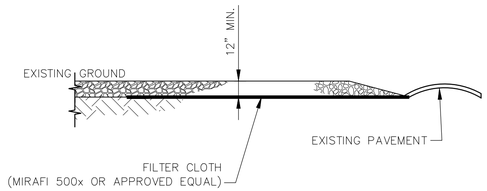
JOINING TWO ADJACENT SILT FENCE SECTIONS (TOP VIEW)

CONSTRUCTION SPECIFICATIONS:

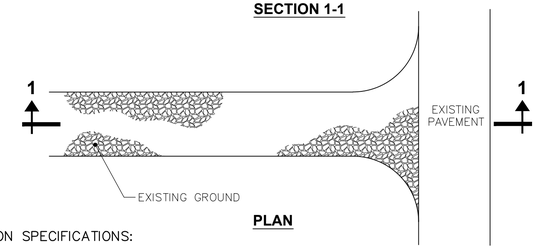
1. USE WOOD POSTS 1–3/4 X 1–3/4 ± 1/16 INCH (MINIMUM) SQUARE CUT OF SOUND QUALITY HARDWOOD. AS AN ALTERNATIVE TO WOODEN POST USE STANDARD "T" OR "U" SECTION STEEL POSTS WEIGHING NOT LESS THAN 1 POUND PER LINEAR FOOT.
2. USE 36 INCH MINIMUM POSTS DRIVEN 16 INCH MINIMUM INTO GROUND NO MORE THAN 6 FEET APART.
3. USE WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED ON DRAWING 5 AND FASTEN GEOTEXTILE SECURELY TO UPSLOPE SIDE OF FENCE POSTS WITH WIRE TIES OR STAPLES AT TOP AND MIDSECTION.
4. EMBED GEOTEXTILE A MINIMUM OF 8 INCHES VERTICALLY INTO THE GROUND. BACKFILL AND COMPACT THE SOIL ON BOTH SIDES OF FABRIC.
5. WHERE TWO SECTIONS OF GEOTEXTILE ADJOIN: OVERLAP, TWIST, AND STAPLE TO POST IN ACCORDANCE WITH THIS DETAIL.
6. EXTEND BOTH ENDS OF THE SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SILT FENCE.
7. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN SILT FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL FENCE.

TYPICAL SILT FENCE DETAIL (1)

NOT TO SCALE



SECTION 1-1



PLAN

CONSTRUCTION SPECIFICATIONS:

1. PLACE STABILIZED CONSTRUCTION ENTRANCE (SCE) IN ACCORDANCE WITH THE APPROVED PLAN. VEHICLES MUST TRAVEL OVER THE ENTIRE LENGTH OF THE STABILIZED CONSTRUCTION ENTRANCE. USE MINIMUM LENGTH OF 50 FEET. FLARE SCE 10 FEET MINIMUM AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.
2. PIPE ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD THE SCE UNDER THE ENTRANCE, MAINTAINING POSITIVE DRAINAGE. PROTECT PIPE INSTALLED THROUGH THE SCE WITH A MOUNTABLE BERM WITH 5:1 SLOPES AND A MINIMUM OF 12 INCHES OF STONE OVER THE PIPE. PROVIDE PIPE AS SPECIFIED ON APPROVED PLAN. WHEN THE SCE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINAGE TO CONVEY, A PIPE IS NOT NECESSARY. A MOUNTABLE BERM IS REQUIRED WHEN SCE IS NOT LOCATED AT A HIGH SPOT.
3. PREPARE SUBGRADE AND PLACE NON–WOVEN GEOTEXTILE, AS SPECIFIED ON DRAWING 5.
4. PLACE CRUSHED AGGREGATE (2 TO 3 INCHES IN SIZE) OR EQUIVALENT RECYCLED CONCRETE (WITHOUT REBAR) AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF SCE.
5. MAINTAIN ENTRANCE IN A CONDITION THAT MINIMIZES TRACKING OF SEDIMENT. ADD STONE OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN CLEAN SURFACE, MOUNTABLE BERM, AND SPECIFIED DIMENSIONS. IMMEDIATELY REMOVE STONE AND/OR SEDIMENT SPILLED, DROPPED, OR TRACKED ONTO ADJACENT ROADWAY BY VACUUMING, SCRAPING, AND/OR SWEEPING. WASHING ROADWAY TO REMOVE MUD TRACKED ONTO PAVEMENT IS NOT ACCEPTABLE UNLESS WASH WATER IS DIRECTED TO AN APPROVED SEDIMENT CONTROL PRACTICE.

STABILIZED CONSTRUCTION ENTRANCE DETAIL (2)

NOT TO SCALE

EROSION AND SEDIMENT CONTROL NOTES

1. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED PRIOR TO ANY EARTH DISTURBANCE EXCEPT THAT NECESSARY FOR INSTALLATION OF THE CONTROLS
2. ALL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE INSTALLED AND MAINTAINED ACCORDING TO THE CRITERIA CONTAINED IN THE MOST RECENT VERSION OF THE MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
3. ALL CLEARING AND GRADING SHALL BE COMPLETED IN THE FOLLOWING SEQUENCE:
   - 3A: LIMIT INITIAL CLEARING AND GRUBBING FOR THE INSTALLATION OF THE CONSTRUCTION ENTRANCE, PERIMETER CONTROLS, AND ANY REMAINING CONTROLS.
   - 3B: INSTALL THE STABILIZED CONSTRUCTION ENTRANCES AND PERIMETER SILT FENCE.
   - 3C: PROVIDE TEMPORARY STABILIZATION OF ANY AREA THAT WILL NOT BE ACTIVELY GRADED WITHIN SEVEN (7) DAYS.
4. ALL EROSION AND SEDIMENT CONTROL DEVICES REQUIRE CONTINUAL MAINTENANCE. ANY CONTROLS THAT ARE DAMAGED OR DISTURBED SHALL BE RESTORED OR REPAIRED BEFORE THE END OF EACH DAY.
5. DEVELOPMENT ACTIVITIES SHALL NOT IMPAIR ANY DRAINAGE, CREATE AN EROSION HAZARD, OR CREATE A SOURCE OF SEDIMENT TO ANY ADJACENT WATERCOURSE, WETLAND OR PROPERTY.
6. ANY PUMPING OF WATER MUST BE FILTERED AND DONE IN ACCORDANCE WITH NOTE 2 OF THIS SECTION.
7. FOLLOWING INITIAL SOIL DISTURBANCE OR RE–DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN THREE (3) CALENDAR DAYS ON THE SURFACE AREAS OF ALL SEDIMENT CONTROLS, STOCKPILES, AND PERIMETER SLOPES: AND SEVEN (7) DAYS FOR ALL OTHER DISTURBED AREAS ON THE SITE, NOT BEING ACTIVELY GRADED.
8. DUST CONTROL SHALL CONSIST OF IRRIGATING THE SITE WITH WATER UNTIL THE SURFACE IS MOIST. REPEAT AS NEEDED. THE SITE MUST NOT BE IRRIGATED TO THE POINT THAT RUNOFF OCCURS.
9. FREDERICK COUNTY, ENVIRONMENTAL COMPLIANCE SECTION SHALL BE CONTACTED AT LEAST 48 HOURS PRIOR TO START OF CONSTRUCTION AT (301) 600–3507.

CITY: SYRACUSE:NJ DIV/GROUP: ENVCAD DB:A.SANCHEZ LD: PIC: PM: TM: LYR:ON=*;OFF=*REF*
G:\ENVCAD\SYRACUSE\ACTIVE\MD000843\0010\00007\MD843G06.dwg LAYOUT: 7 SAVED: 2/23/2015 3:29 PM ACADVER: 18.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ----
XREFS: IMAGES: PROJECTNAME: ----
X:\843X00

DRAWING NOT TO SCALE
SCALE(S) AS INDICATED

THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING: _____ USE TO VERIFY FIGURE REPRODUCTION SCALE

No.	Date	Revisions	By	Ckd

THIS DRAWING IS THE PROPERTY OF THE ARCADIS ENTITY IDENTIFIED IN THE TITLE BLOCK AND MAY NOT BE REUSED OR ALTERED IN WHOLE OR IN PART WITHOUT THE EXPRESS WRITTEN PERMISSION OF SAME.

Professional Engineer's Name

Professional Engineer's No.

State	Date Signed	Project Mgr.
MD		
Designed by	Drawn by	Checked by
	ALS	

ARCADIS U.S., INC.

CSX TRANSPORTATION ● BRUNSWICK, MARYLAND
BRUNSWICK, MARYLAND
DESIGN DRAWINGS

EROSION AND SEDIMENT CONTROL DETAILS AND NOTES

ARCADIS Project No.
MD000843.0010.00007

Date
FEBRUARY 2015

ARCADIS
1114 BENFIELD BOULEVARD
SUITE A
MILLERSVILLE, MD, 21108
TEL. 410.987.0032

ARCADIS

Appendix E

Permit Applications

ARCADIS U.S., Inc.
1114 Benfield Blvd. Suite A
Millersville, Maryland 21108
Tel 410.923.7815
Fax 410.987.4392
www.arcadis-us.com

Frederick County Community Development Division
Department of Permits and Inspections
30 North Market Street
Frederick, MD 21701

Subject:
Underground Discharge Pipe Replacement Narrative
CSX Transportation, Inc.
CSX Transportation Rail Yard
Brunswick, Maryland

ENVIRONMENT

Date:
February 25, 2015

Contact:
Ramzi Khuri
Phone:
410-923-7815
Email:
Ramzi.khuri@arcadis-us.com

Dear Sir or Madam:

ARCADIS U.S., Inc. on behalf of CSX Transpiration, Inc. (CSXT), is submitting Permit Information for Minor Grading for the above-referenced site as well as a Pipe Replacement Work Plan (PRWP). The PRWP describes the underground discharge pipe replacement activities to be performed at the Former rail yard site located at 100 South Maple Avenue in Brunswick, Maryland (Site). The print out from the Maryland Department of Assessments and Taxation Real Property Data website for this property is included in **Attachment 1**. The completed Minor Grading/Standard Sediment Control Plan Application and Standard Stormwater Management Plan Application are enclosed within **Attachment 2**. As seen on **Figure 1**, the Site lies entirely within the 100 year flood plain of the Potomac River.

The proposed pipe replacement activities will require temporary disturbance of approximately 0.54 acres. Intrusive activities include excavation and off-site disposal of impacted soils, excavation and disposal of a brick and mortar pipe (BAMP), replacement of the brick and mortar pipe with an HDPE pipe, installation of concrete manholes, backfilling of excavations, and restoration of disturbed areas. There is no development planned, however, the replacement of the existing BAMP with an HDPE pipe will be a permanent improvement. The existing ground cover within the proposed limits of excavation is not vegetated and is stabilized with gravel. Following the completion of excavation and pipe replacement activities, the excavation will be backfilled to restore grades and surface elevations to existing conditions, as shown in the **Design Drawings in Attachment 3**. There will be no increase in stormwater runoff, volumes or discharge rates associated following restoration of disturbed areas associated with the proposed pipe replacement activities.

Construction Scope and Methodology

The general construction sequence and methodology for replacing the BAMP is shown on **Drawing 1 of Attachment 3**. The local topography is very flat with little discernable slope and mainly consists concrete pads and gravel fill as shown on **Drawing 2 of Attachment 3**. Site preparation, truck traffic, and construction layout will be conducted in accordance with the Design Drawings presented within **Attachment 3** (**Drawings 3 and 4**).

The BAMP will be replaced with HDPE pipe and is approximately 5 to 8 feet below ground surface (ft bgs) and approximately 294 lineal feet long. The vertical extent of the BAMP replacement, material requirements, and backfill thicknesses are shown on **Drawing 5 of Attachment 3**. Three new concrete manholes will be installed along the alignment of the replacement HDPE pipe in accordance with **Drawing 6 of Attachment 3**; one of these manholes will be installed to replace an existing concrete vault that connects to the BAMP.

Erosion and Sediment Controls will be conducted in accordance with **Drawings 4 and 7 of Attachment 3**. Silt fence will be installed around the excavation areas and around any soil stockpiled on Site to mitigate migration of sediment-laden runoff. One stabilized construction entrance will be installed to provide a stable area for entrance and exit from the Site and to reduce tracking of sediment onto roadways. Excavation activities will be timed to be conducted during times when no precipitation is expected.

Construction Schedule

The scope of work discussed above will proceed upon acquiring an MDE Wetland and Waterways Permit as well as acceptance of the Frederick County Minor Grading Plan. A preliminary schedule is provided below:

1. Contracting, pre-construction submittals, and mobilization: **3 weeks**
2. Site preparation (erosion and sediment controls, survey, utility clearance): **1 week**
3. Removal and replacement of BAMP: **2 weeks**
4. Demobilization: **3 days**

ARCADIS

If you have any questions regarding this information please contact Ramzi Khuri at (410) 923-7815.

Sincerely,

ARCADIS U.S., Inc.

Ramzi Khuri, P.E.
Principal Civil Engineer

Copies:

ATTACHMENTS:

Figure 1 – Site Impacts Map

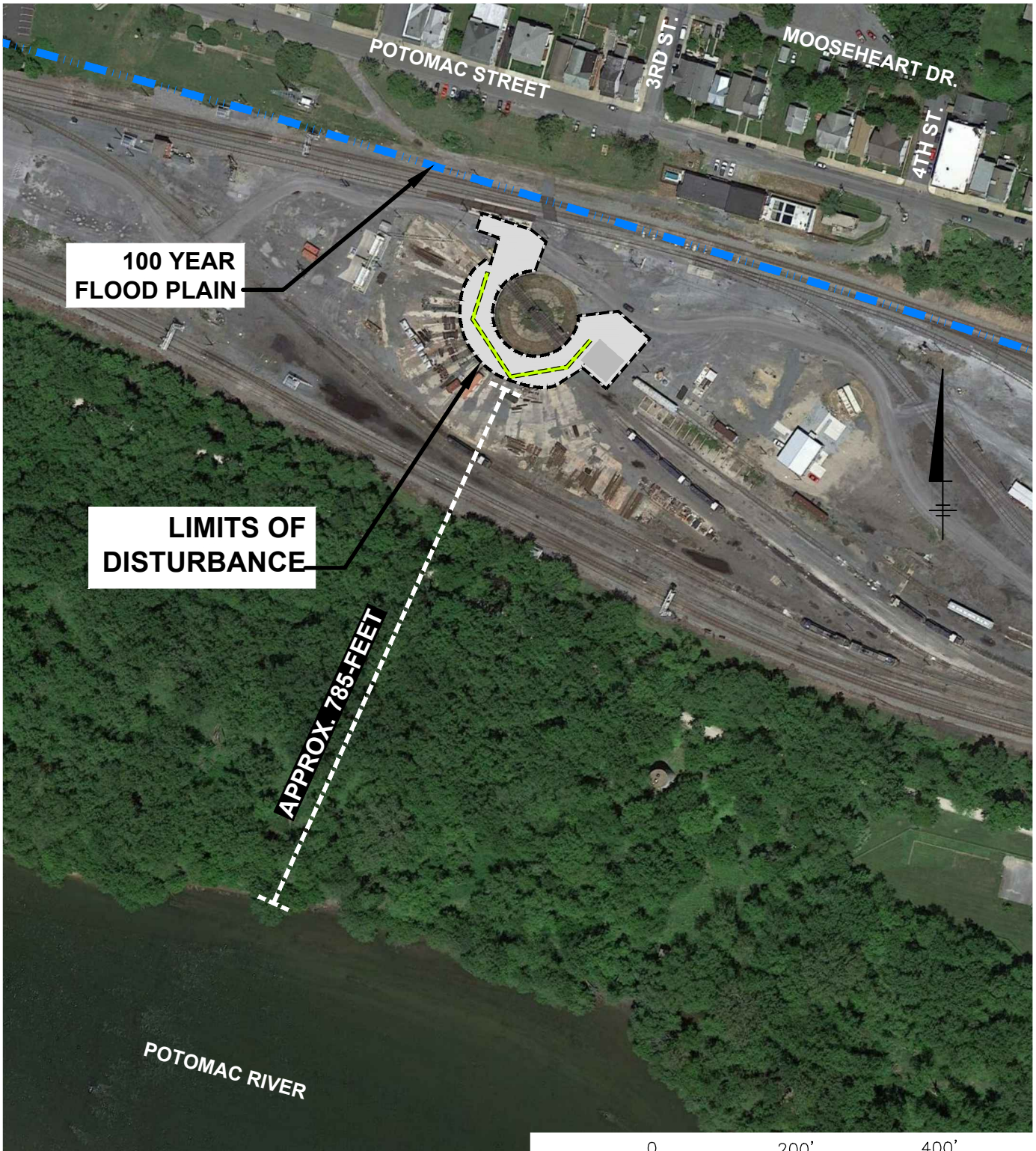
Attachment 1 – Print out from MD Dept of Assessments and Taxation Real Property Data website

Attachment 2 – Completed Permit Application

Attachment 3 – 3 copies of Design Drawings

ARCADIS

Figures



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GRAPHIC SCALE

CSX TRANSPORTATION RAIL YARD
203 SOUTH MAPLE AVENUE, BRUNSWICK, MARYLAND

PERMIT INFORMATION FOR MINOR GRADING

IMPACTS MAP

ARCADIS

FIGURE 1

CITY: SYRACUSE, NY DIV/GROUP: IMDV DB: K.DAVIS LD: K.DAVIS PIC: (Opt) PM: R.KHURI TM: R.KILKENNY LYR: ON=*;OFF=*REF*
G:\ENVCAD\SYRACUSE\ACT\MD0008430010\00007\REPORT\MD843N02.dwg LAYOUT: 1 SAVED: 2/27/2015 5:12 PM ACADVER: 18.1S (LMS TECH) PAGESETUP: PDF AP COLOR PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 2/27/2015 5:12 PM BY: DAVIS, KATHI
XREFS: IMAGES: PROJECTNAME: ---
Aerial_wide.jpg

Attachment 1

Print out from MD Dept. of Assessments and Taxation Real Property Data website

Real Property Data Search (w4)

Guide to searching the database

Search Result for FREDERICK COUNTY

View Map | View GroundRent Redemption | View GroundRent Registration

Account Identifier: District - 12 Account Number - 296568

Owner Information

Owner Name:	CSX TRANSPORTATION INC	**Use:**	INDUSTRIAL
		Principal Residence:	NO
Mailing Address:	C/O TAX DEPARTMENT 500 WATER ST # J910 JACKSONVILLE FL 32202-4423	**Deed Reference:**	/00000/ 00000

Location & Structure Information

Premises Address: 0-0000 **Legal Description:** 93.66 ACRES TRACK LINE

Map:	Grid:	Parcel:	Sub District:	Subdivision:	Section:	Block:	Lot:	Assessment Year:	Plat No:
0101	0000	0013		0000				2013	Plat Ref:

Special Tax Areas:

Town: NONE
Ad Valorem: 195
Tax Class:

Primary Structure Built	Above Grade Enclosed Area	Finished Basement Area	Property Land Area	County Use
			93.6600 AC	

Stories	Basement	Type	Exterior	Full/Half Bath	Garage	Last Major Renovation

Value Information

	Base Value	Value As of 01/01/2013	Phase-in Assessments As of 07/01/2014	As of 07/01/2015
Land:	0	0		
Improvements	0	0		
Total:	0	0	0	0
Preferential Land:	0			0

Transfer Information

Seller: C & O RAILWAY	**Date:** 07/15/1988	**Price:** $0
Type: NON-ARMS LENGTH OTHER	**Deed1:** /00000/ 00000	**Deed2:**
Seller:	**Date:**	**Price:**
Type:	**Deed1:**	**Deed2:**
Seller:	**Date:**	**Price:**
Type:	**Deed1:**	**Deed2:**

Exemption Information

Partial Exempt Assessments:	Class	07/01/2014	07/01/2015
County:	000	0.00	
State:	000	0.00	
Municipal:	000	0.00|0.00	0.00|0.00

Tax Exempt:
Exempt Class:

Special Tax Recapture: NONE

Homestead Application Information

Homestead Application Status: No Application

1. This screen allows you to search the Real Property database and display property records.
2. Click **here** for a glossary of terms.

3. Deleted accounts can only be selected by Property Account Identifier.
4. The following pages are for information purpose only. The data is not to be used for legal reports or documents. While we have confidence in the accuracy of these records, the Department makes no warranties, expressed or implied, regarding the information.

Attachment 2

Completed Permit Application

COMMUNITY DEVELOPMENT DIVISION
FREDERICK COUNTY, MARYLAND
Department of Permits and Inspections
30 North Market Street • Frederick, Maryland 21701
Phone (301) 600-3474 • Fax (301) 600-2309

PERMIT INFORMATION
MINOR GRADING

(required when earth disturbance is over 5,000 square feet or cut and fill is over 100 cubic yards)

Check each box after verifying that requirement is met for submittal.

SUBMISSION REQUIREMENTS

Verified by Staff:
Date:

☒ 1. Completed, Attachment (A) Minor Grading/Standard Sediment Control Plan Application.

☒ 2. Completed, Attachment (B) Standard Stormwater Management Plan Application.

☒ 3. Three copies of plot plan. When at all possible, a legal survey should be used. If a survey is not being used, the plot plan can be drawn by hand. It must be legible and needs to include the following:

- ☐ Shape and size of property, including all property lines (and property line dimensions if possible)
- ☑ Acreage of the property
- ☑ North direction arrow
- ☑ Property Owner name(s)
- ☑ Street Address of property
- ☑ All natural resources include: streams, floodplain, ponds, etc.
- ☑ Limits of disturbances
- ☑ Entrance to property
- ☑ Existing and Proposed drainage paths

☒ 4. Print out from the Maryland Department of Assessments and Taxation Real Property Data website www.dat.state.md.us.

☒ 5. Fees are due at the time of application.

Minor Grading Permit

$	89.00	Minor Grading Review/Inspection Fee
$	60.00	Soil Conservation District Review Fee
$	55.00	Stormwater Management Review Fee
$	204.00	TOTAL

PROCEDURES

STEP ONE - APPLY FOR THE MINOR EARTH DISTURBANCE PERMIT

➔ Applications are accepted in the Department of Permits and Inspections at 30 North Market St.

➔ Applications are accepted Monday through Friday, (excluding County holidays) between 8:00am and 3:30pm.

➔ To ensure adequate time to complete your submittal, please apply prior to 3:00 pm.

STEP TWO - OBTAIN REVIEW APPROVALS

During processing, the Grading application will be reviewed by Environmental Compliance, Stormwater Management, Soil Conservation District and Zoning for approval. If there is any additional information required from you, you will receive a hold notice in the mail.

Issuance: The approved Grading Permit will be delivered to the applicant usually within 24 hours of issuance.

STEP THREE - PROVIDE PROPER NOTIFICATIONS

Pre-Notification:

Notice shall be provided to Environmental Compliance Section (ECS) at least 24 hours prior to commencing work.

Notice of Completion:

Notice shall be provided to Environmental Compliance Section (ECS) within 5 days of completing and stabilizing the earth disturbance. Failure to provide a notice of completion and receive an acceptable inspection could result in the assessment of a permit renewal fee.

GENERAL INFORMATION REGARDING RESIDENTIAL MINOR EARTH DISTURBANCES

➔ Grading Applications are non-transferable and non-assignable.

General Information	301-600-2313
Customer Service Supervisor *(Processing or Fee Questions)*	301-600-1089
Zoning Reviewer *(Plot Plans, Land Use, Flood Plain)*	301-600-1143
Environmental Compliance *(Perf. Agreements and Securities)*	301-600-3474
Stormwater Management Reviewer	301-600-1560
Soil Conservation District Reviewer	301-695-2803 x 3

FREDERICK COUNTY COMMUNITY DEVELOPMENT DIVISION

DEPARTMENT OF PERMITS AND INSPECTIONS
30 NORTH MARKET STREET
FREDERICK, MARYLAND 21701
301-600-2313 GENERAL INFORMATION
301-600-3507 ENVIRONMENTAL COMPLIANCE

ATTACHMENT (A) - Minor Grading

A/P #	
Process Date:	
Application Reviewed By (Initials):	

Minor Grading /Standard Sediment Control Plan Application

CONTACT INFORMATION

PROPERTY OWNER

Name(s): CSX Transportation

Current street address for above person(s): 500 Water Street, J275

Town: Jacksonville | *State:* Florida | *Zip:* 32202

Daytime Telephone Number: (518) 767-6049

E-mail Address: William_parry@csx.com

APPLICANT/CONTRACTOR

Company name (only complete when Contractor is applying): ARCADIS US., Inc

Current street (mailing) address for Contractor: 1114 Benfield Blvd. Suite A

Town: Millersville | *State:* Maryland | *Zip:* 21108

Contact Person for Contractor Ramzi Khuri

E-mail Address: Ramzi.Khuri@arcadis-us.com

Contractor Telephone Number: (410) 987-0032

PROPERTY INFORMATION

Current Property Owner(s): CSX Transportation

Property Address of Jobsite:

Town: Brunswick | *State:* Maryland | *Zip:* 21716

Acreage or Square Footage of Property: 93.66 Acres

Eight Digit Property Tax ID (account) # 296568

Description of Property Location if no Assigned Address:
Property is located approximately 400 feet east of the Brunswick MARC Transit station

Description of Work:
Replacement of existing underground drainage pipe

Total Property Area: (SF)		4,079,830	
Number of Lots:		*MAP/PAR*	0013

EARTH DISTURBANCE GRADING DETAILS

Total Disturbed Area: (SF)	23,398

Defined as surface area (length times width) of any excavating, stockpiling, scraping, grubbing, root mat or top soil disturbance or any combination thereof.

Quantity of Cut and Fill: (CY)	740

The measurement of the volume of excavation cut and/or fill as measured by the surface area times depth or height divided by 27.

Cleared Forest Area: (SF)	0

The square footage of a forested area where the proposed removal of trees will result in leaving less than 100 trees per acre, where 50% or more of those trees are 2 inches or greater is caliper. *Forest clearing greater than 20,000 square feet is subject to the Forest Resource Ordinance (FRO) requirements. If applicable a "Declaration of Intent" may be used to provide exemption from FRO requirements.

IMPORTANT PLEASE READ CAREFULLY

Limitations

A. This standard erosion and sediment control plan may be used instead of a detailed plan for earth disturbances where all of the following conditions are met:

1. No more then 30,000 square feet of earth will be disturbed and no more than 500 cubic yards of cut or fill will occur.
2. No slope steeper than 3 horizontal to 1 vertical (3:1) will be disturbed or created.
3. Cuts and/or fills will not exceed 10 feet in depth or height.
4. No earth disturbance shall occur within the limits of the 100-year floodplain of any stream, or 100 feet of any perennial stream.
5. No earth disturbance shall occur within 25 feet of any nontidal wetland or within 100 feet of any nontidal wetland of special State concern.
6. The proposed work does not require a State Waterway or Wetland Permit.
7. There is no contiguous land undergoing development by the same owner, builder, developer.

Minor Grading / Standard Sediment Control Plan Application

IMPORTANT PLEASE READ CAREFULLY

Conditions

A. Nothing herein relieves the applicant from complying with any and all federal, State and local requirements(e.g., Stormwater Management, Forest Conservation, Grading, etc.).

B. Duly authorized representatives of Frederick County shall be guaranteed right of entry to the property to inspect site work, materials, and plan conformance.

C. This agreement is subject to revocation by either Frederick County ECS or appropriate SCD whenever determination is made, and notice is given, that the applicant is in violation of County Ordinance and/or the limitations, conditions or requirements specified by this agreement.

D. This Agreement is valid for a period of one (1) year and must be renewed at least 60 days prior to expiration.

Requirements

A. Erosion and sediment control measures shall be installed prior to any earth disturbance except that necessary for installation of the controls.

B. All erosion and sediment control practices shall be installed and maintained according to the criteria contained in the most recent version of the Maryland Standards and specifications for Soil Erosion and Sediment Control.

C. All clearing and grading shall be completed in the following sequence:

1. Limit initial clearing and grubbing for the installation of the construction entrance, perimeter controls, and any remaining controls.
2. Install the stabilized construction entrance, perimeter silt fence, and any other sediment controls.
3. Provide temporary stabilization of any area that will not be actively graded within seven (7) days.

D. All erosion and sediment control devices require continual maintenance. Any controls that are damaged or disturbed shall be restored or repaired before the end of each day.

E. Development activities shall not impair any drainage, create an erosion hazard, or create a source of sediment to any adjacent watercourse, wetland or property.

F. Any pumping of water must be filtered and done in accordance of "B" above.

G. Following initial soil disturbance or re-disturbance, permanent or temporary stabilization shall be completed within three (3) calendar days on the surface areas of all sediment controls, stockpiles, and perimeter slopes: and seven (7) days for all other disturbed area on the site, not being actively graded.

CERTIFICATION AND SIGNATURE OF RESPONSIBLE PERSON

I, the undersigned, do hereby declare that the information contained herein and on any accompanying documentation is true, correct and complete to the best of my knowledge, and that I have the authority to make this application. I understand that intentional falsification and/or non-compliance with any of the terms and conditions set forth in this or accompanying documents may result in a Stop Work Oder, Civil Penalty or Criminal Charge depending on the severity, at the County's discretion.

Signature of APPLICANT *Date* *Please Print Name*

Soil Conservation District Approval by: *Date*

Nothing herein relieves the applicant from complying with any and all Federal, State and Local regulations that may be involved in conjunction with this application.

FREDERICK COUNTY COMMUNITY DEVELOPMENT DIVISION

DEPARTMENT OF PERMITS AND INSPECTIONS
30 NORTH MARKET STREET
FREDERICK, MARYLAND 21701
301-600-2313 GENERAL INFORMATION
301-600-1137 DEV. REVIEW ENGINEERING

ATTACHMENT (B) - Minor SWM

A/P #	
Process Date:	
Application Reviewed By (Initials):	

Standard Plan Agreement for Minor Stormwater Management

CONTACT INFORMATION

PROPERTY OWNER

Name(s): CSX Transportation

Current street address for above person(s): 500 Water Street, J275

Town: Jacksonville | *State:* Florida | *Zip:* 32202

Daytime Telephone Number: (518) 767-6049

E-mail Address: William_parry@csx.com

APPLICANT/CONTRACTOR

Company name (only complete when Contractor is applying): ARCADIS US., Inc

Current street (mailing) address for Contractor: 1114 Benfield Blvd. Suite A

Town: Millersville | *State:* Maryland | *Zip:* 21108

Contact Person for Contractor Ramzi Khuri

E-mail Address: Ramzi.Khuri@arcadis-us.com

Contractor Telephone Number: (410) 987-0032

PROPERTY INFORMATION

Current Property Owner(s): CSX Transportation

Property Address of Jobsite:

Town: Brunswick | *State:* Maryland | *Zip:* 21716

Acreage or Square Footage of Property: 93.66 Acres

Eight Digit Property Tax ID (account) # 296568

Description of Property Location if no Assigned Address:
Property is located approximately 400 feet east of the Brunswick MARC Transit station

Description of Work:
Replacement of existing underground drainage pipe

Total Property Area (SF): 4,079,830

Tax Map: 0101 | *Parcel:* 0013

EARTH DISTURBANCE GRADING DETAILS

Total Disturbed Area: (SF)	23,398

Defined as surface area (length times width) of any excavating, stockpiling, scraping, grubbing, root mat or top soil disturbance or any combination thereof.

Total Impervious Area: (SF)	0

Defined as any surface that does not allow stormwater to infiltrate into the ground at a rate at least the same as "Woods in good condition". (SWM Design Manual)

NOTE: The requirements for stormwater management in Frederick County Code Chapter 1-15.2 and the Code of Maryland Regulations (COMAR) will be satisfied if the environmental site design (ESD) practices are implemented to the maximum extent practicable (MEP) to treat runoff according to Chapter 5 of the 2007 Maryland Stormwater Design Manual (Design Manual).

IMPORTANT PLEASE READ CAREFULLY

Limitations

1. The project is a single lot residential construction, not within a developing subdivision, and there is no contiguous land undergoing development by the same owner, builder, or developer;
2. Total site impervious cover shall not exceed 15% of the lot size;
3. Total land disturbance during construction shall be less than 30,000 square feet;
4. Land area that is disturbed for septic system construction may be subtracted from the total disturbed area provided it is revegetated;
5. This Standard Plan shall not be used in areas of special concern (e.g. karst geology, sinkhole activity, surface water supply reservoirs, wellhead protection areas, sensitive stream systems, etc.) or if site conditions such as slope, soil type, high groundwater, etc. present a challenge; and
6. Documentation must be submitted to show that ESD has been implemented to the MEP before structural practices found in the Design Manual that address these characteristics and specified by Frederick County are used.

Conditions

The following conditions for design and construction shall be met and maintained. All stormwater management systems shall be designed by integrating site design, natural hydrology, and smaller controls to capture and treat runoff onsite. The standard for characterizing predevelopment runoff characteristics for new development projects shall be woods in good hydrologic condition. If the following design conditions are met, all stormwater management obligations will be satisfied.

Standard Plan Agreement for Minor Stormwater Management

IMPORTANT PLEASE READ CAREFULLY

Design

A.

1. All ESD practices shall be designed and located to prevent basement seepage, flooding, soil erosion, increases in nonpoint pollution and to minimize pollutants in stormwater runoff from both new and redevelopment.
2. All rooftop downspouts shall discharge to and drain continuously through at least 75 feet of vegetation (e.g. vegetated channel, swale, or filter strip) in a non-erosive manner to the property line.
3. To the extent practical, all other site impervious areas shall drain and discharge continuously through vegetation in a non-erosive manner. The length of the disconnection shall be equal to that of contributing impervious area.
4. All access roads and/or driveways constructed for this project shall use open sections in lieu of curb and gutter.
5. ESD practices may be used in lieu of providing the required rooftop and other impervious area vegetation lengths.
6. Design constraints specific to each ESD practice as specified in the Design Manual must be addressed.
7. The total impervious area draining to any ESD practice shall conform to the specifications listed in the Design Manual.
8. The drainage area to each rooftop downspout shall be 500 square feet or less. Drainage areas to individual downspouts greater than 500 square feet shall be treated using rain gardens, rain barrels, or other similar practices as approved by Frederick County.

B. The following information must be attached to this application for coverage under the Standard Plan:

1. Plat showing the dimensions of property lines and road frontage;
2. Location and dimensions of all proposed structures (e.g. house, garage, driveway, well, septic system);
3. If present, the location of the Critical Area Buffer, nontidal and tidal wetlands, perennial streams and their associated floodplain;
4. Limits of disturbance; and
5. The location of all disconnected impervious areas and ESD practices.

Construction

1. Frederick County, Environmental Compliance Section shall be contacted at least 48 hours prior to start of construction @ (301) 600-3507.
2. All stormwater practices and/or runoff controls shall be installed and maintained according to this Standard Plan and the criteria contained in Chapter 5 of the Design Manual. Subsequent alteration or modification of these practices requires written approval from Frederick County.
3. Access to the site will be made available at all reasonable times during construction and with reasonable notification after construction for inspection by Frederick County.
4. The applicant/homeowner shall promptly repair and/or restore all stormwater practices found in noncompliance by Frederick County.
5. Frederick County reserves the right to deny approval under this Standard Plan and require that an alternative design be prepared according to the Frederick County Code and the Design Manual.
6. Nothing in this Standard Plan relieves the applicant from complying with any and all Federal, State, and local laws and regulations.
7. At a minimum, inspections shall be made by Frederick County, Environmental Compliance Section, and documented for each ESD planning technique and practice upon completion of final grading, establishment of permanent stabilization, and before issuance of use and occupancy approval.
8. Coverage under this Standard Plan shall remain valid for two years from the date of approval.

CERTIFICATION AND SIGNATURE OF RESPONSIBLE PERSON

I, the undersigned, do hereby declare that the information contained herein and on any accompanying documentation is true, correct and complete to the best of my knowledge, and that I have the authority to make this application. I understand that intentional falsification and/or non-compliance with any of the terms and conditions set forth in this or accompanying documents may result in a Stop Work Oder, Civil Penalty or Criminal Charge depending on the severity, at the County's discretion.

Signature of APPLICANT *Date* *Please Print Name*

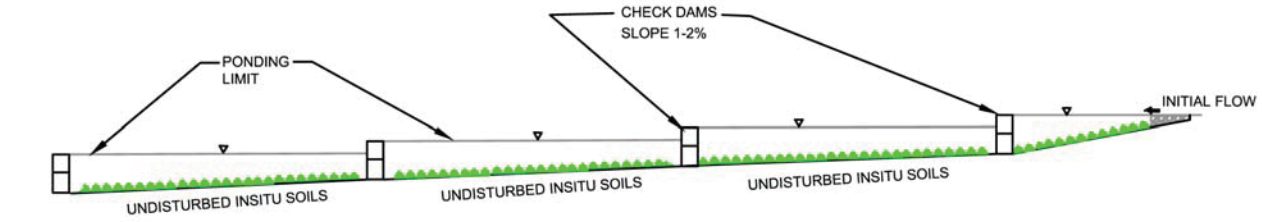
Soil Conservation District Approval, by: *Date*

Nothing herein relieves the applicant from complying with any and all Federal, State and Local regulations that may be involved in conjunction with this application.

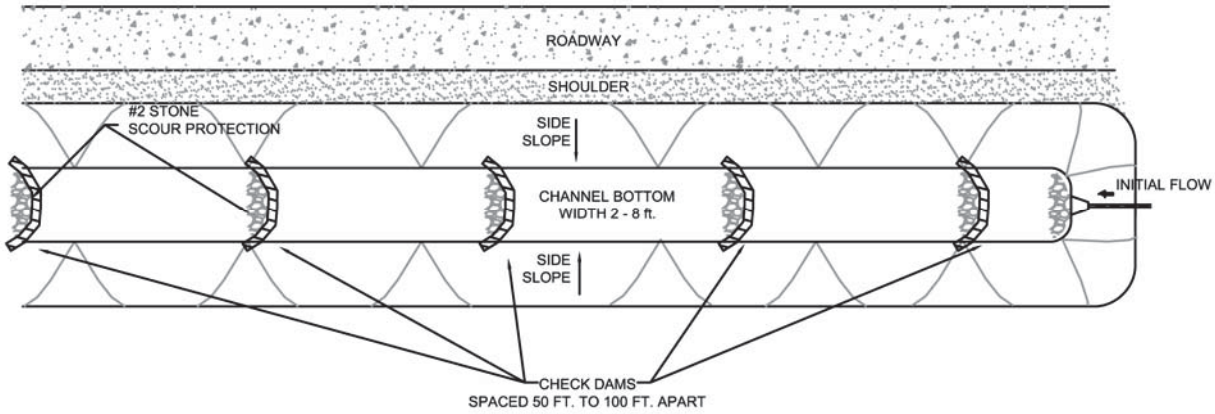
Attachment 3

3 copies of Design Drawings

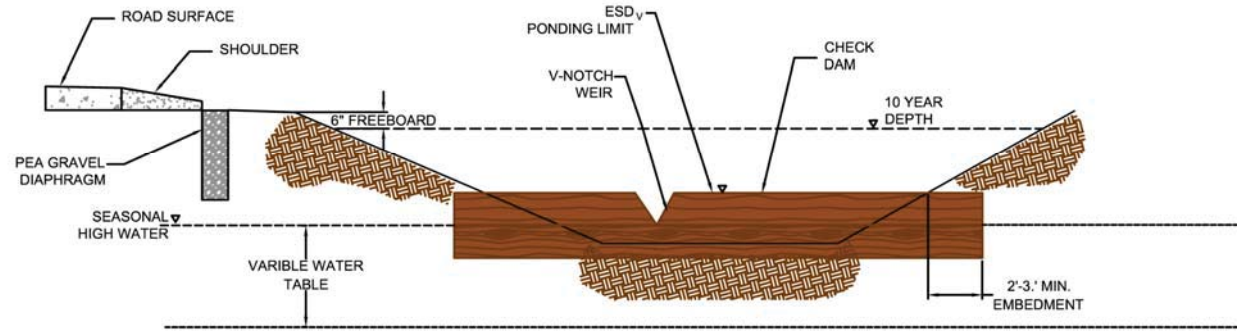
Figure 5.19 Wet Swale



Profile

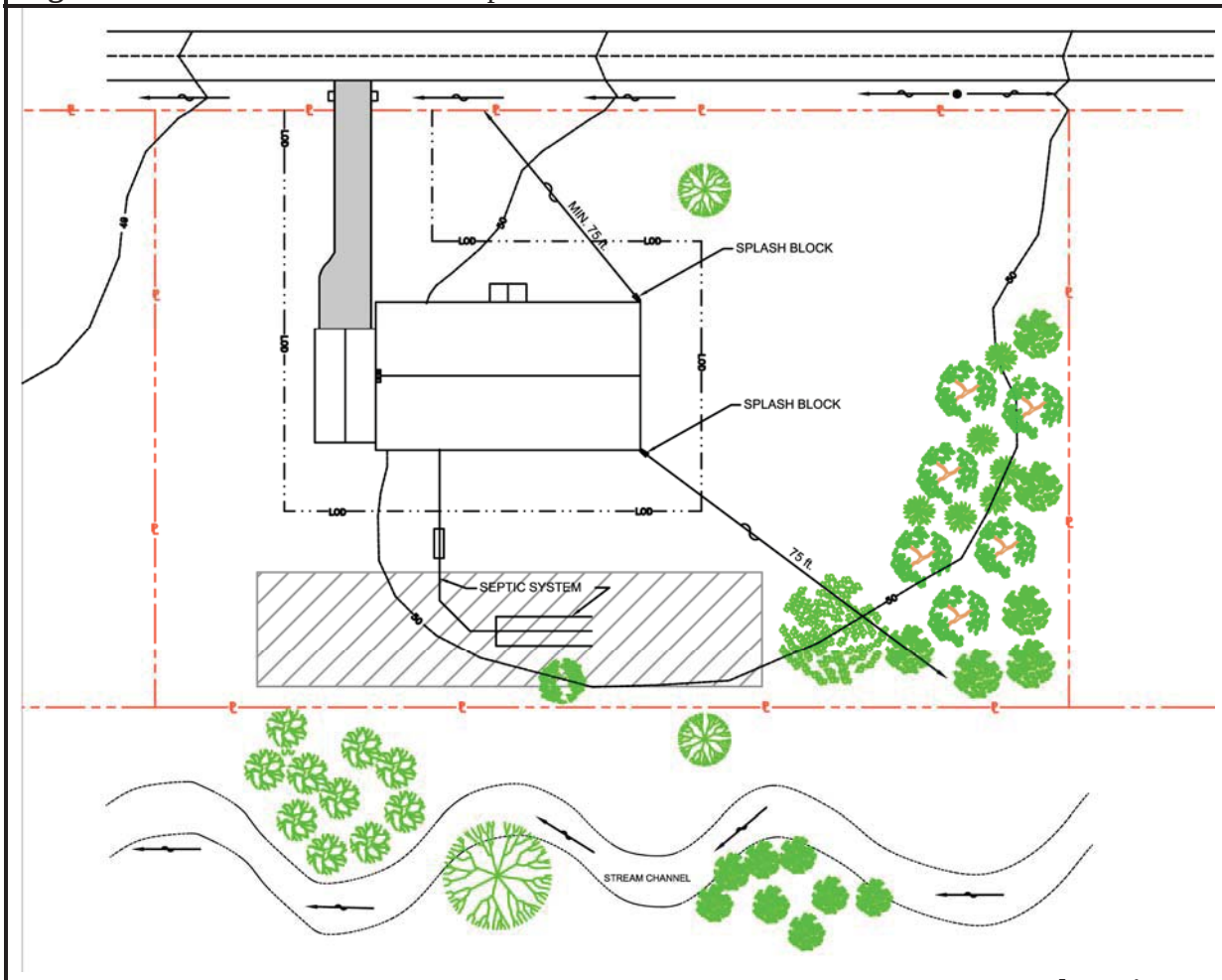


Plan View

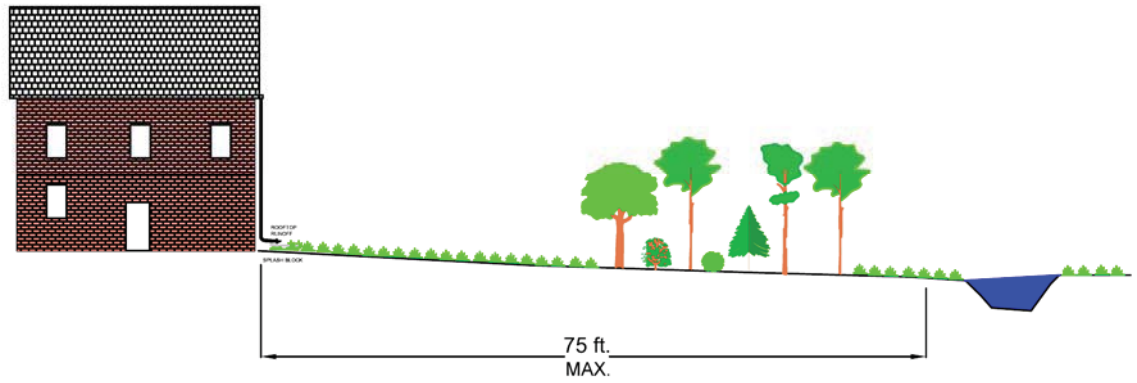


Section

Figure 5.4 Disconnection of Rooftop Runoff

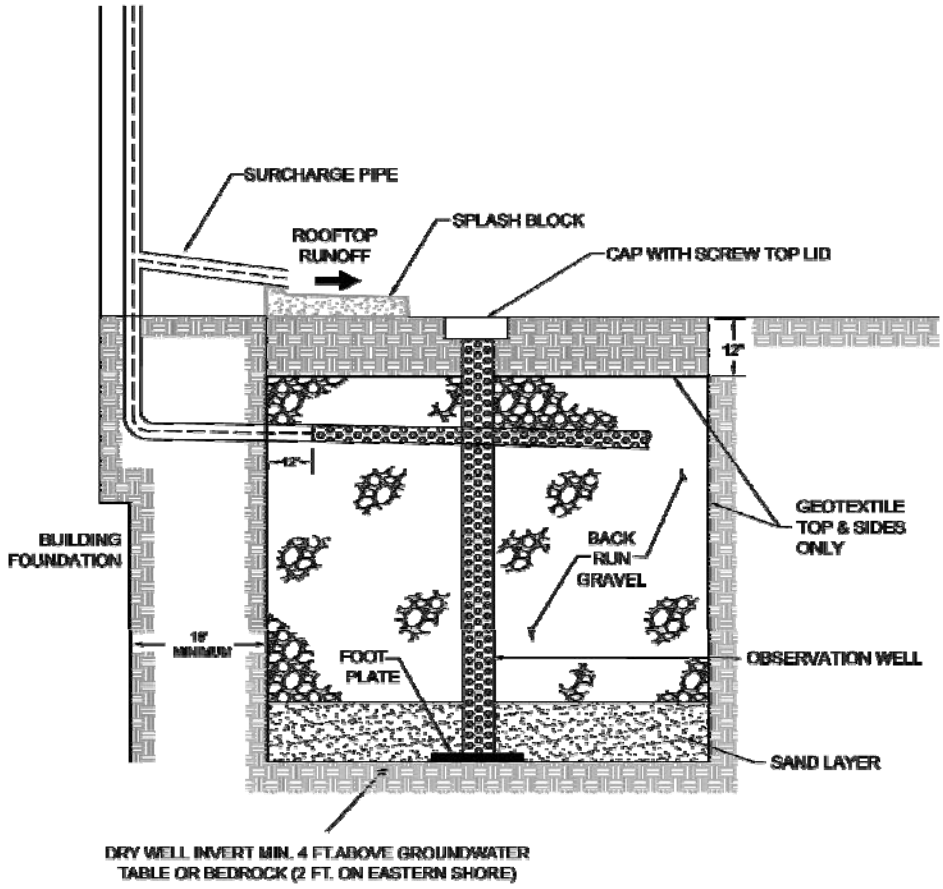


Plan View

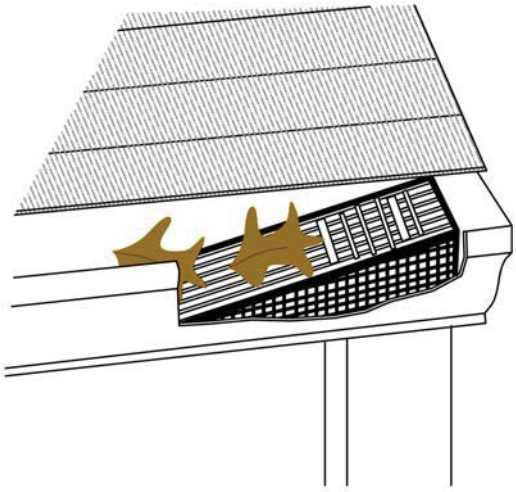


Profile

Figure 5.13 Dry Well

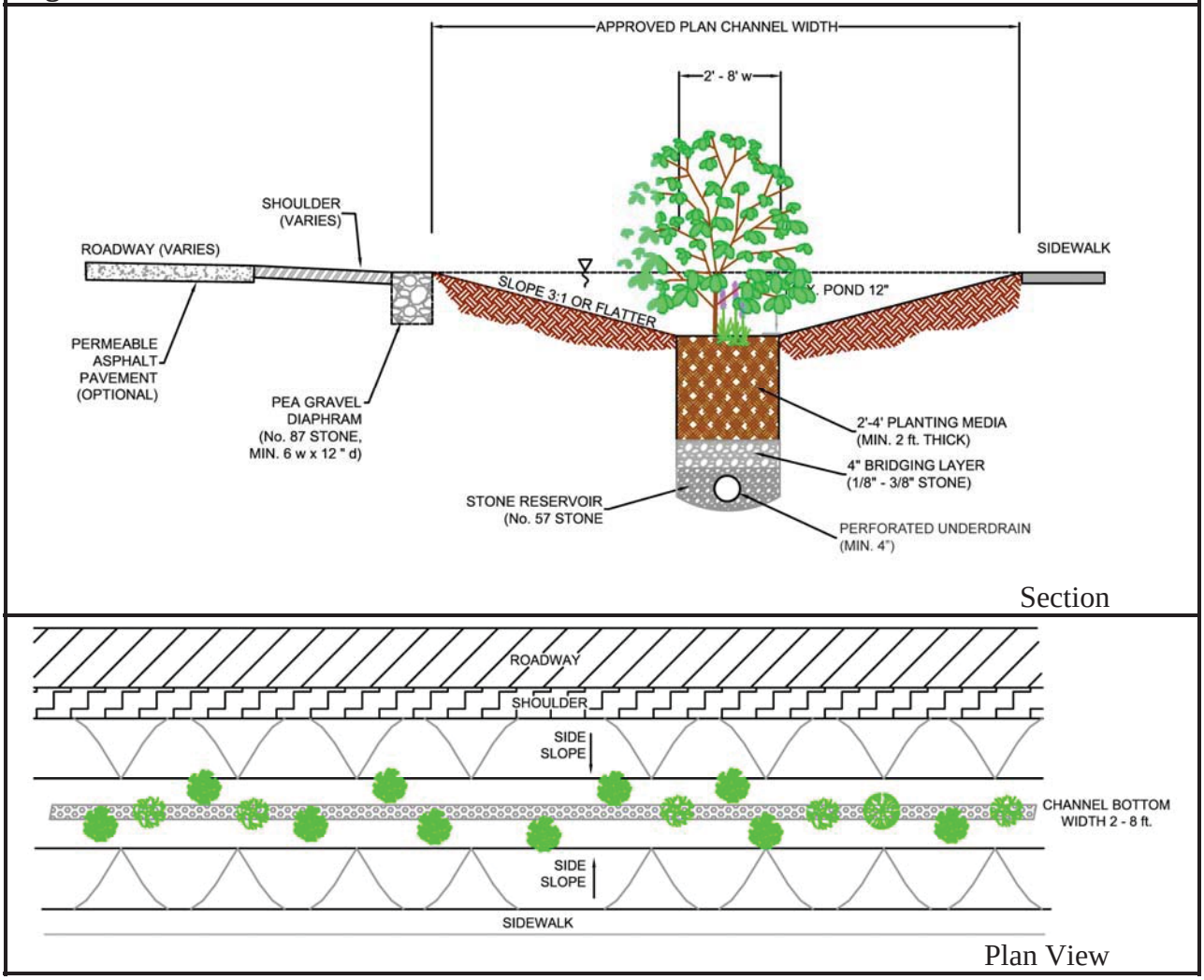


Section



Gutter Drain Filter (Typical)

Figure 5.18 Bio-Swale



Maintenance Criteria:

The following items should be addressed to ensure proper maintenance and long-term performance of swales:

- For grassed swales, regular mowing (at least bi-annually) is critical in order to reduce competition from weeds and irrigation may be needed during dry weather to establish vegetation. Sparsely vegetated areas need to be re-seeded to maintain dense coverage.

- If water does not drain within 48 hours, the bottom soil should be tilled and revegetated.

- Inspections should be performed once a year to assess slope integrity, vegetative health, soil stability, compaction, erosion, ponding, and sedimentation. Periodic removal of sediment, litter, or obstructions should be done as needed. Eroded side slopes and the swale bottom should be repaired and stabilized where needed.

COMMUNITY DEVELOPMENT DIVISION
FREDERICK COUNTY, MARYLAND
Department of Permits and Inspections
30 North Market Street • Frederick, Maryland 21701
Phone (301) 600-3474 • Fax (301) 600-2309

PERMIT INFORMATION
MINOR GRADING

(required when earth disturbance is over 5,000 square feet or cut and fill is over 100 cubic yards)

Check each box after verifying that requirement is met for submittal.

SUBMISSION REQUIREMENTS

Verified by Staff:
Date:

☒ 1. Completed, Attachment (A) Minor Grading/Standard Sediment Control Plan Application.

☒ 2. Completed, Attachment (B) Standard Stormwater Management Plan Application.

☒ 3. Three copies of plot plan. When at all possible, a legal survey should be used. If a survey is not being used, the plot plan can be drawn by hand. It must be legible and needs to include the following:

- ☐ Shape and size of property, including all property lines (and property line dimensions if possible)
- ☑ Acreage of the property
- ☑ North direction arrow
- ☑ Property Owner name(s)
- ☑ Street Address of property
- ☑ All natural resources include: streams, floodplain, ponds, etc.
- ☑ Limits of disturbances
- ☑ Entrance to property
- ☑ Existing and Proposed drainage paths

☒ 4. Print out from the Maryland Department of Assessments and Taxation Real Property Data website www.dat.state.md.us.

☒ 5. Fees are due at the time of application.

Minor Grading Permit

$	89.00	Minor Grading Review/Inspection Fee
$	60.00	Soil Conservation District Review Fee
$	55.00	Stormwater Management Review Fee
$	204.00	TOTAL

PROCEDURES

STEP ONE - APPLY FOR THE MINOR EARTH DISTURBANCE PERMIT

➔ Applications are accepted in the Department of Permits and Inspections at 30 North Market St.

➔ Applications are accepted Monday through Friday, (excluding County holidays) between 8:00am and 3:30pm.

➔ To ensure adequate time to complete your submittal, please apply prior to 3:00 pm.

STEP TWO - OBTAIN REVIEW APPROVALS

During processing, the Grading application will be reviewed by Environmental Compliance, Stormwater Management, Soil Conservation District and Zoning for approval. If there is any additional information required from you, you will receive a hold notice in the mail.

Issuance: The approved Grading Permit will be delivered to the applicant usually within 24 hours of issuance.

STEP THREE - PROVIDE PROPER NOTIFICATIONS

Pre-Notification:

Notice shall be provided to Environmental Compliance Section (ECS) at least 24 hours prior to commencing work.

Notice of Completion:

Notice shall be provided to Environmental Compliance Section (ECS) within 5 days of completing and stabilizing the earth disturbance. Failure to provide a notice of completion and receive an acceptable inspection could result in the assessment of a permit renewal fee.

GENERAL INFORMATION REGARDING RESIDENTIAL MINOR EARTH DISTURBANCES

➔ Grading Applications are non-transferable and non-assignable.

General Information	301-600-2313
Customer Service Supervisor *(Processing or Fee Questions)*	301-600-1089
Zoning Reviewer *(Plot Plans, Land Use, Flood Plain)*	301-600-1143
Environmental Compliance *(Perf. Agreements and Securities)*	301-600-3474
Stormwater Management Reviewer	301-600-1560
Soil Conservation District Reviewer	301-695-2803 x 3

FREDERICK COUNTY COMMUNITY DEVELOPMENT DIVISION

DEPARTMENT OF PERMITS AND INSPECTIONS
30 NORTH MARKET STREET
FREDERICK, MARYLAND 21701
301-600-2313 GENERAL INFORMATION
301-600-3507 ENVIRONMENTAL COMPLIANCE

ATTACHMENT (A) - Minor Grading

A/P #	
Process Date:	
Application Reviewed By (Initials):	

Minor Grading /Standard Sediment Control Plan Application

CONTACT INFORMATION

PROPERTY OWNER

Name(s): CSX Transportation

Current street address for above person(s): 500 Water Street, J275

Town: Jacksonville | *State:* Florida | *Zip:* 32202

Daytime Telephone Number: (518) 767-6049

E-mail Address: William_parry@csx.com

APPLICANT/CONTRACTOR

Company name (only complete when Contractor is applying): ARCADIS US., Inc

Current street (mailing) address for Contractor: 1114 Benfield Blvd. Suite A

Town: Millersville | *State:* Maryland | *Zip:* 21108

Contact Person for Contractor Ramzi Khuri

E-mail Address: Ramzi.Khuri@arcadis-us.com

Contractor Telephone Number: (410) 987-0032

PROPERTY INFORMATION

Current Property Owner(s): CSX Transportation

Property Address of Jobsite:

Town: Brunswick | *State:* Maryland | *Zip:* 21716

Acreage or Square Footage of Property: 93.66 Acres

Eight Digit Property Tax ID (account) # 296568

Description of Property Location if no Assigned Address:
Property is located approximately 400 feet east of the Brunswick MARC Transit station

Description of Work:
Replacement of existing underground drainage pipe

Total Property Area: (SF)		4,079,830	
Number of Lots:		*MAP/PAR*	0013

EARTH DISTURBANCE GRADING DETAILS

Total Disturbed Area: (SF)	23,398

Defined as surface area (length times width) of any excavating, stockpiling, scraping, grubbing, root mat or top soil disturbance or any combination thereof.

Quantity of Cut and Fill: (CY)	740

The measurement of the volume of excavation cut and/or fill as measured by the surface area times depth or height divided by 27.

Cleared Forest Area: (SF)	0

The square footage of a forested area where the proposed removal of trees will result in leaving less than 100 trees per acre, where 50% or more of those trees are 2 inches or greater is caliper. *Forest clearing greater than 20,000 square feet is subject to the Forest Resource Ordinance (FRO) requirements. If applicable a "Declaration of Intent" may be used to provide exemption from FRO requirements.

IMPORTANT PLEASE READ CAREFULLY

Limitations

A. This standard erosion and sediment control plan may be used instead of a detailed plan for earth disturbances where all of the following conditions are met:

1. No more then 30,000 square feet of earth will be disturbed and no more than 500 cubic yards of cut or fill will occur.
2. No slope steeper than 3 horizontal to 1 vertical (3:1) will be disturbed or created.
3. Cuts and/or fills will not exceed 10 feet in depth or height.
4. No earth disturbance shall occur within the limits of the 100-year floodplain of any stream, or 100 feet of any perennial stream.
5. No earth disturbance shall occur within 25 feet of any nontidal wetland or within 100 feet of any nontidal wetland of special State concern.
6. The proposed work does not require a State Waterway or Wetland Permit.
7. There is no contiguous land undergoing development by the same owner, builder, developer.

Minor Grading / Standard Sediment Control Plan Application

IMPORTANT PLEASE READ CAREFULLY

Conditions

A. Nothing herein relieves the applicant from complying with any and all federal, State and local requirements(e.g., Stormwater Management, Forest Conservation, Grading, etc.).

B. Duly authorized representatives of Frederick County shall be guaranteed right of entry to the property to inspect site work, materials, and plan conformance.

C. This agreement is subject to revocation by either Frederick County ECS or appropriate SCD whenever determination is made, and notice is given, that the applicant is in violation of County Ordinance and/or the limitations, conditions or requirements specified by this agreement.

D. This Agreement is valid for a period of one (1) year and must be renewed at least 60 days prior to expiration.

Requirements

A. Erosion and sediment control measures shall be installed prior to any earth disturbance except that necessary for installation of the controls.

B. All erosion and sediment control practices shall be installed and maintained according to the criteria contained in the most recent version of the Maryland Standards and specifications for Soil Erosion and Sediment Control.

C. All clearing and grading shall be completed in the following sequence:

1. Limit initial clearing and grubbing for the installation of the construction entrance, perimeter controls, and any remaining controls.
2. Install the stabilized construction entrance, perimeter silt fence, and any other sediment controls.
3. Provide temporary stabilization of any area that will not be actively graded within seven (7) days.

D. All erosion and sediment control devices require continual maintenance. Any controls that are damaged or disturbed shall be restored or repaired before the end of each day.

E. Development activities shall not impair any drainage, create an erosion hazard, or create a source of sediment to any adjacent watercourse, wetland or property.

F. Any pumping of water must be filtered and done in accordance of "B" above.

G. Following initial soil disturbance or re-disturbance, permanent or temporary stabilization shall be completed within three (3) calendar days on the surface areas of all sediment controls, stockpiles, and perimeter slopes: and seven (7) days for all other disturbed area on the site, not being actively graded.

CERTIFICATION AND SIGNATURE OF RESPONSIBLE PERSON

I, the undersigned, do hereby declare that the information contained herein and on any accompanying documentation is true, correct and complete to the best of my knowledge, and that I have the authority to make this application. I understand that intentional falsification and/or non-compliance with any of the terms and conditions set forth in this or accompanying documents may result in a Stop Work Oder, Civil Penalty or Criminal Charge depending on the severity, at the County's discretion.

Signature of APPLICANT *Date* *Please Print Name*

Soil Conservation District Approval by: *Date*

Nothing herein relieves the applicant from complying with any and all Federal, State and Local regulations that may be involved in conjunction with this application.

FREDERICK COUNTY COMMUNITY DEVELOPMENT DIVISION

DEPARTMENT OF PERMITS AND INSPECTIONS
30 NORTH MARKET STREET
FREDERICK, MARYLAND 21701
301-600-2313 GENERAL INFORMATION
301-600-1137 DEV. REVIEW ENGINEERING

ATTACHMENT (B) - Minor SWM

A/P #	
Process Date:	
Application Reviewed By (Initials):	

Standard Plan Agreement for Minor Stormwater Management

CONTACT INFORMATION

PROPERTY OWNER

Name(s): CSX Transportation

Current street address for above person(s): 500 Water Street, J275

Town: Jacksonville | *State:* Florida | *Zip:* 32202

Daytime Telephone Number: (518) 767-6049

E-mail Address: William_parry@csx.com

APPLICANT/CONTRACTOR

Company name (only complete when Contractor is applying): ARCADIS US., Inc

Current street (mailing) address for Contractor: 1114 Benfield Blvd. Suite A

Town: Millersville | *State:* Maryland | *Zip:* 21108

Contact Person for Contractor Ramzi Khuri

E-mail Address: Ramzi.Khuri@arcadis-us.com

Contractor Telephone Number: (410) 987-0032

PROPERTY INFORMATION

Current Property Owner(s): CSX Transportation

Property Address of Jobsite:

Town: Brunswick | *State:* Maryland | *Zip:* 21716

Acreage or Square Footage of Property: 93.66 Acres

Eight Digit Property Tax ID (account) # 296568

Description of Property Location if no Assigned Address:
Property is located approximately 400 feet east of the Brunswick MARC Transit station

Description of Work:
Replacement of existing underground drainage pipe

Total Property Area (SF): 4,079,830

Tax Map: 0101 | *Parcel:* 0013

EARTH DISTURBANCE GRADING DETAILS

Total Disturbed Area: (SF)	23,398

Defined as surface area (length times width) of any excavating, stockpiling, scraping, grubbing, root mat or top soil disturbance or any combination thereof.

Total Impervious Area: (SF)	0

Defined as any surface that does not allow stormwater to infiltrate into the ground at a rate at least the same as "Woods in good condition". (SWM Design Manual)

NOTE: The requirements for stormwater management in Frederick County Code Chapter 1-15.2 and the Code of Maryland Regulations (COMAR) will be satisfied if the environmental site design (ESD) practices are implemented to the maximum extent practicable (MEP) to treat runoff according to Chapter 5 of the 2007 Maryland Stormwater Design Manual (Design Manual).

IMPORTANT PLEASE READ CAREFULLY

Limitations

1. The project is a single lot residential construction, not within a developing subdivision, and there is no contiguous land undergoing development by the same owner, builder, or developer;
2. Total site impervious cover shall not exceed 15% of the lot size;
3. Total land disturbance during construction shall be less than 30,000 square feet;
4. Land area that is disturbed for septic system construction may be subtracted from the total disturbed area provided it is revegetated;
5. This Standard Plan shall not be used in areas of special concern (e.g. karst geology, sinkhole activity, surface water supply reservoirs, wellhead protection areas, sensitive stream systems, etc.) or if site conditions such as slope, soil type, high groundwater, etc. present a challenge; and
6. Documentation must be submitted to show that ESD has been implemented to the MEP before structural practices found in the Design Manual that address these characteristics and specified by Frederick County are used.

Conditions

The following conditions for design and construction shall be met and maintained. All stormwater management systems shall be designed by integrating site design, natural hydrology, and smaller controls to capture and treat runoff onsite. The standard for characterizing predevelopment runoff characteristics for new development projects shall be woods in good hydrologic condition. If the following design conditions are met, all stormwater management obligations will be satisfied.

Standard Plan Agreement for Minor Stormwater Management

IMPORTANT PLEASE READ CAREFULLY

Design

A.

1. All ESD practices shall be designed and located to prevent basement seepage, flooding, soil erosion, increases in nonpoint pollution and to minimize pollutants in stormwater runoff from both new and redevelopment.
2. All rooftop downspouts shall discharge to and drain continuously through at least 75 feet of vegetation (e.g. vegetated channel, swale, or filter strip) in a non-erosive manner to the property line.
3. To the extent practical, all other site impervious areas shall drain and discharge continuously through vegetation in a non-erosive manner. The length of the disconnection shall be equal to that of contributing impervious area.
4. All access roads and/or driveways constructed for this project shall use open sections in lieu of curb and gutter.
5. ESD practices may be used in lieu of providing the required rooftop and other impervious area vegetation lengths.
6. Design constraints specific to each ESD practice as specified in the Design Manual must be addressed.
7. The total impervious area draining to any ESD practice shall conform to the specifications listed in the Design Manual.
8. The drainage area to each rooftop downspout shall be 500 square feet or less. Drainage areas to individual downspouts greater than 500 square feet shall be treated using rain gardens, rain barrels, or other similar practices as approved by Frederick County.

B. The following information must be attached to this application for coverage under the Standard Plan:

1. Plat showing the dimensions of property lines and road frontage;
2. Location and dimensions of all proposed structures (e.g. house, garage, driveway, well, septic system);
3. If present, the location of the Critical Area Buffer, nontidal and tidal wetlands, perennial streams and their associated floodplain;
4. Limits of disturbance; and
5. The location of all disconnected impervious areas and ESD practices.

Construction

1. Frederick County, Environmental Compliance Section shall be contacted at least 48 hours prior to start of construction @ (301) 600-3507.
2. All stormwater practices and/or runoff controls shall be installed and maintained according to this Standard Plan and the criteria contained in Chapter 5 of the Design Manual. Subsequent alteration or modification of these practices requires written approval from Frederick County.
3. Access to the site will be made available at all reasonable times during construction and with reasonable notification after construction for inspection by Frederick County.
4. The applicant/homeowner shall promptly repair and/or restore all stormwater practices found in noncompliance by Frederick County.
5. Frederick County reserves the right to deny approval under this Standard Plan and require that an alternative design be prepared according to the Frederick County Code and the Design Manual.
6. Nothing in this Standard Plan relieves the applicant from complying with any and all Federal, State, and local laws and regulations.
7. At a minimum, inspections shall be made by Frederick County, Environmental Compliance Section, and documented for each ESD planning technique and practice upon completion of final grading, establishment of permanent stabilization, and before issuance of use and occupancy approval.
8. Coverage under this Standard Plan shall remain valid for two years from the date of approval.

CERTIFICATION AND SIGNATURE OF RESPONSIBLE PERSON

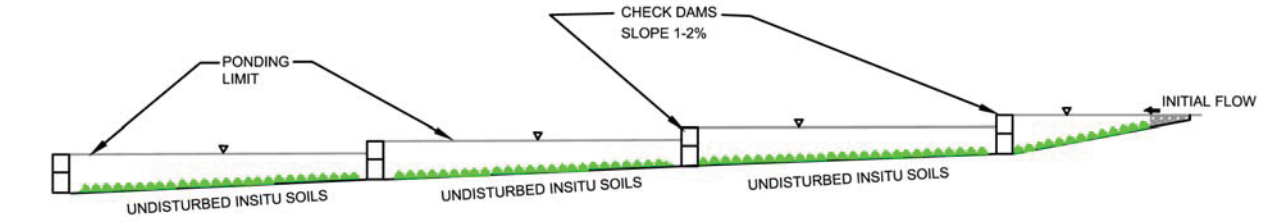
I, the undersigned, do hereby declare that the information contained herein and on any accompanying documentation is true, correct and complete to the best of my knowledge, and that I have the authority to make this application. I understand that intentional falsification and/or non-compliance with any of the terms and conditions set forth in this or accompanying documents may result in a Stop Work Oder, Civil Penalty or Criminal Charge depending on the severity, at the County's discretion.

Signature of APPLICANT *Date* *Please Print Name*

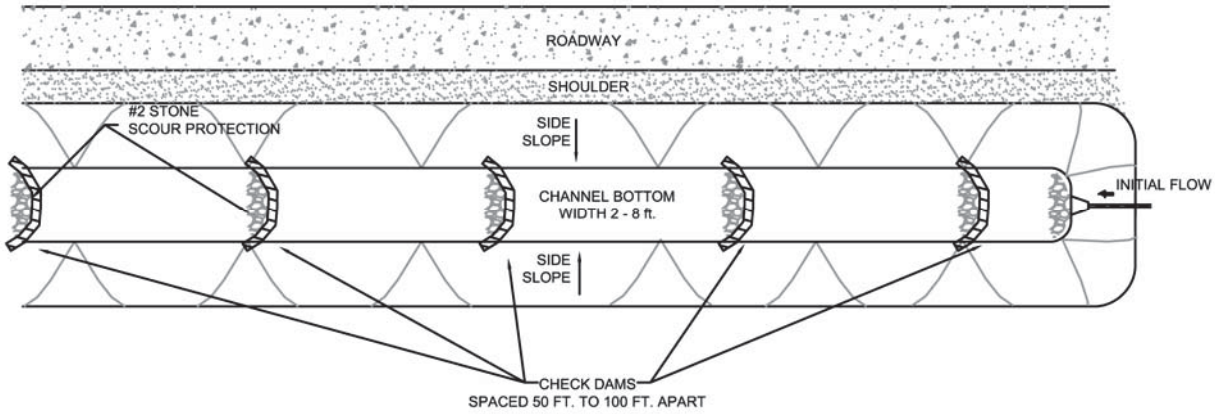
Soil Conservation District Approval, by: *Date*

Nothing herein relieves the applicant from complying with any and all Federal, State and Local regulations that may be involved in conjunction with this application.

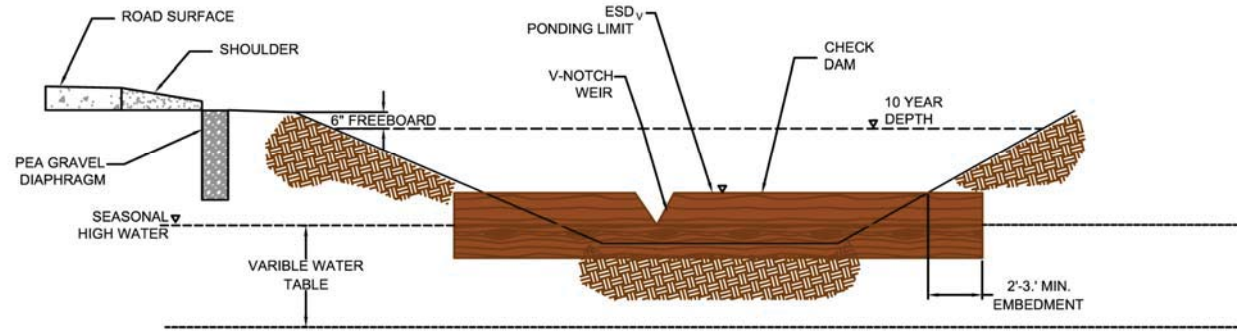
Figure 5.19 Wet Swale



Profile

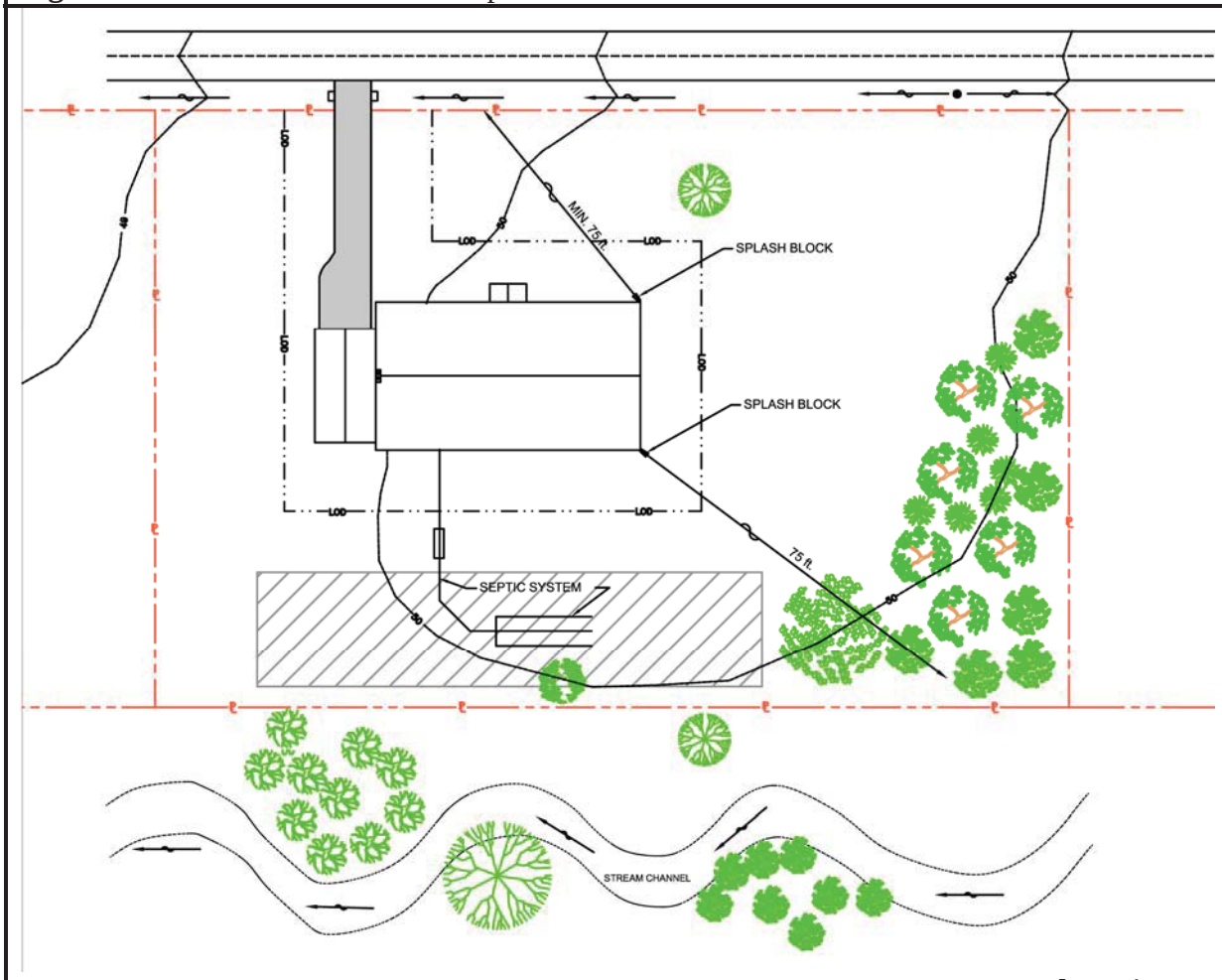


Plan View



Section

Figure 5.4 Disconnection of Rooftop Runoff



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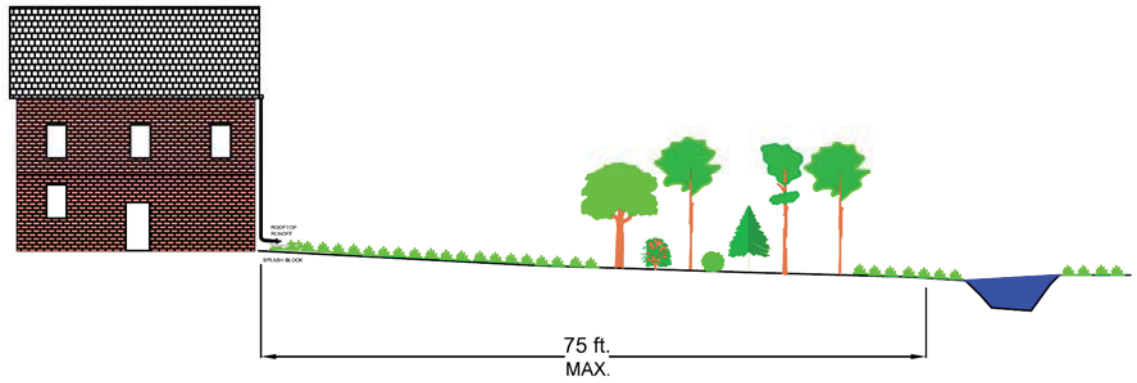
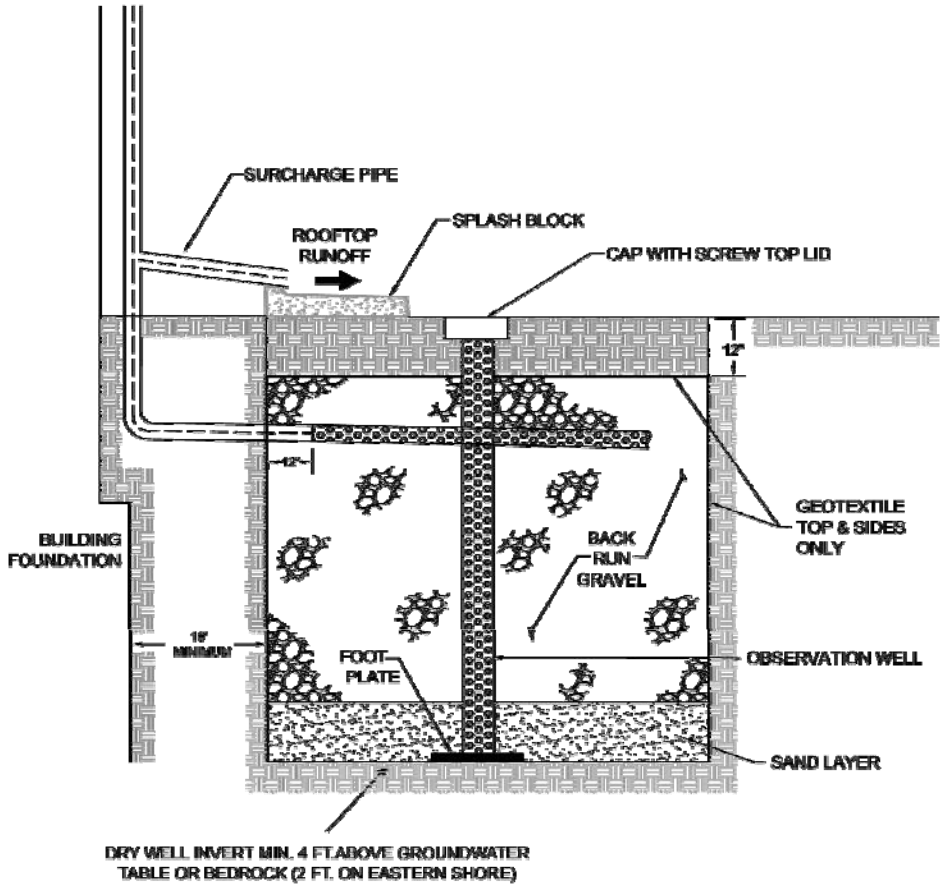
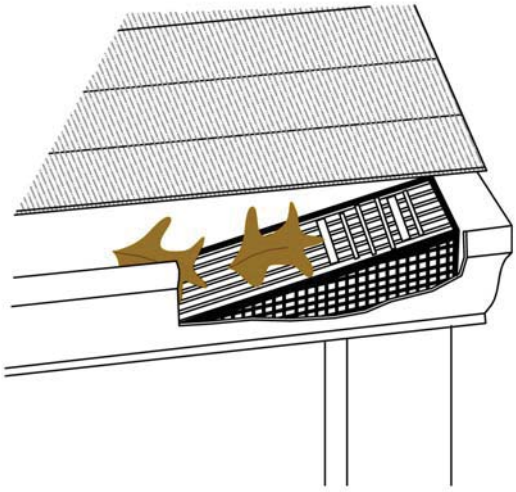


Profile

Figure 5.13 Dry Well

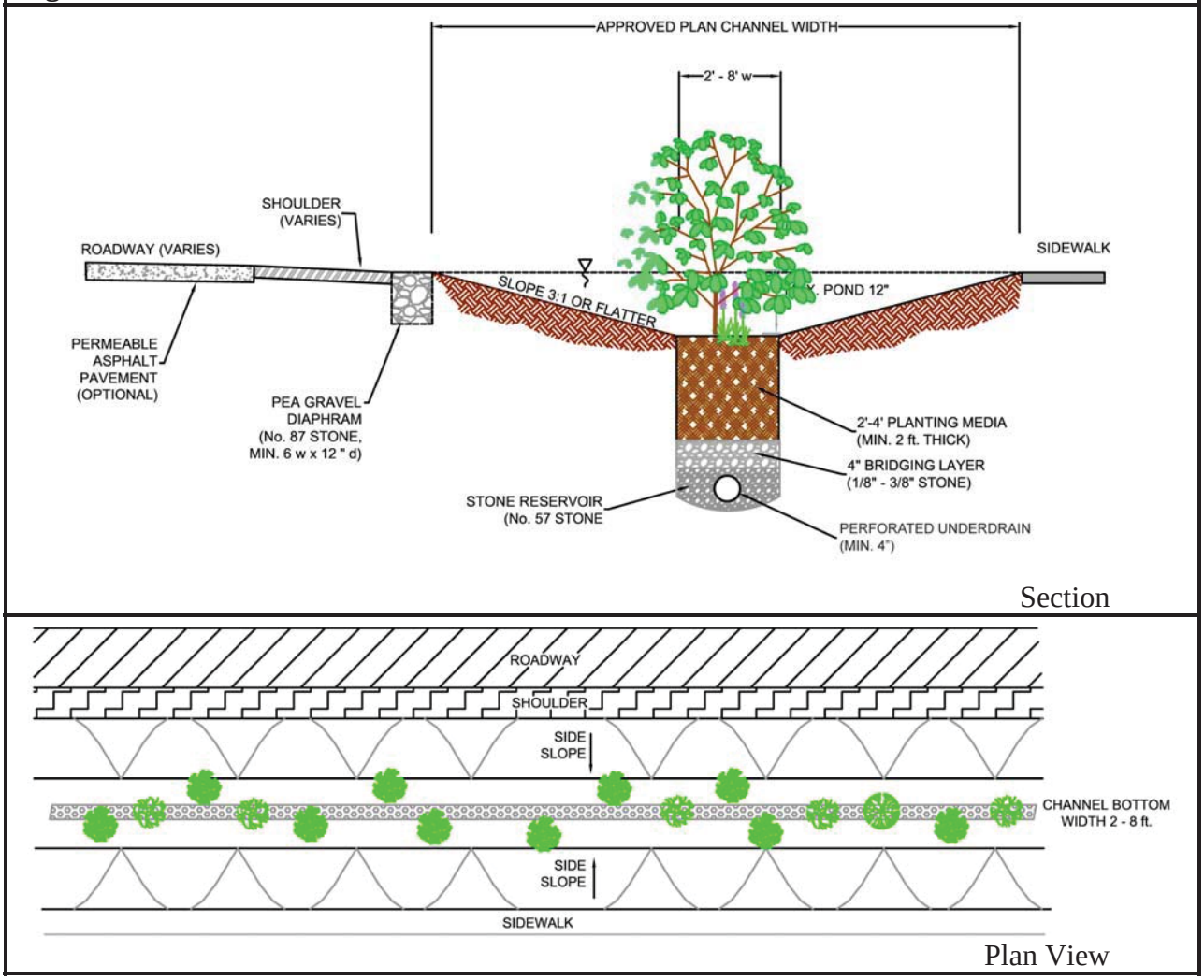


Section



Gutter Drain Filter (Typical)

Figure 5.18 Bio-Swale



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- Inspections should be performed once a year to assess slope integrity, vegetative health, soil stability, compaction, erosion, ponding, and sedimentation. Periodic removal of sediment, litter, or obstructions should be done as needed. Eroded side slopes and the swale bottom should be repaired and stabilized where needed.

ARCADIS U.S., Inc.
1114 Benfield Blvd. Suite A
Millersville, Maryland 21108
Tel 410.923.7815
Fax 410.987.4392
www.arcadis-us.com

Maryland Department of the Environment
Water Management Administration
Tidal Wetlands Division
1800 Washington Blvd. Ste 430
Baltimore, MD 21230

ENVIRONMENT

Subject:
Underground Discharge Pipe Replacement Narrative
CSX Transportation, Inc.
CSX Transportation Rail Yard
Brunswick, Maryland

Date:
February 25, 2015

Dear Sir or Madam:

Contact:
Ramzi Khuri
Phone:
410-923-7815
Email:
Ramzi.khuri@arcadis-us.com

ARCADIS U.S., Inc. on behalf of CSX Transpiration, Inc. (CSXT), is submitting a Joint Federal/State Application for the Alteration a Floodplain in Maryland for the above-referenced site as well as a Pipe Replacement Work Plan (PRWP). The PRWP describes the underground discharge pipe replacement activities to be performed at the Former rail yard site located at 100 South Maple Avenue in Brunswick, Maryland (Site). As seen on **Figure 1**, the site lies entirely within the 100 year flood plain of the Potomac River. The completed Wetlands and Waterways Permit Application is included within **Attachment 1**.

The proposed pipe replacement activities will require temporary disturbance of approximately 0.54 acres. Intrusive activities include excavation and off-site disposal of impacted soils, excavation and disposal of a brick and mortar pipe (BAMP), replacement of the brick and mortar pipe with an HDPE pipe, installation of concrete manholes, backfilling of excavations, and restoration of disturbed areas. There is no development planned, however, the replacement of the existing BAMP with an HDPE pipe will be a permanent improvement. The existing ground cover within the proposed limits of excavation is not vegetated and is stabilized with gravel. Following the completion of excavation and pipe replacement activities, the excavation will be backfilled to restore grades and surface elevations to existing conditions, as shown in the Design Drawings in Attachment 2. There will be no increase in stormwater runoff, volumes or discharge rates associated following restoration of disturbed areas associated with the proposed pipe replacement activities.

Construction Scope and Methodology

The general construction sequence and methodology for replacing the BAMP is shown on **Drawing 1 of Attachment 2**. The local topography is very flat with little discernable slope and mainly consists concrete pads and gravel fill as shown on **Drawing 2 of Attachment 2**. Site preparation, truck traffic, and construction layout will be conducted in accordance with the Design Drawings presented within **Attachment 2** (**Drawings 3 and 4**).

The BAMP will be replaced with HDPE pipe and is approximately 5 to 8 feet below ground surface (ft bgs) and approximately 294 lineal feet long. The vertical extent of the BAMP replacement, material requirements, and backfill thicknesses are shown on **Drawing 5 of Attachment 2**. Three new concrete manholes will be installed along the alignment of the replacement HDPE pipe in accordance with **Drawing 6 of Attachment 2**; one of these manholes will be installed to replace an existing concrete vault that connects to the BAMP.

Erosion and Sediment Controls will be conducted in accordance with **Drawings 4 and 7 of Attachment 2**. Silt fence will be installed around the excavation areas and around any soil stockpiled on Site to mitigate migration of sediment-laden runoff. One stabilized construction entrance will be installed to provide a stable area for entrance and exit from the Site and to reduce tracking of sediment onto roadways. Excavation activities will be timed to be conducted during times when no precipitation is expected.

Construction Schedule

The scope of work discussed above will proceed upon acquiring an MDE Wetland and Waterways Permit as well as acceptance of the Frederick County Minor Grading Plan. A preliminary schedule is provided below:

1. Contracting, pre-construction submittals, and mobilization: **3 weeks**
2. Site preparation (erosion and sediment controls, survey, utility clearance): **1 week**
3. Removal and replacement of BAMP: **2 weeks**
4. Demobilization: **3 days**

ARCADIS

If you have any questions regarding this information please contact Ramzi Khuri at (410) 923-7815.

Sincerely,

ARCADIS U.S., Inc.

Ramzi Khuri, P.E.
Principal Civil Engineer

Copies:

ATTACHMENTS:

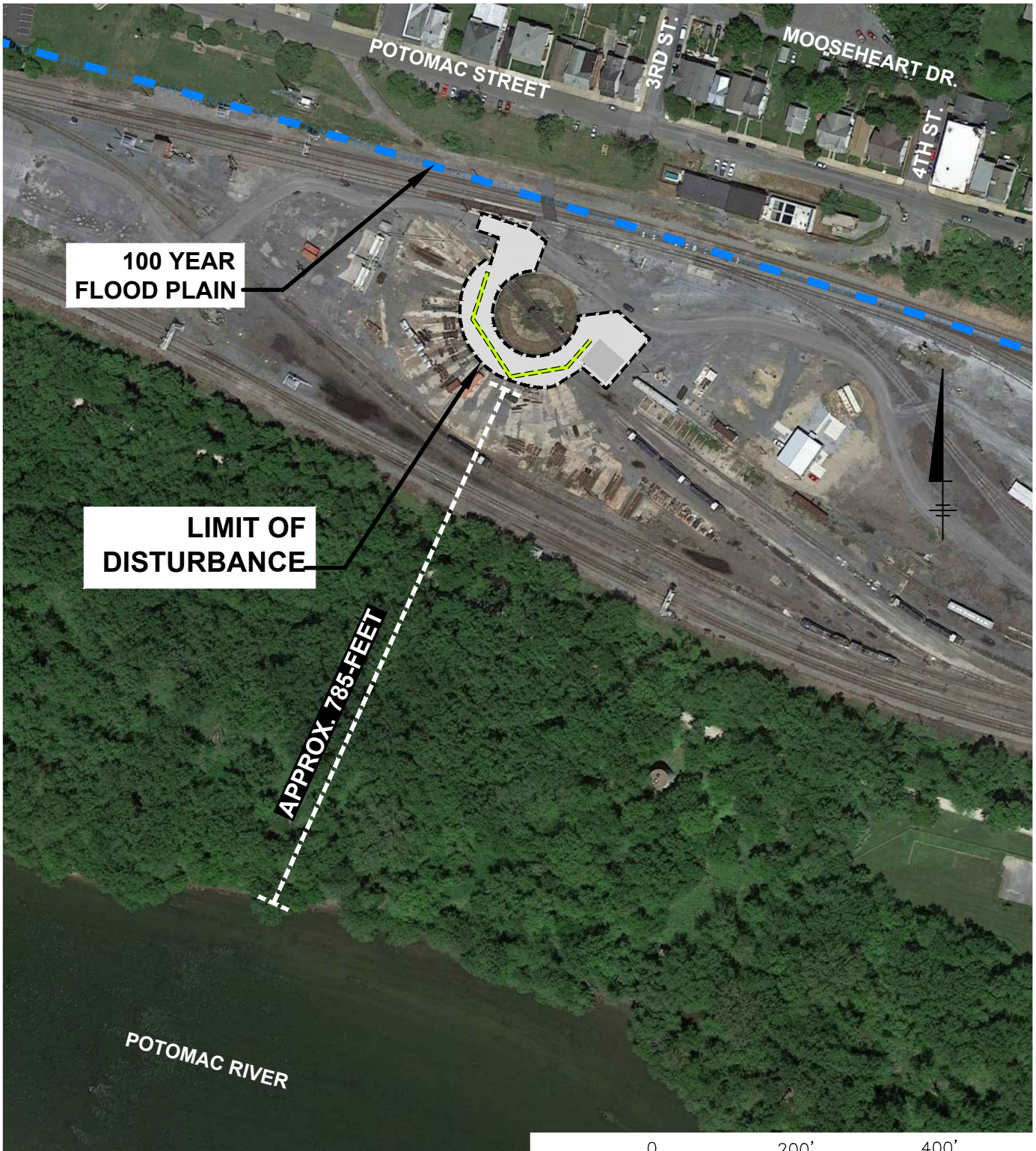
Figure 1 – Site Impacts Map

Attachment 1 – Completed Wetlands and Waterways Permit Application

Attachment 2 – Design Drawings

ARCADIS

Figures



0 200' 400'

GRAPHIC SCALE

CSX TRANSPORTATION RAIL YARD
203 SOUTH MAPLE AVENUE, BRUNSWICK, MARYLAND

JOINT FEDERAL/STATE APPLICATION FOR WETLANDS AND WATERWAYS PERMIT

IMPACTS MAP

ARCADIS

FIGURE 1

CITY: SYRACUSE, NY DIV/GROUP: IMDV DB: K.DAVIS LD: K.DAVIS PIC: (Opt) PM: R.KHURI TM: R.KILKENNY LYR: ON=*;OFF=*REF*
G:\ENVCAD\SYRACUSE\ACT\MD0008430010\00007\REPORT\MD843N01.dwg LAYOUT: 1 SAVED: 2/27/2015 5:07 PM ACADVER: 18.1S (LMS TECH) PAGESETUP: PDF AP COLOR PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 2/27/2015 5:13 PM BY: DAVIS, KATHI
XREFS: IMAGES: PROJECTNAME: ---
Aerial_wide.jpg

Attachment 1

Completed Wetlands and Waterways Permit Application

✶✶✶✶✶✶✶IMPORTANT ANNOUNCEMENT✶✶✶✶✶✶✶

New State Procedures for Application Processing
Wetlands and Waterways Program

Water Management Administration
Maryland Department of the Environment

Effective **August 1, 2011,** the Maryland Department of the Environment (MDE) will implement new procedures for application review and communication with applicants designed to improve and expedite permit application processing. These procedures are intended to clarify the steps in the review process, promptly communicate the need for specific additional information and add certainty to the permit process by adhering to published permit turn-around times. MDE's ability to meet these new turn-around times for permit decisions depends on the submission of a carefully prepared application and the provision of any additional information determined by MDE to be necessary to complete an application review and render a decision. Providing additional information when requested is critical to the success of MDE in rendering a timely permit decision.

What is the Current Procedure?
All applicants for a wetlands and waterways authorization currently receive a "45-day letter" notifying the applicant that the activity is either authorized to proceed, or that the additional information described in the letter is needed to complete the application and enable MDE to render a decision. Past practice has been to allow the applicant an indefinite period of time to provide this information, resulting in thousands of pending applications upon which MDE could take no action.

What is Changing as of August 1, 2011?
The new process provides only one opportunity for an applicant to supplement an application with additional information. This change in procedure, which is applicable to all applications received on or after August 1, 2011, places a deadline by which the additional information requested in the "45-day letter" must be provided to MDE. Since each "45-day letter" will include a deadline for the submission of requested information, it is important to maintain a dialogue with the project manager assigned to your project prior to responding.

What Happens If Applicants Do Not Provide Sufficient Information or MDE Fails to Meet Deadlines?
If an applicant fails to provide the additional requested information or if the information provided within the requested time frame is insufficient, MDE will deny the permit application due to insufficient information upon which to make a favorable decision. The applicant may re-apply as allowed under State law. Resubmission of a permit application is considered a new application and fees will be due and payable upon resubmission of the application. As is currently done, if the Department fails to request additional information in the 45-day letter, the application is considered complete and the review will continue.

Note: If an application meets certain criteria for requiring additional time for review, such as a scientific study requested by MDE, resolution of legal or local governmental matters or other factors beyond the control of the applicant or the Department, this new procedure will not apply. The applicant will be notified if the application meets these criteria in the 45-day letter.

How Can an Applicant Ensure an Expedited Review Process?
Applicants are advised to obtain information and guidance by calling 410-537-3745 or 800-633-6101. Another option is to schedule a pre-application meeting by filling out the Pre-Application Meeting Request Form available at the following email address:

http://www.mde.state.md.us/programs/Water/WetlandsandWaterways/Documents/preAppMeetingRequest.pdf

In addition to providing the information requested in the application, be sure to include all of the information discussed during the telephone call or at the pre-application meeting. It is advisable to delay submitting an application until all of the required information can be provided. Additional information is available on the program's website:

http://www.mde.state.md.us/programs/Water/WetlandsandWaterways/Pages/Programs/WaterPrograms/wetlands_waterways/index.aspx.

JOINT FEDERAL/STATE APPLICATION FOR THE ALTERATION OF ANY FLOODPLAIN, WATERWAY, TIDAL OR NONTIDAL WETLAND IN MARYLAND

FOR AGENCY USE ONLY

Application Number _____ **Date Determined Complete** _____
Date Received by State _____ **Date(s) Returned** _____
Date Received by Corps _____ _____
Type of State permit needed _____ **Date of Field Review** _____
Type of Corps permit needed _____ **Agency Performed Field Review** _____

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- Please submit 1 original and 6 copies of this form, required maps and plans to the Wetlands and Waterways Program as noted on the last page of this form.
- Any application which is not completed in full or is accompanied by poor quality drawings may be considered incomplete and result in a time delay to the applicant.

Please check one of the following:

RESUBMITTAL: ____ **APPLICATION AMENDMENT:** ____ **MODIFICATION TO AN EXISTING PERMIT:** ____
JURISDICTIONAL DETERMINATION ONLY ____ **APPLYING FOR AUTHORIZATION** x
PREVIOUSLY ASSIGNED NUMBER (RESUBMITTALS AND AMENDMENTS) _____
DATE _____

1. APPLICANT INFORMATION:

APPLICANT NAME:

A. Name: William Parry B. Daytime Telephone: (518) 767-6049
C. Company: CSX Transporation D. Email Address: William_parry@csx.com
E. Address: 500 Water Street, J275
F. City: Jacksonville State: Florida Zip: 32202

AGENT/ENGINEER INFORMATION:

A. Name: Ramzi Khuri B. Daytime Telephone: (410) 987-0032
C. Company: ARCADIS US, Inc. D. Email Address: Ramzi.khuri@arcadis-us.com
E. Address: 1114 Benfield Blvd. Suite A
F. City: Millersville State: Maryland Zip: 21108

ENVIRONMENTAL CONSULTANT:

A. Name: Ramzi Khuri B. Daytime Telephone: (410) 987-0032
C. Company: ARCADIS US, Inc. D. Email Address: Ramzi.khuri@arcadis-us.com
E. Address: 1114 Benfield Blvd. Suite A
F. City: Millersville State: MD Zip 21108

CONTRACTOR (If known): **Not yet determined**

A. Name: B. Daytime Telephone:
C. Company: D. Email Address:
E. Address:
F. City: State: Zip:

PRINCIPAL CONTACT:

A. Name: Ramzi Khuri B. Daytime Telephone: 410.923-7815
C. Company: ARCADIS US, Inc. D. Email Address: Ramzi.khuri@arcadis-us.com
E. Address: 1114 Benfield Blvd. Suite A
F. City: Millersville State: MD Zip: 21108

2. PROJECT DESCRIPTION

a. GIVE WRITTEN DESCRIPTION OF PROJECT:

The scope of the project is the replacement of an existing buried drainage pipe. The existing pipe material is brick and mortar. The integrity of the existing pipe has degraded over time and become permeable, resulting in material conveyed through the pipe leaking into the surrounding subsurface. The existing pipe will be replaced with a new high density polyurethane (HDPE) pipe.

Has any portion of the project been completed? ____ Yes __x__ No If yes, explain ____

Is this a residential subdivision or commercial development? ____ Yes __x__ No
If yes, total number of acres on property ____ acres

b. ACTIVITY: Check all activities that are proposed in the wetland, waterway, floodplain, and nontidal wetland buffer as appropriate.

A. __x__ filling
B. ____ dredging
C. __x__ excavating
D. ____ flooding or impounding water
E. ____ draining
F. __x__ grading
G. __x__ removing or destroying vegetation
H. ____ building structures

Area for item(s) checked: Wetland 0 (sq. ft.) Buffer (Nontidal Wetland Only) 0 (sq. ft.)
Expanded Buffer (Nontidal Wetland Only) 0 (sq. ft.)
Area of stream impact 0 (sq. ft.)
Length of stream affected 0 (linear feet)

c. TYPE OF PROJECTS: Project Dimensions

For each activity, give overall length and width (in feet), in columns 1 and 2. For multiple activities, give total area of disturbance in square feet in column 3. For activities in tidal waters, give maximum distance channelward (in feet) in column 4. For dam or small ponds, give average depth (in feet) for the completed project in column 5. Give the volume of fill or dredged material in column 6.

		Length (Ft.) 1	Width (Ft.) 2	Area Sq. Ft. 3	Maximum/Average Channelward Encroachment 4		Pond Depth 5	Volume of fill/dredge material (cubic yards) below MHW or OHW 6
A.	Bulkhead							
B.	Revetment							
C.	Vegetative Stabilization							
D.	Gabions							
E.	Groins							
F.	Jetties							
G.	Boat Ramp							
H.	Pier							
I.	Breakwater							
J.	Repair & Maintenance							
K.	Road Crossing							
L.	Utility Line			23,398				0
M.	Outfall Construction							
N.	Small Pond							
O.	Dam							
P.	Lot Fill							
Q.	Building Structures							
R.	Culvert							
S.	Bridge							
T.	Stream Channelization							
U.	Parking Area							
V.	Dredging							

1. ____ New 2. ____ Maintenance 3. ____ Hydraulic 4. ____ Mechanical

W. ____ Other (explain) ____

d. PROJECT PURPOSE: Give brief written description of the project purpose:

The purpose of the project is to replace a drainage pipeline whose integrity has degraded over time.

3. PROJECT LOCATION:

a. LOCATION INFORMATION:

A. County: Fredrick B. City: Brunswick C. Name of waterway or closest waterway Potomac River

D. State stream use class designation: I-P

E. Site Address or Location: Brunswick Rail Yard/ C&O Canal, Brunswick, Maryland, 21716

F. Directions from nearest intersection of two state roads: (Directions from Petersville Rd and Burkittsville Rd) At the traffic Circle, continue from Burkittsville Rd onto Petersville Rd, turn right on N Maple Ave after 0.1 mile, turn left into the parking lot After 250 feet, site begins at eastern edge of parking lot.

G. Is your project located in the Chesapeake Bay Critical Area (generally within 1,000 feet of tidal waters or tidal wetlands)?:
___ Yes x No

H. County Book Map Coordinates (Alexandria Drafting Co.); Excluding Garrett and Somerset Counties:
Map: ___ Letter: ___ Number: ___ (to the nearest tenth)

I. FEMA Floodplain Map Panel Number (if known): 24021C0415D

J. 1. 77°37'26.02" W latitude 2. 39°18'39.85"N longitude

b. ACTIVITY LOCATION: Check one or more of the following as appropriate for the type of wetland/waterway where you are proposing an activity:

A. ___ Tidal Waters
B. ___ Tidal Wetlands
C. ___ Special Aquatic Site (e.g., mudflat, vegetated shallows)
D. ___ Nontidal Wetland
E. ___ 25-foot buffer (nontidal wetlands only)
F. ___ 100-foot buffer (nontidal wetland of special State concern)
G. ___ In stream channel
1. ___ Tidal 2. ___ Nontidal
H. x 100-year floodplain (outside stream channel)
I. ___ River, lake, pond
J. ___ Other (Explain)

c. LAND USE:

A. Current Use of Parcel Is: 1. ___ Agriculture: Has SCS designated project site as a prior converted cropland?
___ Yes x No 2. ___ Wooded 3. ___ Marsh/Swamp 4. x Developed
5. ___ Other

B. Present Zoning Is: 1. ___ Residential 2. x Commercial/Industrial 3. ___ Agriculture 4. ___ Marina 5. ___ Other

C. Project complies with current zoning x Yes ___ No

THE FOLLOWING INFORMATION IS REQUIRED BY THE STATE (blocks 4-7):

4. REDUCTION OF IMPACTS: Explain measures taken or considered to avoid or minimize wetland losses in F. Also check Items A-E if any of these apply to your project.

A. ___ Reduced the area of disturbance
B. ___ Reduced size/scope of project
C. ___ Relocated structures
D. ___ Redesigned project

E. ___ Other

F. Explanation Area is a currently vacant industrial property. Erosion and sediment control measures shall be installed around all disturbed areas in accordance with the Maryland standards and specifications for soil erosion and sediment control.

Describe reasons why impacts were not avoided or reduced in Q. Also check Items G-P that apply to your project.

G. ____ Cost
H. ____ Extensive wetlands on site
I. ____ Engineering/design constraints
J. ____ Other natural features
K. ____ Parcel size
L. ____ Other regulatory requirement
M. ____ Failure to accomplish project purpose
N. ____ Safety/public welfare issue
O. ____ Inadequate zoning
P. x Other ____

Q. Description The drainage pipe to be replaced is entirely within the 100 year flood plane

5. LETTER OF EXEMPTION: If you are applying for a letter of exemption for activities in nontidal wetlands and/or their buffers, explain why the project qualifies:

A. ____ No significant plant or wildlife value and wetland impact
1. ____ Less than 5,000 square feet
2. ____ In an isolated nontidal wetland less than 1 acre in size
B. ____ Repair existing structure/fill
C. ____ Mitigation Project
D. ____ Utility Line
1. ____ Overhead
2. ____ Underground
E. Other (explain) ____

F. x Check here if you are **not** applying for a letter of exemption.

IF YOU ARE APPLYING FOR A LETTER OF EXEMPTION, PROCEED TO BLOCK 11

6. ALTERNATIVE SITE ANALYSIS: Explain why other sites that were considered for this project were rejected in M. Also check any items in D-L if they apply to your project. **(If you are applying for a letter of exemption, do not complete this block):**

A. x 1 site
B. ____ 2 - 4 sites
C. ____ 5 or more sites

Alternative sites were rejected/not considered for the following reason(s):

D. ____ Cost
E. ____ Lack of availability
F. ____ Failure to meet project purpose
G. ____ Located outside general/market area
H. ____ Greater wetlands impact
I. ____ Water dependency
J. ____ Inadequate zoning
K. ____ Engineering/design constraints
L. ____ Other ____

M. Explanation: The project is a utility replacement. Alternative sites are not possible.

7. PUBLIC NEED: Describe the public need or benefits that the project will provide in F. Also check Items in A-E that apply to your project. **(If you are applying for a letter of exemption, do not complete this block):**

A. ____ Economic
B. x Safety
C. ____ Health/welfare
D. ____ Does not provide public benefits
E. ____ Other ____

F. Description The existing pipe is used to discharge waste material. The pipe integrity is degrading. Replacing the pipe will ensure that future waste transported will not leak through the pipe into the subsurface.

8. OTHER APPROVALS NEEDED/GRANTED:

A. Agency	B. Date Sought after this approval	C. Decision 1. Granted	C. Decision 2. Denied	D. Decision Date	E. Other Status not yet applied
Frederick County Department Of Permits and Inspections					

9. MITIGATION PLAN: Please provide the following information:

a. Description of a monetary compensation proposal, if applicable (for **state requirements** only). Attach another sheet if necessary. Not applicable as this is a minor project

b. Give a brief description of the proposed mitigation project. Not applicable as this is a minor project

c. Describe why you selected your proposed mitigation site, including what other areas were considered and why they were rejected. Not applicable as this is a minor project

d. Describe how the mitigation site will be protected in the future. Not applicable as this is a minor project

10. HAVE ADJACENT PROPERTY OWNERS BEEN NOTIFIED?: A. _____ Yes B. x No

Provide names and mailing addresses below (Use separate sheet, if necessary):

a. _____ b. _____ c. _____

11. HISTORIC PROPERTIES: Is your project located in the vicinity of historic properties? (For example: structures over 50 years old, archeological sites, shell mounds, Indian or Colonial artifacts). Provide any supplemental information in Section 13.

A. _____ Yes B. x No C. _____ Unknown

12. ADDITIONAL INFORMATION: Use this space for detailed responses to any of the previous items. Attach another sheet if necessary:

Check box if data is enclosed for any one or more of the following (see checklist for required information):

A. _____ Soil borings	D. _____ Field surveys	G. __x__ Site plan
B. _____ Wetland data sheets	E. _____ Alternate site analysis	H. _____ Avoidance and minimization analysis
C. _____ Photographs	F. _____ Market analysis	

I. _____ Other (explain) _____

CERTIFICATION:

I hereby designate and authorize the agent named above to act on my behalf in the processing of this application and to furnish any information that is requested. I certify that the information on this form and on the attached plans and specifications is true and accurate to the best of my knowledge and belief. I understand that any of the agencies involved in authorizing the proposed works may request information in addition to that set forth herein as may be deemed appropriate in considering this proposal. I certify that all Waters of the United States have been identified and delineated on site, and that all jurisdictional wetlands have been delineated in accordance with the Corps of Engineers Wetlands Delineation Manual (Wetlands Research Program Technical Report Y-87-1). I grant permission to the agencies responsible for authorization of this work, or their duly authorized representative, to enter the project site for inspection purposes during working hours. I will abide by the conditions of the permit or license if issued and will not begin work without the appropriate authorization. I also certify that the proposed works are consistent with Maryland's Coastal Zone Management Plan. I understand that none of the information contained in the application form is confidential and that I may request that additional required information be considered confidential under applicable laws. I further understand that failure of the landowner to sign the application will result in the application being deemed incomplete.

LANDOWNER MUST SIGN: _____ DATE: _____

WHERE TO MAIL APPLICATION

Maryland Department of the Environment
Water Management Administration
Regulatory Services Coordination Office
1800 Washington Boulevard, Suite 430
Baltimore, Maryland 21230
Telephone: (410) 537-3762
1-800-876-0200

BEFORE YOU MAIL… DON'T FORGET…

- **SIGN AND DATE THE APPLICATION. THE LANDOWNER MUST SIGN.**
- **SEVEN (7) COPIES OF ALL DOCUMENTS (APPLICATION, PLANS, MAPS, REPORTS, ETC.) MUST BE RECEIVED TO BEGIN OUR REVIEW.**
- **INCLUDE FIVE COPIES OF A VICINITY MAP (LOCATION MAP) WITH THE PROJECT SITE PINPOINTED.**
- **SEND AN APPLICATION FEE OF $750 ALONG WITH A COPY OF THE FIRST PAGE OF THE APPLICATION TO MARYLAND DEPARTMENT OF THE ENVIRONMENT, P.O. BOX 2057, BALTIMORE, MD 21203-2057. PLEASE REFER TO OUR WEBSITE http://www.mde.state.md.us/wetlands FOR FURTHER INSTRUCTIONS.**

SAMPLE PLANS MAY BE OBTAINED BY PHONE (1-800-876-0200)
OR E-MAIL acunabaugh@mde.state.md.us.

SUPPLEMENTARY INFORMATION TO BE INCLUDED ON PLANS, DRAWINGS, OR VICINITY MAPS

In addition to the information indicated on the previous pages, you should include the following on the 8 1/2 x 11 site plans and any blueprints you have submitted:

1. Delineation of any wetland buffers or expanded buffers, clearly marked and differentiated.

2. Location of mitigation area, if proposed on the same site as the project.

Note: If you are proposing a complex project you may wish to submit engineering blueprints of your project with the application form to expedite review.

Mitigation Location Map: If you are proposing that nontidal wetland mitigation be done at a different location than the proposed project, you should submit a map showing the location of the mitigation site in relation to the proposed nontidal wetland losses.

WETLAND DELINEATION

Wetlands should be identified according to methods described in the publication Corps of Engineers Wetlands Delineation Manual (Wetlands Research Program Technical Report Y-87-1). Copies of the manual may be obtained by calling the U. S. Government Printing Office at 202-783-3238 and requesting document #024-010-00-683-8 at a cost of $7.50. Wetlands must be shown on all plans submitted with the application. All wetlands on site must be delineated and shown on the overall site plan. 8½ x 11 inch plans with topography showing relation of the wetlands and project impacts must be submitted. Copies of the wetland reports and data sheets used in making the determination be included with your application submittal.

Regulatory Agencies

Federal Permits

U.S. Army Corps of Engineers
Baltimore District
Attention: CENAB-OP-R
P. O. Box 1715
Baltimore, MD 21203-1715
Telephone: (410) 962-3670

State Authorizations

MD Dept. of the Environment
Water Management Administration
Tidal Wetlands Division
1800 Washington Blvd, Ste 430
Baltimore, MD 21230
Telephone: (410) 537-3837

Coastal Zone Consistency Statement

MD Dept. of the Environment
Water Management Administration
Wetlands and Waterways Program
1800 Washington Blvd, Ste 430
Baltimore, MD 21230
Telephone: (410) 537-3745

MD Dept. of the Environment
Water Management Administration
Nontidal Wetlands and Waterways Division
1800 Washington Blvd, Ste 430
Baltimore, MD 21230
Telephone: (410) 537-3768

Wetlands and Waterways Program:
Checklist for Floodplain, Waterway, Tidal or Nontidal Wetland Applications

- ☐ Processing Fee Enclosed
- ☐ Exempt from Processing Fee

☐ Applicant's name, mailing address, telephone number, email address and fax number

☐ Authorized agent's (or primary contact and other contact) names, mailing addresses, telephone numbers, email addresses and fax numbers

☐ Any existing authorization numbers or previously assigned numbers

☐ General description of project purpose and proposed activity.

☐ The name of the city or town, waterbody, and county where the project is located

☐ Clear directions to project site

☐ Latitude and longitude from a central location within the project limits

Wetland, Waterway/Stream, Buffer, Floodplain Description

☐ Itemized calculation of all permanent and temporary wetland, stream, buffer, floodplain impacts

☐ A delineation report of the area of all wetlands and buffers on the site and associated wetland data sheets. The report map should include the location of all streams, 100-year floodplains?, open water and other surface waters on the site the limits of Chesapeake Bay Resource Protection Areas (RPAs), Wetland types should be noted according to their Cowardin (USFWS-National Wetlands Inventory) classification or similar terminology.

☐ Description of How Impacts were Avoided or Reduced

☐ Mitigation Proposal, if applicable

Plans

☐ A detailed vicinity map of the project area, including the project boundary. The map should identify the project site, property boundaries, and adjacent property owners

☐ Plans showing distance of all proposed structures to all contiguous property lines and any appropriate County or State property line building restriction setbacks, right-of-ways and/or easements

☐ A plan view depicting existing and proposed conditions and structures. All plan view sketches should include, but are not limited to: north arrow; existing and proposed contours and/or grades; limit of surface water areas; ebb and flow direction of all water bodies (e.g., streams, tidal waters); applicant name and address; all horizontal dimensions of all proposed structures and impacts, existing conditions of the project site which includes all existing structures at or near the project site including neighbors; existing areas of wetland vegetation or mapped wetlands and buffers; the project boundary and a boundary demarcating the limits of disturbance. A section view showing existing and proposed conditions and structures.

☐ A description of construction access and methodology and a proposed construction schedule, with an estimated completion date

☐ Description of stabilization for temporary impacts

ALL Tidal Projects

☐ Plans on 8.5″ x 11″ paper; Plans are to be legible and not cluttered; usable written scale no smaller than 1″ = 100′, Dimensions of proposed structures must be represented.

☐ Plan views should include Mean High Water Line (MHWL) and Mean Low Water Line (MLWL; referenced to 0.0′). *If MHWL or MLWL are to be altered during construction the proposed MHWL and MLWL should also be labeled*

☐ Plan views should include water depths marked as either contours or spot depths that extend across the width of the waterway.

☐ Plan view should include the maximum channelward extent beyond mean high water of all proposed structures and impacts

☐ Plan view should include the distance across the waterway, perpendicular to the proposed worksite, to the opposite shoreline and maximum fetch for the project worksite; *include multiple bearings and/or summer-winter wind direction if possible*

☐ Dredge material management plan (*for dredging projects only*) including type of dredging, location of dredged material placement site, handling and transport method for dredge material, the dimensions and detailed design of the proposed dredged material placement site including a plan and cross section drawing of dewatering area (*if proposed*), maximum volume of dredged material, and an acceptance letter from the operator of the dredged material placement site.

☐ **ALL Non-Tidal Projects**: Large-sized impacts map (at a scale no smaller than 1" = 200'); use match lines if the entire site cannot fit on one sheet at this scale

Attachment 2

Design Drawings

(Provided in Appendix D)