RCRA FACILITY INVESTIGATION DATA GAP REPORT

EPA Facility ID WVD000068601

Former BASF Manufacturing Site
24th Street and 5th Avenue
Huntington, West Virginia 25703

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Acronyms, Abbreviations and Units of Measure

Agencies	USEPA and WVDEP
AOC	Area of Concern
bgs	below ground surface
°C	Degrees Celsius
COC	Chain of Custody
DCE	Dichloroethene
DO	Dissolved Oxygen
DRO	Diesel Range Organics
EDD	Electronic Data Deliverables
°F	Degrees Fahrenheit
ft bgs	feet below ground surface
FSP	Field Sampling Plan
GPS	Global Positioning System
GWDMS	WVDEP 60CSR3 Table 60-3B Groundwater De Minimis Standard, July 2014
IRFI	Initial Phase RCRA Facility Investigation
ISDMS	WVDEP 60CSR3 Table 60-3B Industrial Soil De Minimis Standard, July 2008
MCL	Maximum Contaminant Level
MDL	Minimum Detection Limit
MGWDMS	WVDEP 60CSR3 Table 60-3B Migration to Groundwater Soil De Minimis Standard, July 2008
mg/kg	milligrams per kilogram
MS/MSD	Matrix Spike/Matrix Spike Duplicate
MSL	Mean Sea Level
NTUs	Nephelometric Turbidity Units
ORP	Oxidation Reduction Potential
PAHs	Polynuclear Aromatic Hydrocarbons
PCBs	Polychlorinated Biphenyls
PCE	Tetrachloroethene (Perchloroethene)
ppm	parts per million

QAPP	Quality Assurance Project Plan
RCRA	Resource Conservation and Recovery Act
RFI	RCRA Facility Investigation
RL	Reporting Limit
RSL	Regional Screening Level
SOP	Standard Operating Procedure
SSL	Soil Screening Level
SVOCs	Semi-volatile Organic Compounds
TCE	Trichloroethene
TPH	Total Petroleum Hydrocarbons
ug/L	micrograms per liter
USEPA	United States Environmental Protection Agency
VC	Vinyl chloride
VOCs	Volatile Organic Compounds
WVDEP	West Virginia Department of Environmental Protection

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1. Introduction

This RCRA Facility Investigation (RFI) Data Gap Investigation Report has been prepared for the former BASF Corporation (BASF) Huntington Works Facility located in Huntington, West Virginia (hereinafter referred to as the 'Site'). The report presents results of the RFI Data Gap Investigation conducted at the Site between July and September 2016. The investigation was performed in accordance with the RFI Data Gap Workplan prepared by ELM Site Solutions, Inc. (ELMSS, October 2015). The Data Gap Workplan was approved by the EPA in a letter dated December 2, 2015. The objectives of the RFI Data Gap Investigation were provided in Section 2 of the aforementioned workplan (and re-stated below in Section 1.2).

1.1. RFI Data Gap Investigation Report Objective

The objective of this report is to present results of the RFI Data Gap Investigation activities conducted at the Site. The RFI Data Gap Investigation included additional soil investigation in five (5) areas at the Site: (1) the 25th Street Landfill (AOC 1); (2) Former Process Sewers/Wastewater Line (AOC 2); (3) Aboveground Storage Tanks (ASTs, AOC 6), (4) North Parking Lot (AOC 10); and (5) the Shipping/Warehouse Area (AOC 11). A Site-wide groundwater investigation was also completed to assess current groundwater conditions, compare these data to the dataset collected between 2002 and 2013, and evaluate changes or trends over time. A deep soil gas investigation was also completed to evaluate the vapor intrusion pathway for residences along the northern and eastern property boundaries of the northern Site parking lot (AOC 10) and for the structures immediately downgradient of the 25th Street Landfill (AOC 1). Each of these activities are detailed in Section 1.2 below. In preparing this report, the project quality objectives identified in the October 2015 Quality Assurance Project Plan (QAPP) were used to evaluate the work described above and to identify if further investigation and/or corrective action is required. Data screening and evaluation criteria are described in Section 1.2 below.

1.2. RFI Data Gap Investigation Objectives

Field investigation activities were completed at the Site to accomplish the objectives outlined below.

- Conduct a site-wide groundwater monitoring event to determine current conditions of

contaminant concentrations, in situ conditions, and groundwater flow characteristics by sampling existing Site groundwater wells for contaminants of concern and water quality parameters;

- Investigate the 25th Street Landfill to better characterize the constituents that are present;
- Characterize the groundwater in the area, and downgradient, of the 25th Street Landfill;
- Delineate soil contamination at the three (3) locations along the wastewater line (AOC 2) where constituents previously exceeded the West Virginia Department of Environmental Protection (WVDEP) Industrial Soil De Minimis Standards (ISDMS) and where elevated aniline levels were detected in prior investigations;
- Delineate the horizontal and vertical extents of benzene, toluene, ethyl-benzene and xylenes (BTEX) contamination in soil at AOC 6-07 near the former toluene and xylene ASTs, and delineate the horizontal and vertical extents of aniline contamination in soil in the area of AOC6-07, AOC6-08, AOC6-09 and AOC6-10;
- Obtain information from the current property owner regarding the aniline spill in 2009;
- Investigate the potential for vapor intrusion in the vicinity of the volatile organic compound (VOC) plume historically identified in monitoring wells TMW-4S, TMW-4D and TMW-11S;
- Evaluate the vapor intrusion pathway by completing soil screening only (i.e., no soil sampling) for the residences along the northern and eastern property boundaries of the North Parking Lot (AOC 10);
- Evaluate the vapor intrusion pathway for the structures immediately downgradient of the 25th Street Landfill; and
- Delineate the groundwater upgradient and cross-gradient from TMW-9D in the Shipping Warehouse Area (AOC 11).

Results of the RFI Data Gap Investigation were evaluated against the following applicable remedial action standards:

- WVCSR 60-3 Voluntary Remediation and Redevelopment Rule, De Minimis Standards for Industrial Soils and Migration to Groundwater, Table 60-3B (June 2014).
- EPA Human Health Regional Screening Levels (RSLs) for Industrial Soil and Groundwater (May 2016).
- WVCSR 60-3 Voluntary Remediation and Redevelopment Rule, De Minimis Standards for Groundwater, Table 60-3B (June 2014).
- EPA Vapor Intrusion Screening Level (VISL) Calculator Version 3.5.1 (May 2016 RSLs)
- EPA Exterior Soil Gas Concentration to Indoor Air Concentration (SGC-IAC) Calculator Version 3.45 (May 2016 RSLs)

The WVCSR 60-3 Voluntary Remediation and Redevelopment Rule, De Minimis Standards for Industrial Soils and Migration to Groundwater, Table 60-3B, were the primary criteria against which the soil data were compared. If, however, a detected compound did not have a WVDEP industrial soil standard, then the compound concentration was evaluated against the EPA RSL for industrial soil.

The Site is an active industrial facility that has site access controls (e.g., fencing, security, asphalt and concrete ground cover) in place, and the controls are maintained by the facility. The industrial soil standards are applicable given the property use, manufacturing activity, and controlled access to the facility. Detected compound concentrations were also evaluated against the WVDEP De Minimis Standard for Migration to Groundwater, since the majority of the soil samples were collected subsurface and could potentially impact groundwater which is encountered at depths approximately 25 to 33 feet below ground surface (bgs).

Groundwater data were compared to the WVCSR 60-3 Voluntary Remediation and Redevelopment Rule, De Minimis Standards for Groundwater. The De Minimis Standards for Groundwater are equal to, or more stringent than, their respective EPA RSLs and Maximum

Contaminant Levels (MCLs) for tap water. Further, groundwater at the Site and the surrounding vicinity is not used for potable purposes.

Soil gas data were compared to the residential and commercial screening values modeled using the EPA VISL Calculator Version 3.5.1. A Target Risk for Carcinogens (TCR) of 1.00E-06 and a Target Hazard Quotient for Non-Carcinogens (THQ) of 1 were used for the screening process.

1.3. Basis for RCRA Facility Investigation

The site was entered a facility-lead corrective action program in 1999, in response to the EPA identification of the site as one of EPA Region III's "high priority" RCRA Corrective Action sites. Under the EPA RCRA Corrective Action program, the facility was evaluated by the WVDEP in July 1999 using EPA Environmental Indicators (Els) to: (1) assess whether current human exposures to any contamination that may be present are acceptable; and (2) determine whether any contaminated groundwater that may be present is stable. The results of the inspection reported that although the facility is considered "a model facility in terms of [current] environmental practices", more information regarding the possible effects of historical operations on soil and groundwater was needed to make the EI determinations. BASF agreed to enter a facility-lead corrective action, as documented in BASF's December 7, 1999 Commitment Letter.

The former BASF Huntington Works facility was not a RCRA permitted TSD facility. The facility formerly operated a hazardous waste (drum) storage area, under Interim Status, from 1981 to 1987, but no treatment or disposal was conducted at the facility. An Interim Permit Application was submitted to the EPA on November 17, 1980 and Interim Status was approved by the EPA on August 3, 1981. BASF initially submitted a RCRA Part A permit application for the hazardous waste storage area on July 27, 1982 and subsequently submitted revised Part A permit applications on February 14, 1984 and April 26, 1984. Prior to submitting the RCRA Part B permit application, BASF decided to close the hazardous waste storage area. BASF submitted the Closure Notice to the EPA on January 21, 1987 and the Final Closure for the hazardous waste storage area was approved by the EPA on April 14, 1988. Currently, the facility is still listed as a hazardous waste generator (EPA ID WVD000068601) and stores hazardous waste at the facility for less than 90 days.

BASF Corporation entered the Facility Lead Corrective Action Program with a letter of commitment on December 7, 1999. A workplan was submitted on June 28, 2000. EPA reviewed the workplan and provided comments to BASF on May 18, 2001. A revised workplan was submitted on July 23, 2001. EPA Region III completed its review of the workplan on April 2, 2002 and granted BASF approval to start the investigation. BASF requested approval to do additional groundwater investigation prior to submitting the IRFI Report. This approval was granted by EPA on February 5, 2003. The objectives of the initial phase RFI were to collect the necessary facility information and environmental data to determine if the EPA Els were achieved at the BASF facility and to assess the need for additional investigation or potential corrective action measures.

The IRFI Workplan identified eight (8) soil AOCs as shown in the table below. Site-wide groundwater (AOC 9), as well as AOC 10 – North Parking Lot and AOC 11 – Shipping/Warehouse Area, have also been included here in the table below.

Identification	Description
AOC 1	25th Street Landfill
AOC 2	Former Process Sewers
AOC 3	On-Site Railroad Line
AOC 4	Former Gasoline Station
AOC 5	On-Site Wastewater Treatment System
AOC 6	Aboveground Storage Tanks
AOC 7	Electrical Transformers
AOC 8	Former Coal Storage Area
AOC 9	Site-Wide Groundwater
AOC 10*	North Parking Lot
AOC 11*	Warehousing Area

* New AOCs for potential vapor intrusion

Chemicals of concern included benzene, ethylbenzene, hexachlorobenzene, 1,1,2,2-tetrachloroethane (1,1,2,2-PCA), toluene, trichloroethene (TCE), xylene, aniline, n-nitrosodiphenylamine and PCBs (Aroclor 1248). The soil investigation component of the initial phase RFI (investigation of five (5) of the eight (8) identified AOCs) was completed in 2002, and the groundwater investigation for the AOCs was conducted in 2002, with subsequent

phases of groundwater investigations performed in 2003 and 2005. Results of the initial phase RFI was reported to the EPA in the August 13, 2003 Initial RFI Report and the September 20, 2005 Supplemental Groundwater Investigation Results letter report.

On January 19, 2007 EPA approved the Phase 2 RFI workplan for further groundwater investigation at the facility. The Phase II Field Sampling Plan (FSP) and QAPP were approved by EPA on June 29, 2009 and additional groundwater monitoring wells were installed at the Site in July 2009. The RFI Phase II report was submitted on May 14, 2010.

The workplan for this RFI Data Gap Investigation was submitted to EPA in October 2015 and was approved by EPA on December 2, 2015. Field work for the data gap investigation was completed between July and September 2016. The purpose of this data gap investigation was detailed in Section 1.2 above.

1.4. Site Description

The BASF Huntington Works (the Site) is located at the corner of 24th Street and 5th Avenue in the City of Huntington, Cabell County, West Virginia (**Figure 1**) and occupies five (5) blocks of land. The entire facility, with the exception of a visitor parking lot and a grass park area (AOC 4 – Former Gasoline Station), is enclosed by a fence. A full-time security force controls access to the facility. Buildings, asphalt and concrete cover the majority of the facility with the exception of two areas: the former 25th Street Landfill (AOC 1) and the Shipping and Warehouse Area (AOC 11). A Site Plan which depicts site infrastructure, including buildings, fencing, property boundaries and site tankage is attached as **Figure 2**.

The former 25th Street Landfill is fenced off from the public and the remainder of the facility (i.e., workers do not have access). The former landfill is covered by a soil cap (approximately one (1) foot thick) and vegetation (grasses, shrub and trees). The Shipping Warehouse Area (Buildings 1, 9, 9A and 9B) is located on the northeastern block of 24th Street and 5th Avenue (**Figure 2**), and the block is completely fenced. The ground surface surrounding the buildings is a combination of asphalt, gravel and grass.

1.5. Site Operational History

The Site has been an active dyestuffs and pigment manufacturing facility since 1912. The former BASF facility was constructed in 1909 and manufacturing began in 1912. Standard Ultramarine Company (SUCo) operated the facility from 1912 to 1964. Between 1962 and 1964, the company merged with the Holland Colors and Chemical Company and the facility became known as Holland-SUCo Color Company. In 1964, the facility was acquired by Chemetron Corporation and operated under that name until 1979 when the facility was acquired by the Pigments and Dyestuffs Division of BASF Wyandotte Corporation. BASF Wyandotte Corporation was renamed BASF Corporation in 1986 and the facility became the Huntington Works of BASF Corporation. In 2004, the facility operated under the ownership of Flint Group Pigments (owned by XSYS Printing Systems) after Flint Group Pigments was formed by the merger of BASF Printing Systems and ANI Printing Inks following their respective acquisitions at the end of 2004 by CVC Capital Partners (a private equity firm).

The primary manufactured product at the facility has been blue pigments. Initially, SUCo only manufactured ultramarine blue pigment, and then expanded its product line in 1925 to include alkali blue, acid blue, soluble blue and fuchsine pigments. In the 1930s, SUCo built additional plants at the facility to manufacture barium-based pigments and chemicals, azo pigments, phthalocyanine blue pigments, iron blue pigments and pigment intermediates. SUCo continued to expand its product line in the 1940s and 1950s, and the product lines remained relatively the same during the period Chemetron operated the facility. In 1979, when BASF acquired the facility, the production focused on alkali blue pigment, and the other product lines (methyl violet, phthalocyanine blue and green pigments, azo pigments, iron oxide red, yellow pigments, ferrous sulfate, and red lake C) were discontinued. To date, under the operation of Flint Group Pigments, alkali blue remains the primary pigment manufactured at the facility.

1.6. Report Organization

The remainder of this RFI Data Gap Investigation Report is organized as follows:

- **Section 2** provides the environmental setting of the Site including regional and site geology and hydrogeology, nearby surface waters, surrounding land and water use.

- **Section 3** summarizes information and data results from the RFI Phase I (initial) completed for the determination of Environmental Indicators for Human Exposure and Groundwater Control.

- **Section 4** summarizes information and data results from the Phase II RFI to further determine the Environmental Indicators for Human Exposure and Groundwater Control.

- **Section 5** describes the site characterization and sampling methods used to complete the RFI Data Gap investigation.

- **Section 6** presents background information, scope of investigation and data results for the soil investigations completed for AOC 1, AOC 2, AOC 6, AOC 10 and AOC 11.

- **Section 7** details the groundwater investigation completed, data results and analysis of current and historical data.

- **Section 8** details the soil gas investigation completed and data results.

- **Section 9** includes conclusions developed from the investigation data and recommendations for additional investigation.

- **Section 10** provides a list of referenced documents for this report.

- Figures, tables and appendices (laboratory reports, data validation reports, boring logs, field data sheets, etc.) are included at the end of the report.

1.7. Project Organization

The RCRA Facility Investigation for the former BASF Huntington Works facility is being completed by BASF. As noted previously, BASF agreed to enter into the Facility-Lead Corrective Action Program as documented in its December 7, 1999 Commitment Letter. The BASF Technical Coordinator for the RFI is Mr. Vernon Burrows, PG; a member of BASF's Corporate Ecology Group, located in Florham Park, New Jersey. As Technical Coordinator, Mr. Burrows provides oversight on technical aspects of the investigation design and implementation,

and will provide final review of correspondences and reports before submission to the EPA and WVDEP.

ELMSS is the primary consultant for the RFI and is responsible for the preparation of the workplans and reports for the RFI, and the implementation of field investigations. The ELMSS Project Coordinator is Mr. Roland Norris, PE. As Project Coordinator, he is responsible for the coordination of scheduling and budgeting, overall quality assurance, systems auditing and review of items associated with the RFI Data Gap Investigation Report before submittal to the BASF Contact, and then to the EPA and WVDEP. The ELMSS Project Manager is Mr. Joseph McKeon, who also served as the Field Coordinator and Quality Assurance Officer for the RFI Data Gap Investigation. ELMSS is also responsible for the data management for the RFI Data Gap Investigation, which included development of and production of tables, graphics and figures for the report.

Several subcontractors were used in the completion of the RFI Data Gap Investigation field work and report preparation. Subcontracted services included utility clearance, soil boring, monitoring well installation and sampling, surveying, laboratory analysis and data validation. The following is a list of primary subcontractors supporting the RFI Data Gap Investigation:

- Underground Detective, Cincinnati, OH – Utility Clearance
- EnviroProbe Integrated Solutions, Inc., Nitro, WV – Soil Borings, Monitoring Well Installations and Soil Vapor Point Installations
- Eastham and Associates, Inc., Chesapeake, OH - Surveying
- TestAmerica Inc., North Canton, OH – Laboratory for Sample Analysis
- Alpha Geoscience, Clifton Park, NY – Data Validation
- Veolia ES Technical Solutions, LLC, West Carrollton, OH – Soil Cuttings and Purge Water Disposal

2. Environmental Setting

The following sections summarize the physical setting and additional information collected during the RFI investigations. Regional and site-specific geology and hydrology information are provided. Information regarding surface waters, surrounding land use and regional water use is also provided for the evaluation of RFI results.

2.1. Regional Geology

The Site is located within the Allegheny Plateau physiographic province, approximately 3,500 feet south of the Ohio River and 6,000 feet west of the Guyandotte River. The geology of this vicinity of West Virginia generally consists of interrelated deltaic and coastal plain deposits approximately 60 feet thick, which overlie bedrock of the Conemaugh Group.

The unconsolidated alluvium is comprised of sand, gravel, silt and clay sediments, and was deposited in interlayered sequences as the Ohio and Guyandotte Rivers meandered across the area currently occupied by the Site and the City of Huntington. Typically, the alluvium would become thicker following each flooding event, as sediments entrained by flooding river water were deposited once the water began to recede. Coarse grain sediments such as sand and gravel tend to be deposited in migrating channels, whereas fine grain sediments such as silt and clay tend to be deposited as overbank deposits and as fill in abandoned channels.

The bedrock of the Conemaugh Group consists of interrelated deltaic and coastal plain deposits. Sandstone, siltstone and shale are the primary lithologies with associated coals and marine limestones present in the sequence. The Conemaugh varies in thickness across West Virginia but ranges between 500 and 600 feet on average.

2.2. Background Arsenic Concentrations

Arsenic is found at levels greater than the EPA Regional Screening Level (RSL) of 3.0 milligrams per kilogram (mg/kg) for Industrial Soils and the WVDEP De Minimis Standards for Migration to Groundwater of 5.8 mg/kg in soil samples collected across the Site. As such, it is important to document the typical range of background arsenic concentrations in soil so that the

arsenic associated with a discharge can be segregated from the arsenic that is naturally-occurring.

A peer-reviewed study of background arsenic conditions in seven (7) states was obtained (Vosnakis, *et al.,* 2009) during the RFI investigation. In this study, a statistical analysis of over 500 background samples collected in West Virginia was conducted. The study concluded that a reasonable estimate of the upper range of naturally-occurring arsenic concentrations in surficial soils in West Virginia was 15.0 mg/kg and 21.9 mg/kg in subsurface soils. The WVDEP De Minimis Standard for Industrial Soils is 27 mg/kg.

2.3. Site Geology

Unconsolidated sediments consisting of clay, silt, sand and gravel immediately underlie the facility. The first stratigraphic unit, beginning at the ground surface, consists of dense fine-grained silty clay approximately 5 to 10 feet in thickness. This unit is typically underlain by a dense plastic clay approximately 10 feet in thickness. This deposit is underlain by a layer of very dense sand with clay and silt, and a small amount of gravel that is also approximately 10 feet in thickness. A sand and gravel deposit, approximately 10 feet thick, underlies the silty sand and extends to bedrock, which is present at a depth of approximately 55 to 60 feet below ground surface (bgs). Running sands were encountered at a depth of approximately 30 feet bgs during the installation of monitoring wells. The Unified Soil Classification System (USCS) was used for preparing all soil boring and monitoring well logs (**Appendix A**). The locations of groundwater monitoring wells are presented on **Figure 3**.

2.4. Regional Hydrogeology

Groundwater occurs in the unconsolidated alluvial sediments and in the Conemaugh Group under water table and confined conditions, respectively. Generally, groundwater in the unconsolidated deposits moves from areas of higher potentiometric elevations to areas of lower potentiometric elevations, which are often directions similar to the slopes of the ground surface topography. Groundwater flow in the unconsolidated sediments can be relatively rapid if the surface topography, and resulting potentiometric gradient, slopes steeply; conversely, flow can be slow if the surface topography, and potentiometric gradient, is

relatively flat. Typically, groundwater velocities within unconsolidated deposits range from a few feet to a few tens of feet per year (ft/yr).

Groundwater occurring in the Conemaugh bedrock under confined conditions typically may have the potential to flow at higher rates than groundwater within unconfined aquifers within unconsolidated deposits. Additionally, the direction of groundwater flow within bedrock cannot reliably be predicted based on ground surface topography, but rather is controlled predominantly by the character of the potentiometric surface, orientations of fractures and bedding planes, and the presence and distribution of matrix porosity.

2.5. Site Hydrogeology

Groundwater at the facility occurs in the unconsolidated alluvial sediments at depths of approximately 25 to 35 feet below grade, under unconfined (water table) conditions. The potentiometric groundwater elevation at the site is approximately 523 feet MSL. As presented in **Figure 4**, the groundwater table flow direction is generally to the north and north-northeast toward the Ohio River. The average hydraulic gradient for the Site, as measured between the most upgradient monitoring well (TMW-2D) and the most downgradient on-site monitoring well (TMW-1D), ranged from 0.0004 to 0.0025 feet/foot (ft/ft) based on relative groundwater elevations measured between 2002 to 2016, as summarized in the table below.

Average Site Hydraulic Gradient (TMW-2D to TMW-1D)

Date	TMW-1D (GWE, ft MSL)	TMW-2D (GWE, ft MSL)	Distance Between Wells (ft)	Hydraulic Gradient (feet/foot)
August 29, 2016	522.55	523.01	830	0.0006
November 19, 2013	523.17	523.77	830	0.0007
July 22, 2009	523.57	524.34	830	0.0009
February 28, 2005	526.32	526.67	830	0.0004
February 22, 2003	521.71	523.77	830	0.0025
August 6, 2002	522.06	522.41	830	0.0004

GWE – Relative groundwater elevation
ft MSL – feet above Mean Sea Level

The hydraulic conductivity (K) of the aquifer ranges from 1.082 $x10^{-2}$ to 1.934 $x10^{-2}$ cm/sec (31-55 ft/day). The transmissivity (T) of the aquifer was calculated to range from 7,687 to 12,720 gal/day/ft. The hydraulic conductivity and transmissivity values were derived from the completion of hydraulic (slug) testing of on-site wells. During the February 2003 groundwater investigation, slug tests were completed on wells TMW-1D, TMW-3D and TMW-7D. Data were analyzed using the Bower and Rice Method to determine the hydraulic conductivity and transmissivity of the aquifer.

Based on the measured hydraulic gradient and conductivity, and an assumed porosity of 0.3, the groundwater velocity is calculated to range from 0.04 ft/day to 0.46 ft/day, with an average velocity of 0.15 ft/day.

2.6. Surface Water

The Site does not have surface water features within its boundaries. The nearest surface water bodies to the BASF facility are the Ohio and Guyandotte Rivers. The facility is approximately 0.7 miles south of the Ohio River and 1.1 miles west of the Guyandotte River (**Figure 1**).

2.7. Surrounding Land Use

The BASF facility is surrounded by a mix of residential, commercial and industrial areas. The facility is located within the City of Huntington, and the area is classified as urban on the USGS Huntington Quadrangle Topography Map (**Figure 1**). Residential properties bound the facility to the northeast (25th Street), while industrial/commercial properties bound the facility to the north, south and west. CSX Transportation maintains a Locomotive Shop Yard directly south of BASF, and has operated at that location since the 1920s.

2.8. Regional Water Use

Potable water for the area is supplied by the City of Huntington, which uses the Ohio River as its source. The WVDEP Division of Water Resources and the Cabell County Department of Health were contacted regarding the existence and use of private potable wells in Huntington and in the vicinity of the BASF facility. To date, no private potable wells have been identified within one (1) mile of the Site. A search for water supply wells was conducted

as part of this investigation and resulted in no records for known private potable wells within the City of Huntington.

3. Initial RCRA Facility Investigation (IRFI) Summary

The initial RFI (Phase I) was completed to address the EPA RCRA Corrective Action Program Els, "Current Human Exposures Under Control" and "Migration of Contaminated Groundwater Under Control". The objectives of the initial RFI were to collect the necessary facility information and environmental data to determine if the EPA Els were achieved at the Site and to assess the need for additional investigation or potential corrective action measures. The initial RFI Workplan was prepared in June 2000 and identified eight (8) soil AOCs, of which five (AOC 1 – 25th Street Landfill, AOC 3 – On-site Railroad Line, AOC 4 – Former Gasoline Station, AOC 7 – Electrical Transformers and AOC 8 – Former Coal Storage Area) were investigated to assess whether human exposures to contamination at the Site was acceptable. A groundwater investigation was also conducted to determine whether contaminated groundwater was present at the Site and if it was stable.

The soil investigation for the initial RFI was completed in June 2002 to characterize soil conditions within the five (5) AOCs. Twenty-four soil borings were completed and a total of 28 soil samples were collected.

Ten monitoring wells were installed across the Site in June 2002 and initially sampled in July 2002. Additional groundwater investigations were completed in February 2003 and in January/February 2005 to further characterize groundwater at the Site.

3.1. AOC 1 – 25th Street Landfill

The 25th Street Landfill was reportedly used for disposal of manufacturing residues, filter cakes, trash, building debris and discarded equipment from former operators of the Site (SUCo, and Chemetron). A review of historic aerial photographs from 1951 to 1988 documented that the landfill was used from approximately 1951 to 1980. Aerials from 1983 and 1988 did not depict any evidence of land disturbance.

BASF reportedly contracted SMC Martin, Inc. (SMC) of Valley Forge, Pennsylvania to prepare a Closure Plan in 1981. The capping/final cover of the landfill was reported to be sand and gravel and approximately one-foot thick. Based on the borings installed during this investigation (see **Section 6**), the surface cover on the former landfill is approximately one-foot thick and consists of stone and dirt, covered with a mix of vegetation. The entire landfill is surrounded by a gated fence.

The soil investigation for the former 25th Landfill detected three (3) compounds, hexachlorobenzene, PCBs (Aroclor 1248) and arsenic, at concentrations greater than the September 2001 Region III Risk-Based Concentrations (RBCs). The concentrations at which these compounds were found were then compared to the WVDEP de minimis criteria for industrial facilities. Hexachlorobenzene was found at a level greater than the WVDEP Industrial De Minimis Standard (IDMS); therefore, a risk-based evaluation was completed to assess whether additional data collection and/or remedial action were needed to achieve compliance with the EIs.

An evaluation of potential exposure pathways existing current conditions was completed and it was concluded that no further action was necessary to confirm that the EI for Human Exposure is achieved in the landfill. With the exception of the hexachlorobenzene found in AOC 1, all constituents were present at concentrations lower than their respective WVDEP IDMS, signifying that, pursuant to WVDEP regulation, uncontrolled exposure to these constituents in an industrial environment would not represent an unacceptable human exposure. The 25th Street Landfill was surrounded by fencing at the time of the IRFI as well, and prevented direct contact exposure to any constituent and ensured that potential exposure pathways were incomplete. Further, no constituent detected in the AOC 1 soil samples during the IRFI was identified in groundwater.

3.2. AOC 3 – On-Site Railroad Line

The on-Site railroad lines have been present at the facility since it was developed in 1909. A 1968 historic map of the facility identified unloading stations along the railroad tracks on the southern portion of the facility, supporting a conclusion that the rail lines were used to transport raw materials to the facility.

Seven (7) soil samples (AOC3-01 to AOC3-07) were collected from the on-site railroad track loading/unloading areas. One (1) soil sample was collected from each location at the 6-inch interval with the highest PID reading or, if no elevated PID reading was observed, the sample was collected from the first 6-inch interval of natural soil immediately below the asphalt and gravel base.

Three (3) compounds, TCE, hexachlorobenzene and arsenic, were detected in the soil samples at concentrations above the September 2001 Region III RBCs, but below their respective WVDEP IDMS. It was concluded in the August 2003 Initial Phase RFI Report that the EI for human exposure was achieved, and no further action for the on-site rail line area was proposed.

3.3. AOC 4 – Former Gasoline Station

Historical information regarding the former gasoline station is based on a review of Sanborn Maps (1931, 1938, 1950, 1954, 1963, 1965 and 1968) and aerial photographs (1938, 1950, 1957, 1959, 1969, 1974, 1980, 1983 and 1988) for the facility and surrounding area. The gasoline station was in operation prior to 1931 and the station consisted of a one-story building, with three (3) gasoline tanks as documented on the Sanborn Maps. The Sanborn Maps do not identify whether the tanks were aboveground or underground; therefore, it was assumed that the tanks were underground. It is highly unlikely that bulk storage of gasoline in aboveground tanks would have been allowed by the local fire code. The 1965 and 1968 Sanborn Maps identify the gas station as an auto sales operation although the three (3) gasoline tanks were still present on the maps. The building is no longer present in the 1974 aerial photograph, and there is no evidence of any tanks. The 1974, 1980, 1983 aerial photographs show the property was used as a parking lot, and the 1988 aerial photograph depicts the property as being vegetated with grass (existing conditions).

The initial RFI FSP proposed a non-invasive geophysical survey to be completed, to determine if underground storage tanks (USTs) were present on the property. The geophysical survey was completed by Schnabel Engineering Associates, Inc. (Schnabel) of Greensboro, North Carolina. The work plan stated that if the results of the geophysical

survey supported the conclusion that one or more USTs was present on the property, then soil borings would be completed.

The geophysical investigation was completed in June 2002 by performing an electromagnetic (EM) induction survey, and a ground penetrating radar (GPR) survey was completed on selected areas based on the results of the EM survey. The geophysical survey did not detect any underground storage tanks (USTs) at the former gasoline station area. Since no evidence of underground storage tanks was documented, no further investigation of the AOC was conducted. Based on the geophysical survey, it was concluded that the Human Exposure EI was achieved and the August 2003 Initial Phase RFI Report proposed no further action for the former gasoline station.

3.4. AOC 7 – Electrical Transformers

Based on review of BASF records for the facility, several PCB-containing electrical transformers were previously in service. No information regarding the use and PCB content of transformers at the facility prior to BASF was available for review. The IRFI Workplan identified three (3) transformers at the facility: the west side of Building 42, the east side of Building 50, and the east side of Building 69. All three (3) transformers are located on concrete pads with dikes and fencing surrounds the dikes.

The transformers, concrete pads and surrounding soils were visually inspected for evidence of leakage; no staining of either the transformers or the soil was observed. A total of nine (9) soil samples (AOC7-01 to AOC7-09) were collected from soil at the base of the concrete pads surrounding on-site electrical transformers. All soil samples were collected from 0.5 to 1.0 ft bgs and analyzed for PCBs.

PCBs were detected in only one (1) sample, AOC7-07. Aroclor 1254 was detected at 0.436 milligrams per kilogram (mg/kg), which was below both the September 2001 Region III RBC and the WVDEP De Minimis Standard of 1.4 mg/kg and 1.0 mg/kg, respectively. Based on the PCB results from the soil investigation for AOC 7, it was concluded that the Human Exposure EI had been achieved and the August 2003 Initial Phase RFI Report proposed no further action for the electrical transformers.

3.5. AOC 8 – Former Coal Storage Areas

The former coal storage areas were located adjacent to the former pot kiln building, just near where the Shipping/Warehouse buildings currently exist, and the boiler/pump room, adjacent to where Building 71 currently exists (**Figure 2**). Both storage areas were next to railroad tracks, supporting a conclusion that coal may have been delivered to the storage areas by rail cars. The Sanborn Maps document that the storage areas were part of the original SUCo facility and remained until the former pot kiln building and boiler /pump room were demolished by BASF in 1985.

No soil samples were proposed to be collected at the former coal storage area on the southern portion of the facility near the boiler/pump room (Building 71). The area of this former coal storage area was covered with asphalt; therefore, there was no potential for human exposure under conditions at that time.

Two (2) soil borings (AOC8-01 and AOC8-02) were installed to characterize the former coal storage area on the northern portion of the property. The two soil borings were each drilled to four (4) feet below ground surface adjacent to the former coal storage area. Two (2) soil samples were collected from each boring location. The first sample was collected from the first six-inch interval of native soil. The second (deeper) soil sample was collected from a six-inch interval where coal fragments were observed. The four (4) soil samples were analyzed for target compound list (TCL) PAHs and target analyte list (TAL) metals.

PAH compounds were not detected in any of the four (4) soil samples. As with the other AOCs, except for arsenic found at background levels, metals were either not detected or were detected at concentrations below the applicable September 2001 Region III RBCs. All detected metal concentrations, including arsenic, were below the WVDEP de minimis values for industrial soil. It was concluded that the Human Exposure was achieved, and the August 2003 Initial Phase RFI Report proposed no further action for the former coal storage area.

3.6. AOC 9 – Site-Wide Groundwater

Groundwater data for the facility prior to the IRFI was limited to one (1) groundwater sampling event completed for the 25th Street Landfill as part of the landfill closure plan. In March 1981,

groundwater samples were collected from four (4) former monitoring wells (MW1-25, MW2-25, MW3-25 and MW4-25) located in the landfill. The monitoring wells were reported to contain low to moderate levels of several chlorinated volatile organic compounds (CVOCs), including trans-1,2-dichloroethylene, 1,1,2,2-tetrachloroethylene, methylene chloride, and trichloroethene (TCE). Low levels of several metals, including barium, copper, chromium, iron and silver were also detected.

The initial RFI groundwater investigation was completed in several events. The first event, occurring in June and August 2002, consisted of the installation and sampling of 10 monitoring wells. Based on the results of the 2002 investigation, nine (9) additional temporary well points were installed in February 2003 in the north parking lot area and sampled along with a select group of the previously-installed monitoring wells. At this time, slug tests were conducted on three (3) wells (TMW-1D, TMW-3D and TMW-7D). A third phase of investigation was conducted in 2005 and consisted of installing an additional shallow monitoring well (TMW-11S) and sampling of seven (7) monitoring wells in February/March 2005. The results of the Initial RFI groundwater investigation were reported to the EPA in the August 2003 Initial RFI Report and September 2005 Supplemental Groundwater Investigation Report. Also included in the September 2005 Supplemental Groundwater Investigation Report were the results of vapor intrusion modeling using the Johnson and Ettinger model (Johnson, 2002) evaluating the potential impacts of vapor intrusion of chlorinated hydrocarbons from groundwater to buildings.

As presented in the September 2005 Supplemental Groundwater Investigation Report and the August 2003 Phase I IRFI Report, four (4) general categories of constituents were found at the Site at concentrations exceeding the WVDEP De Minimis Standards for Groundwater (Table 60-3B) and EPA Drinking Water Standard Maximum Contaminant Levels (MCLs):

- Chlorinated VOCs found in and adjacent to the 25th Street Landfill (TMW-5D and TMW-7D) and at the downgradient property boundary in the north parking lot (TMW-1D);

- Aromatic compounds, BTEX, found along the rail line area (TMW-4S and TMW-11S);

- Semi-volatile organic compounds (SVOCs) found along the rail line area (TMW-4S and

TMW-11S); and

- Arsenic (TMW-4S) and iron (TMW-4S and TMW-11S) found along the rail line area.

Based on the three (3) rounds of groundwater monitoring data, it was concluded that:

- Chlorinated VOC concentrations were either stable or declining;
- Reductive dechlorination of the dissolved-phase chlorinated constituents was occurring;
- No evidence of residual source material or of an on-going source of the chlorinated constituents was identified;
- BTEX concentrations in TMW-4S were declining;
- Semi-volatile organic compounds in TMW-4S were either declining or had no significant transport;
- The BTEX, aniline and n-nitrosodiphenylamine concentrations in groundwater were not migrating off-site;
- Groundwater modeling found that there would be no unacceptable risk via the vapor intrusion to indoor air pathway to receptors downgradient of the site; and
- No prospective use of potable water in Huntington, West Virginia was identified. Combined with the results of the Johnson and Ettinger modeling, the Human Exposure EI for groundwater was thought to be achieved.

Additional characterization and monitoring of groundwater was recommended in the August 2003 Initial Phase RFI Report and the September 2005 Supplemental Groundwater Investigation Results letter to the EPA. **Section 4** of this report presents the results of the additional groundwater investigation as part of the RFI Phase II.

4. Phase II RCRA Facility Investigation (Phase II RFI) Summary

The objective of RFI Phase II was to characterize soil conditions at the three (3) AOCs not included in the initial RFI: (1) AOC 2 Former Process Sewers, (2) AOC 5 On-Site Wastewater Treatment System, and (3) AOC 6 Aboveground Storage Tanks. The other objective was to determine if groundwater conditions were consistent with the trends observed from 2002 through 2005. A total of 45 soil samples were collected from the three (3) soil AOCs (AOC 2, AOC 5, and AOC 6) and samples were collected from 11 groundwater monitoring wells.

4.1. AOC 2 – Former Process Sewers

The date of the installation process sewer lines is unknown; however, it is logical to assume the individual lines were installed as facility buildings were constructed. According historical SUCo process sewer drawings, the sewer system consisted of vitrified clay piping and transported both process and domestic wastewater. Several breaks were noted on historical Plant Sewer Location Drawings. However, no written documentation regarding these reported breaks was available for review. The combined wastewater was discharged to the City of Huntington Sewers, and no on-property disposal of wastewater was conducted.

BASF installed new sewer lines in the late 1980s and early 1990s and segregated process wastewater from sanitary wastewater. Domestic sewage is now discharged directly to the City of Huntington sewer system, while the process sewer lines discharge to the on-site wastewater treatment system for pre-treatment prior to discharge to the City of Huntington system. The historic process sewer lines were abandoned and replaced with either PVC or fiberglass reinforced piping.

The process sewer lines contain stormwater collection points at various locations throughout the facility where stormwater is collected, and the stormwater is treated with the process wastewater. Wastewater from the facility is collected at Wet Well #1 where it is then transferred by overhead pipes to Wet Well #2 (see **Section 4.2** for description of the wastewater treatment plant). The pH of the wastewater is then adjusted through a series of smaller tanks at Building 76 (**Figure 2**) and then transferred by underground piping to another sump (effluent pH and flow monitoring vault) prior to being discharged to the municipal sanitary sewer.

An investigation of the soil surrounding the former process sewer lines was conducted to determine if any former release had impacted the Site soils. Twenty soil borings (AOC2-01 through AOC2-20) were advanced along the former process sewer lines throughout the facility.

Constituents were found at levels greater than the WVDEP ISDMS in three (3) locations:

- Arsenic was found at a concentration of 48.1 mg/kg at AOC2-04 (ISDMS of 27 mg/kg);
- TCE was found at a concentration of 2.3 mg/kg at AOC2-17 (ISDMS of 0.92 mg/kg); and
- Arsenic, lead, TCE, 1,2,4-trichlorobenzene (1,2,4-TCB) and PCBs were found at levels greater than their respective ISDMS at location AOC2-18. The concentration of PCBs (3,400 mg/kg) was also above the EPA level for applicability of the Toxic Substances Control Act (TSCA) regulations for site cleanup.

Aniline was detected at concentrations which exceeded the WVDEP Migration to Groundwater De Minimis Standard (MGWDMS) of 0.14 mg/kg (now 0.08 mg/kg) at AOC2-01, AOC2-1 0, AOC2-16, AOC2-17, and AOC2-20. Of these, only the concentration found at AOC2-16 (61 mg/kg) was greater than 1 mg/kg.

Additional soil sampling was recommended for AOC 2 (Former Process Sewers) in the three (3) locations at which constituents were found at levels greater than the WVDEP ISDMS (AOC2-04, AOC2-17 and AOC2-18) and in AOC2-16 where aniline was detected at 61 mg/kg.

4.2. AOC 5 – On-Site Wastewater Treatment System

The June 27, 2000 IRFI Workplan identified the on-Site wastewater treatment system as an AOC because information regarding the operation of the system prior to BASF operations was unknown. The on-Site wastewater treatment system was installed between 1965 and 1966, and is still in operation. The treatment system consists of an initial collection tank (Wet Well #1), a second collection tank (Wet Well #2), two pH adjustment tanks in series and a final tank (near AOC2-18 sample location) to monitor effluent pH and flow prior to the treated process water being discharged to the City of Huntington sewer system.

The concrete tanks extend below ground with the tank inverts at approximately 20 feet below ground surface. Liquid levels in the tanks are regulated by the depth of the discharge outlet to the City of Huntington system, which is at approximately seven (7) to nine (9) feet below ground surface, resulting in approximately 11 to 13 feet of liquid in the tank. A visual inspection of the wastewater tanks above this elevation found no evidence of cracks or other indication of compromised integrity. All piping between Wet Well #1 and the pH adjustment tank is aboveground. Piping to Wet Well #1 from the manufacturing areas and piping from the treatment system area to the connection with the municipal sewer system is subsurface.

BASF operated the on-Site wastewater treatment system in accordance with the facility's Industrial Waste Discharge Permit No. 1086010 (Huntington Sanitary Board). Flint Group Pigments currently operates the on-Site wastewater treatment system in accordance with the same permit. The discharge permit requires that all process water be monitored for pH, color, and flow prior to discharge.

Six (6) soil borings (AOC5-01 through AOC5-06) were advanced surrounding the existing wastewater treatment system tanks to a depth approximately 25 ft bgs. Sample locations AOC5-01 through AOC5-04 were located around the initial wastewater influent collection tank (Wet Well #1); the depth of the tank was approximately 18 to 19 ft bgs. Sample locations AOC5-05 and AOC5-06 were from below the invert of Wet Well #2.

No contaminants were detected at concentrations exceeding the WVDEP ISDMS. The WVDEP MGWDMS were exceeded in three (3) locations:

- Arsenic at AOC5-01-20.0 (18.2 mg/kg; MGWDMS of 5.8 mg/kg);
- PCB Aroclor 1248 at AOC5-05-22.0 (0.065 mg/kg; MGWDMS of 0.059 mg/kg); and
- PCB Aroclor 1248 at AOC5-07-20.0 (0.16 mg/kg).

No further investigation of AOC 5 (On-Site Wastewater Treatment System) soils for impact to human health was recommended given that no constituents were found at levels which exceeded their respective WVDEP ISDMS. The arsenic at location AOC5-01 was considered to be a background condition and not the result of a discharge. Therefore, no groundwater

investigation for arsenic was recommended. The PCBs identified in AOC-5-05 and AOC5-07 were not thought to be pervasive or a threat to impacting groundwater at the Site. No further investigation was recommended for AOC 5 – On-Site Wastewater Treatment System.

4.3. AOC 6 – Aboveground Storage Tanks

Sixteen borings (AOC6-01 through AOC6-16) were completed at the three (3) AST areas to evaluate if historical discharges from the ASTs had impacted soils. Soil borings were drilled near locations of former ASTs and adjacent to existing secondary containment structures.

The WVDEP ISDMS were exceeded at one (1) location, AOC6-07, located adjacent to the former toluene and xylenes AST areas. At this location, ethylbenzene (18,000 mg/kg), toluene (6,100 mg/kg) and total xylenes (12,000 mg/kg) were found at 2 feet below ground surface (bgs) at levels greater than the WVDEP ISDMS and MGWDMS. Field observations of PID readings and odors were also noted at this sample location. PCB Aroclor 1254 (8.9 mg/kg) was also detected at AOC6-07-2.0 above the EPA SSL of 0.74 mg/kg.

SVOCs and metals were found at levels above the WVDEP MGWDMS in samples collected adjacent to the former and existing aniline ASTs. Of these, only the aniline found in samples AOC6-07, AOC6-08, AOC6-09 and AOC6-10 was at a high enough concentration and in a sufficient number of samples to potentially represent a source of dissolved-phase constituents in groundwater. Therefore, additional soil investigation was proposed for these areas.

4.4. AOC 9 – Phase II RFI Groundwater Investigation

A new groundwater monitoring well, TMW-12D, was installed approximately 80 feet hydraulically downgradient of TMW-1D beyond the northern property line. The location for the well was based on property access and location of subsurface utilities. The new well was installed to investigate groundwater conditions off-Site and downgradient from TMW-1D. A groundwater sampling event was completed in July 2009 and all site monitoring wells, including the new well (TMW-12D), were sampled.

Consistent with previous sampling results, chlorinated VOCs, primarily trichloroethene (TCE) and cis-1,2-dichloroethene, were detected at concentrations above the WVDEP Groundwater De Minimis Standard (GWDMS) in deep monitoring wells in two (2) locations on the Site:

- On the northern, downgradient portion of the Site, in monitoring wells TMW-1D and TMW-12D; and
- Within the 25th Street Landfill monitoring wells TMW-5D and TMW-7D.

It was concluded that the chlorinated VOCs found in the northern, downgradient portion of the property were undergoing reductive dechlorination and would eventually decline to their respective EPA MCL. It was also concluded that the chlorinated VOCs found in the 25th Street Landfill were stable or declining, and there was no indication of any significant source area mass. Concentrations of TCE, the parent compound, had declined by up to one-half since the 2005 sampling event, and there was evidence that reductive dechlorination was occurring.

Also, similar to previous results, aromatic VOCs (ethylbenzene and total xylenes) and several SVOCs (aniline and n-nitrosodiphenylamine) were detected in shallow monitoring wells located in the southern, upgradient portion of the site (TMW-4S and TMW-11S), at concentrations above the WVDEP GWDMS.

Data from the Phase II RFI investigation provided evidence of source material in the immediate vicinity of TMW-4S and TMW-11S. Although there was no indication of soil contamination in soil during installation of either TMW-4S or TMW-11S, the dissolved-phase concentrations of aromatic hydrocarbons (several thousand micrograms per liter (ug/L) of individual constituents) supported the conclusion of source material.

Based on results of the soil investigation of the AST area (AOC 6), it was concluded that a release from an AST could be possible. Elevated levels of ethylbenzene, toluene and xylenes were found in the soil sample obtained at the 2.0-foot interval at location AOC6-07, very near TMW-4S and TMW-11S. Additional soil sampling was proposed to determine if this may be the source of the constituents found in the two (2) monitoring wells.

Arsenic was detected above the WVDEP GWDMS at TMW-2D, TMW-4S and TMW-11S. The results from TMW-2D were not necessarily representative of dissolved-phase concentrations, as turbidity levels were elevated during sampling (137 Nephelometric Turbidity Units (NTUs)). Additionally, it was concluded that the reducing conditions created by the aromatic VOCs and the SVOCs in TMW-4S and TMW-11S were sufficient to mobilize naturally-occurring arsenic such that the MCL for arsenic was exceeded in these wells. The extent of the arsenic was considered limited by the geochemical effects of the VOCs and SVOCs, and it was predicted that arsenic levels would decline as the localized geochemistry returns to background conditions.

4.5. November 2013 Groundwater Sampling Event

Groundwater results for July 2013 were consistent with the results from 2002 to 2009, and further documented the trends in groundwater concentrations observed over time. Results from off-Site downgradient well TMW-12D showed that the concentrations of constituents in groundwater potentially attributable to the Site either approach or achieve their respective MCLs and/or achieve their WVDEP GWDMS. Two (2) constituents were detected in TMW-12D that were not detected in TMW-1D, the north Site boundary well. Chloroform and dichlorobromomethane were detected at 3.3 ug/L and 1.5 ug/L respectively, and exceeded the WVDEP GWDMS. It should be noted that these compounds were not detected in wells on the Site and are not Site constituents of concern.

Consistent with previous sampling results, chlorinated VOCs, primarily trichloroethene (TCE) and cis-1,2-dichloroethene, were detected at concentrations above the WVDEP GWDMS in monitoring wells in three (3) locations on the Site:

- On the northern, downgradient portion of the Site, in monitoring well TMW-1D;
- Within the 25th Street Landfill area in monitoring wells TMW-5D and TMW-7D, and
- On the northeast corner of the warehousing operation near buildings 9, 9A, and 9B at 5.2 ug/L (cis-1,2-dichloroethene was not detected in this well).

Also, similar to previous results, aromatic VOCs (ethylbenzene and total xylenes) and SVOCs (aniline and n-nitrosodiphenylamine) were detected in monitoring wells located in the southern,

upgradient portion of the Site, TMW-4S and TMW-11S, at concentrations above their respective WVDEP GWDMS. SVOCs other than aniline and n-nitrosodiphenylamine were flagged as estimated during data validation or were below the WVDEP GWDMS.

5. RFI Data Gap Investigation

The following sections summarize activities completed for the RFI Data Gap investigation between July 2016 and September 2016.

5.1. RFI Data Gap Investigation Overview

As noted in Sections 1.1 and 1.2, the objective of this investigation is to report findings from work completed in the following areas:

- Soil investigation in five (5) areas at the Site: (1) the 25th Street Landfill (AOC 1); (2) Former Process Sewers/Wastewater Line (AOC 2); (3) Aboveground Storage Tanks (ASTs, AOC 6), (4) North Parking Lot (AOC 10); and (5) the Shipping/Warehouse Area (AOC 11);
- A Site-wide groundwater investigation (AOC 9); and
- A deep soil gas investigation along the northern and eastern property boundaries of the northern Site parking lot (AOC 10) and for the structures immediately downgradient of the 25th Street Landfill (AOC 1).

The conclusions are discussed in Section 8 for each soil AOC (1, 2, 6, 10, 11), site-wide groundwater (AOC 9), and soil gas (AOC 10 and AOC 1).

A total of 99 soil samples were collected from the five (5) soil aforementioned AOCs. Groundwater samples were collected from 22 groundwater monitoring wells and 12 grab locations. For QAPP purposes, four (4) duplicate soil samples and three (3) duplicate groundwater samples were collected in addition to equipment and trip blank samples were also collected.

5.1.1 Soil Standards

As noted in Section 1.2, soil data were evaluated against the June 2014 Voluntary Remediation and Redevelopment Rule De Minimis Standards for Industrial Soils Table 60-3B (ISDMS) and the May 2016 EPA RSLs. If a detected contaminant did not have a WVDEP Industrial Soil Standard, then the contaminant concentration was evaluated against the May 2016 RSL for industrial soils.

Detected soil contaminant concentrations were also evaluated against the WVDEP De Minimis Standard for Migration to Groundwater (MGWDMS) since the majority of the soil samples were collected subsurface and could potentially impact groundwater which is encountered at depths approximately 25 to 35 feet bgs across the facility.

5.1.2 Groundwater Standards

As noted in Section 1.2, groundwater data were compared to the Voluntary Remediation and Redevelopment Rule De Minimis Standards for Groundwater (GWDMS), Table 60-3B (June 2014). The De Minimis Standards for Groundwater are equal to or more stringent than their respective EPA RSLs and MCLs for tap water. Groundwater at the Site and the surrounding vicinity is not used for potable purposes.

5.1.3 Soil Gas Standards

As noted in Section 1.2, soil gas data were compared to the residential and commercial screening values listed in the EPA VISL Calculator Version 3.5.1. The Exterior SGC-IAC Calculator Version 3.4 was used to obtain calculated indoor air values, VI carcinogenic risk and VI hazard. A TCR of 1.00E-06 and a THQ of 1 were used for the screening process.

5.2. Data Acquisition and Field Sampling Methods

The RFI Data Gap Investigation field sampling activities included the installation of 49 soil borings (12 of which were used to collect a groundwater grab sample), 11 new groundwater monitoring well installations, 11 soil gas sample points (capped tubing still in place) accompanied by subsurface soil sampling, groundwater sampling, and laboratory/field analysis

of soil, groundwater and soil gas samples. Field activities were completed in accordance with the October 2015 FSP and QAPP.

5.2.1 Soil Borings and Subsurface Soil Sampling

Soil samples were collected using a geoprobe direct-push drill rig operated by EnviroProbe Integrated Solutions, Inc. Clear acetate liners, 60 inches in length, were used to collect soil samples at each boring. The soils were logged in the field and observations (e.g., soil lithology, moisture content, odor or staining if present, PID readings and sample depths) were recorded on soil boring logs. Upon retrieving and opening the acetate liners, the soil was screened with a PID for total volatile organic vapors.

Sample depths were biased towards intervals which exhibited the highest PID readings or intervals which exhibited noticeable staining or odor. In the case of confirmation sample locations (e.g., AOC2-04, AOC2-16, AOC2-17 and AOC2-18), samples were collected from reported depth intervals from prior investigations. Samples were placed in laboratory provided glass soil jars and vials for analysis. The drill rig tooling (cutting shoe and rods) was decontaminated between sampling locations in accordance with the Sampling Equipment Decontamination SOP in the October 2015 QAPP. Upon completion of the field investigation, field boring log data were entered into the gINT software program to produce the boring logs included in **Appendix A**.

Soil boring investigation-derived waste (IDW) was placed downhole after the boring was complete. Soil IDW which exhibited noticeable contamination or IDW from known areas of contamination was drummed for off-site disposal. As part of the field investigation, QA/QC samples such as field duplicate, equipment blank and trip blank samples were collected in accordance with the above-referenced FSP and the QAPP. The complete discussion of the QA/QC samples is presented in Section 5.2.5 of this report.

Prior to advancement of the soil borings, utilities were located by Underground Detective at proposed boring locations to prevent encountering subsurface utilities or infrastructure during the boring activities. An EM scan and GPR were used to complete the subsurface

utility clearance. If unknown obstructions were identified by the scans, the boring locations were adjusted to a safe location.

The horizontal locations for the soil borings were surveyed by Eastham and Associates, Inc. The accuracy of the survey data was routinely checked by capturing locations of site-specific features (i.e., surveyed monitoring wells and Site buildings).

5.2.2 Monitoring Well Installation and Development

Eleven monitoring wells (TMW-13 through TMW-17 in the 25th Street Landfill (AOC-1) and TMW-26 through TMW-31 in the North Parking Lot (AOC 10)) were installed during this RFI Data Gap Investigation in accordance with the October 2015 FSP and WVDEP Monitoring Well Design Standards (47CSR60). The locations of the monitoring wells are depicted on **Figure 3**. The monitoring wells were installed to characterize and evaluate groundwater in and downgradient of the 25th Street Landfill and to evaluate the groundwater quality near the residences along the northern and eastern property boundaries of the northern Site parking lot (AOC 10). EnviroProbe Integrated Solutions, a licensed West Virginia well driller, installed the wells using a hollow stem auger (HSA) drill rig. Construction details for the wells are provided in the boring logs attached as **Appendix A**.

Continuous macro cores (5-foot lengths) were collected to document subsurface geologic conditions and to determine the appropriate screening interval for the wells. The borings were advanced to depths ranging between 35 and 40 feet bgs. Drill cuttings were continuously monitored for volatile organic vapors using a PID. PID readings were observed from the drill cuttings derived from the monitoring wells installed in the North Parking Lot (TMW-26 through TMW-31). No PID readings were observed during the 25th Street Landfill well installs (TMW-13 through TMW-17). IDW was placed downhole after the boring was complete. Soil IDW which exhibited noticeable contamination or IDW from known areas of contamination was drummed for off-site disposal. The disposal manifests provided by Veolia are attached as **Appendix B**.

The monitoring wells were constructed of 2-inch threaded Schedule 40 PVC risers and 10-foot, 0.01-inch slot pre-packed screens. Additional filter pack media consisting of silica-based filter sand was installed in the annular space of the screen and was extended approximately two (2)

to three (3) feet above the tops of the screens. The annular space was then filled with bentonite to approximately one (1) foot bgs. The ground surface seal consisted of bentonite-cement grout. The wells were completed with lockable plugs and concrete pads. The monitoring wells in AOC 1 – 25th Street Landfill (TMW-13 through TMW-17) were installed with stick-up steel casings while the monitoring wells in AOC 10 – North Parking Lot (TMW-26 through TMW-31) were installed with flush-mount casings.

Upon completion of well installations, ELMSS personnel developed the wells using a submersible whale pump. The water was purged from the well at approximately 5-gallons per minute and the water was agitated to remove sediment from the well screen and from the bottom of the well. Approximately 100 gallons were purged from each well. Development was considered complete once turbidity measurement were approximately 10 NTUs or less. The newly installed monitoring wells were allowed to rest for two (2) weeks prior to sampling. The new monitoring wells were surveyed by Eastham and Associates to determine their horizontal locations and top-of-casing elevations.

5.2.3 Soil Vapor Probe (Soil Gas Implant) Installation and Sampling

Soil vapor probes were also installed at each of the new groundwater monitoring well locations to evaluate the vapor intrusion pathway for the residences along the northern and eastern property boundaries of the northern Site parking lot (AOC 10) and for the structures immediately downgradient of the 25th Street Landfill (AOC 1). One soil vapor probe was installed at each of the new groundwater monitoring well locations and was given a “V” designation. For instance, the soil vapor probe installed adjacent to TMW-26 was designated as TMW-26V.

Twelve-inch stainless steel soil gas implants were installed just above the water table in each location. Filter sand was extended approximately two (2) feet above the tops of the stainless steel implant screens. Bentonite (Enviroplug) was then brought to the ground surface, hydrated in six-inch intervals.

Prior to sampling, the implant tubing was purged using a 12-volt vacuum pump equipped with a Dwyer flowmeter. Purge times were calculated using a flow rate of 0.2 liters per minute. Soil vapor probes were allowed to rest for two (2) weeks prior to sampling.

Samples were collected using batch-certified clean 1-Liter Summa canisters; sampling was achieved by soil gas equilibration with the evacuated Summa canister. The Summa canisters were analyzed by TO15/TO15 SIM.

5.2.4 Monitoring Well Sampling

Site monitoring wells were sampled by ELMSS personnel between August 29 and August 31, 2016 as part of the RFI Data Gap Investigation, using EPA low-flow purging and sampling methods as outlined in the October 2015 FSP and QAPP. A Site-wide round of water levels was obtained on August 29, 2016 prior to commencing sampling activities. The depths to groundwater and the top of casing elevations were used to calculate relative groundwater elevations for each monitoring well location. These elevations were used to create a potentiometric contour map for the site, which is presented as **Figure 4**.

A flow through cell was used to measure in-situ field parameters (pH, temperature, conductivity, turbidity, dissolved oxygen and oxidation-reduction potential) and assess groundwater quality stabilization. Once parameters had stabilized and turbidity fell below 10 NTUs, samples were collected using glass sample vials/jars provided by the laboratory. VOC samples were collected first, followed by SVOCs, metals and PCBs (where applicable).

Purge water from monitoring wells TMW-4S, TMW-4D and TMW-11S was drummed for off-site disposal due to the known high VOC concentrations in these wells. Purge water from groundwater grab samples that exhibited an odor or sheen (TMW-25, TMW-32 and TMW-34) was also drummed for off-site disposal. Since the presence of PCBs had already been documented in the AOC2-18 location, soils from that boring as well as the groundwater grab sample from that location (TMW-25) were segregated as hazardous waste and disposed of accordingly. The purge water was disposed off-site by Veolia, and the disposal documentation is provided in **Appendix B**.

5.2.5 QA/QC Sampling

Equipment blanks, trip blanks, field duplicates, matrix spike, and matrix spike duplicate samples were collected for QA/QC purposes as outlined in the October 2015 QAPP. The

following sections provide a brief summary on the QA/QC samples utilized for the RFI Data Gap Investigation.

Field Duplicate Samples

Field duplicates provide a measure of overall sampling and test method precision as well as sample heterogeneity. Field duplicate samples were collected from each AOC at a frequency of one per 20 samples collected at each AOC. The duplicate samples were collected simultaneously or in immediate succession, using identical recovery techniques, and treated in an identical manner during storage, transportation, and analysis. The field duplicate samples were labeled so the laboratory did not know the samples were duplicates so the potential for analytical bias was eliminated. The table below identifies the field and duplication sample ID, and the analyses completed.

Field Sample	Duplicate Sample	Analyses
AOC1-12-27.5	DUP-1	VOCs, SVOCs, PCBs, Metals
TMW-19	TMW-23	VOCs, SVOCs
AOC2-33-12.5	DUP-02	VOCs, SVOCs
AOC6-17-10	DUP-3	VOCs, SVOCs
AOC6-22-10	DUP-4	VOCs, SVOCs, Total Lead, TPH-DRO/GRO
TMW-7D	TMW-18	VOCs
TMW-4D	TMW-10S	VOCs

The precision measurement is determined using the relative percent difference (RPD) between the sample and duplicate sample results. The calculated RPD for detected compounds for the duplicate samples are provided in the data validation reports for the laboratory data packages 240-67605-1, 240-67954-1, 240-68448-1, 240-68908-1 and 240-69057-1 (**Appendix C**).

With the exception of field duplicate pair AOC6-22-10/DUP-4, the relative percent differences for applicable compounds were below the allowable maximum (20%) for field duplicate pairs as required. The RPDs for ethylbenzene, toluene, and xylenes, total were above the allowable maximum (35%) for soil field duplicate pair AOC6-22-10/DUP-4. Results for these compounds should be considered estimated (J) in samples AOC6-22-10 and DUP-4.

Equipment Blanks

Equipment blanks were collected and used for internal data quality control for evaluating field and laboratory performance and to assess the effectiveness of equipment decontamination procedures. A total of 14 equipment blanks were analyzed for VOCs as part of the RFI Data Gap Investigation. Analytical results for the equipment blank samples are summarized in **Table 1**. Low concentrations of acetone, bromomethane, 1,2,4-trichlorobenzene, chloromethane, ethylbenzene, toluene, trans-1,2-dichloroethene and carbon disulfide were detected in equipment blank samples from the RFI Data Gap Investigation.

Trip Blanks

Trip blanks were collected for internal data quality control for evaluating field and laboratory performance to assess the potential introduction of contaminants from sample containers or during the transportation and storage procedures. One (1) trip blank was included in each shipment of samples submitted to the laboratory for VOC analysis. A total of 17 trip blanks were analyzed for VOCs as part of the RFI Data Gap Investigation. VOC results for trip blanks are presented on **Table 1**. Acetone was detected in every trip blank sample. Additionally, low concentrations of 1,2,4-trichlorobenzene (TRIP BLANK-04) and carbon disulfide (TRIP BLANK-15) were detected.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Samples

MS/MSD samples were used to evaluate the potential effect of the matrix of the sample on the laboratory analysis. MS/MSD samples also provide an indication of precision and accuracy. Five (5) sets of MS/MSD samples (AOC-1-12-20, AOC2-32-12.5, AOC6-18-10, AOC2-04B-25 and TMW-12D) were collected during the RFI Data Gap Investigation. Additionally, the laboratory provided MS/MSD samples for AOC2-27-15, AOC2-38-20 and TMW-25 as part of their in-house QA/QC policy quota.

With the exception of AOC1-12-20, the relative percent differences for target compounds were below the allowable maximum and the percent recoveries were within QC limits for the MS/MSD samples. The relative percent differences for target compounds were below the allowable maximum, but 1 or 2 percent recoveries for 16 compounds (circled red on the corresponding MS/MSD form in the data validation report for 240-67605) were below QC limits for soil

MS/MSD sample AOC1-12-20 (**Appendix C**). The "not detected" results for these compounds should be considered estimated, biased low (UL) in sample AOC1-12-20.

5.3. Laboratory Sample Analysis

Soil and groundwater samples collected for the RFI Data Gap Investigation were analyzed for TCL VOCs, TCL SVOCs, PCBs and metals. Tentatively Identified Compounds (TICs) were also reported for the VOC and SVOC data related to the soil samples collected in the 25th Street Landfill (AOC 1). Some samples (where obvious petroleum contaminated soils were encountered) were also sampled for total lead, total petroleum hydrocarbons diesel-range organics (TPH-DRO) and gasoline-range organics (TPH-GRO). The laboratory data packages for the RFI Data Gap Investigation are provided in **Appendix D**. Samples were transported to the laboratory and analyzed within the USEPA Region III holding times. The TCL SVOC compound list was expanded to include SVOCs (aniline, benzidine, 1,2-diphenylliydrazine, 3,3'-dimethylbenzidine, 3,3'-dimethoxybenzidine, diphenylamine, and o-toluidine) that are specific to the pigment and dye industry.

TestAmerica Laboratories, Inc. (TestAmerica) of North Canton, Ohio completed the analysis of all soil and groundwater samples. Eurofins Air Toxics, Inc. of Folsom, California completed the analysis of soil gas samples.

The soil, groundwater and soil gas results for the RFI Data Gap Investigation are presented herein. Data flags (qualifiers) for the reported data are as follows:

B = Sample contains concentrations of target analyte at a reportable level in the associated Method Blank(s).
J = Target analyte result is between the Method Detection Limit (MDL) and the Reporting Limit (RL). The result is estimated.
U = Target analyte was not detected. The associated number indicates the approximate sample concentration necessary to be detected (i.e., MDL).

The analytical qualifiers are listed adjacent to the reported data results on the data tables for each sample medium.

5.4. Field Analysis and Parameter Data Collection

Field analysis and parameter monitoring were completed during the RFI Data Gap Investigation for soil, groundwater and soil gas. PID screening was conducted on each five-foot soil interval disturbed during the RFI Data Gap Investigation. The results of the PID screening were recorded on the soil boring logs (**Appendix A**).

Field parameters collected during groundwater sampling included temperature, pH, dissolved oxygen (DO), conductivity and oxygen reduction potential (ORP). These parameters were monitored as part of the low-flow groundwater sampling activities, to demonstrate that the aquifer had stabilized and that the groundwater samples from the monitoring wells were representative of ambient aquifer conditions.

Analytical Data Validation

Data validation was completed by Alpha Geoscience in accordance with the October 2015 QAPP, and the June 1995 Region III Innovative Approaches to Data Validation Guidance Document. Organic data (VOCs, SVOCs, PCBs) for soil and groundwater samples were validated using the M-2 level review procedures. Metals data for soil and groundwater samples were validated using the IM-1 level review procedures. Copies of data validation reports for each laboratory data package are included in **Appendix C**.

Data validation qualifiers that were applied to the data according to the validation guidance criteria outlined by the USEPA Region III M-2 and I M-1 level review procedures are as follows:

U = Not detected. The associated number indicates the approximate sample concentration necessary to be detected (MDL).
B = Not detected substantially above the level reported in the laboratory or field blanks.
R = Unreliable result; data is rejected or unusable. Analyte may or may not be present in the sample.
K = Target analyte is present. Reported value may be biased high. Actual value is expected to be lower.
L = Target analyte is present. Reported value may be biased low. Actual value is expected to be higher.

UJ = Not detected, quantitation limit may be inaccurate or imprecise.
UL = Not detected, quantitation limit is probably higher.

Data usability for RFI Data Gap Investigation data were determined by the third party data validator (Alpha Geoscience), ELMSS project manager and the laboratory performing the fixed base analysis. Usability of data collected in the field was first determined by the field team and the ELMSS Project Manager. Once the data were validated, the usability of the data was determined by the project team, specifically the project manager. Overall, the RFI Data Gap Investigation data were found to have met the quality criteria as specified in the project specific QAPP, laboratory SOPs, and referenced analytical methods within the limitations discussed above. The following summarizes data quality for each data pack.

- Data Pack 240-67605-1:

There was no rejected data in this data pack.

- Data Pack 240-67954-1

There were a few semi-volatile data that were rejected (R) in this data pack. This was due to compounds with low percent recoveries in MS/MSD samples. Specifically, the "not detected" result for hexachlorocylopentadiene should be considered rejected, unusable (R) in MS/MSD sample AOC2-27-15. Also, the "not detected" results for hexachlorocylopentadiene, 2,4-dinitrophenol, and 4,6-dinitro-2-methylphenol should be considered rejected or unusable (R) in MS/MSD sample AOC2-32-12.5. The "not detected" result for hexachlorocylopentadiene should also be considered rejected, unusable (R) in sample MS/MSD sample AOC2-38-20. The "not detected" results for hexachlorocylopentadiene and 4-chloro-3-methylphenol rejected, unusable (R) in MS/MSD sample AOC2-04B-25.

- Data Pack 240-68448-1

There were a few semi-volatile data that were rejected (R) in this data pack due to low surrogate recoveries. Two (2) of three (3) acid extractable surrogate recoveries for sample TMW -34 were below control limits and below 10%. Positive results for base/neutral compounds should be considered estimated, biased low (L) and "not detected" results rejected, unusable (R) in sample TMW-34.

In addition, the relative percent difference for 2,4-dinitrophenol was above the allowable maximum and two (2) of two (2) percent recoveries for hexachlorocylopentadiene were below QC limits and below 10% for soil MS/MSD sample AOC6-18-10. The "not detected" result for hexachlorocylopentadiene should be considered rejected, unusable (R) in sample AOC6-18-10.

- Data Pack 240-68908-1

There were semi-volatile data that were rejected (R) in data pack 240-68908-1. This was due to compounds with low percent recoveries in MS/MSD samples. Two (2) of two percent recoveries for 2,4,6-trichlorophenol and 4-chloro-3-methylphenol were below QC limits and below 10% for aqueous MS/MSD sample TMW -12D. The "not detected" result for 2,4,6-trichlorophenol and 4-chloro-3-methylphenol should be considered rejected, unusable (R) in sample TMW-12D.

Communication with the third party data validator documented that the "R" qualifier was the result of the use of EPA Method 8270C for these compounds rather than the samples being unacceptable or problems with the laboratory analysis of the samples. There were no positive results (detected concentrations) of these compounds in any soil or groundwater sample collected nor are any of the constituents of concern for the Site. The data are considered acceptable since no concentrations were detected at values that were close to the WVDEP soil and groundwater De Minimis Standards for these compounds.

5.5. Sample Handling, Transport and Storage Procedures

The sampling handling, transport and storage procedures were implemented in accordance with the October 2015 QAPP. Test America provided laboratory-cleaned sample containers and added preservatives to containers that required preservation. ELMSS personnel collected samples and maintained control of samples until the samples were submitted to the laboratory via FedEx. Immediately after each sample was collected, the sample containers were appropriately labeled (including sample ID, sample date and time). Prior to transfer to the laboratory, the samples were kept in ice-packed insulated coolers. Samples were labeled, packaged and shipped by FedEx at the end of each sampling day. Samples were transported to the laboratory without breakage of bottle or damage to the samples.

Field records were maintained for samples collected, and pertinent sample information was recorded on the chain-of-custody forms. Chain-of-custody forms were signed and dated at the time of receipt and delivery of samples. Upon receipt of the samples at the laboratory, the laboratory kept internal logs to track each sample. The laboratory reports for the RFI Data Gap Investigation include Shipping and Receiving documentation and laboratory internal tracking logs for the samples (**Appendix D**).

5.6. Data Handling and Management

Data generated as part of the RFI Data Gap Investigation included information recorded in the field, laboratory analytical reports, and data validation assessments as outlined in the October 2015 FSP and QAPP. Project related documents are maintained by ELMSS in hard copy and/or electronic format, and the files will be maintained for seven (7) years following the completion of the project. At that time, ELMSS will contact BASF for transfer of the files to BASF as necessary. Test America will retain all records related to the sample analysis including raw data, calculations, derived date, calibrations and test reports for a minimum of seven (7) years after the production of the final data reports for each sample job.

Data management for the RFI Data Gap Investigation included the use of electronic data deliverables (EDD). Test America provided EPA Region II EDDs for each laboratory data package and the EDDs were then downloaded into a database. Field data for each sample location and sample collected was then added to the database from the field book and boring logs. The database was used to manage the laboratory results and minimize errors associated with data transcription when data tables were generated for this report.

6. RFI Data Gap Soil Investigation

The following sections summarize AOC investigations as outlined in Section 1.2.

6.1. AOC 1 – 25th Street Landfill

6.1.1 Soil Investigation Scope and Procedures

An investigation of the soil within the former 25th Street Landfill was conducted to identify constituents that are present in the landfilled material and to identify constituents that may have leached to groundwater from the landfill contents. A total of eight (8) geoprobe borings (AOC1-06 through AOC1-13) were advanced through the landfill material and into the native soil beneath the landfill contents per the approved RFI Data Gap Workplan. Borings were installed along the inferred axis of the landfill at a frequency of one (1) boring every 75 feet. The locations of the soil borings are illustrated on **Figure 5A**.

The cuttings were collected in five-foot acetate sleeves and were field screened using a PID with a 10.6 eV lamp. The cuttings were also visually inspected to identify potentially contaminated intervals in each location. If there were no potentially contaminated intervals identified by visual or PID field screening, one (1) sample was randomly collected from above the fill/native soil interface and one (1) sample was collected from below the interface. The samples were analyzed for TAL Metals, TCL VOCs + 10 TICs, TCL SVOCs + 20 TICs, and TCL PCBs.

One duplicate soil sample (DUP-1) was collected from sample location AOC1-12-27.5. A MS/MSD sample was also collected from AOC1-12-20. Sample locations and results where one or more of the comparison criteria were exceeded are illustrated on **Figure 5B** and analytical results are presented on **Table 2**. The soil boring logs are provided in **Appendix A**.

6.1.2 25th Street Landfill – Soil Investigation Results

Arsenic, cobalt and iron were found at levels which exceeded their respective WVDEP Migration to Groundwater De Minimis Standards (MGWDMS) in six (6) of the eight (8) locations. In boring locations AOC1-07 and AOC1-08, only cobalt and iron exceeded their respective MGWDMS. No other target analytes were detected at concentrations which exceeded their respective MGWDMS in the 25th Street Landfill (AOC 1). The MGWDMS for arsenic is 5.8 mg/kg; however,

the range of arsenic concentrations found in soil are within a typical background range for West Virginia (see **Section 2.2**).

No contaminants were detected at concentrations which exceeded their respective WVDEP Industrial Soil De Minimis Standards (ISDMS).

Analytical results are presented on **Table 2** and the locations and results that exceeded the WVDEP MGWDMS are presented on **Figure 5B**.

6.1.3 Conclusions

No constituents were found at levels greater than their respective WVDEP ISDMS. Arsenic, cobalt and iron were detected at concentrations which exceeded the Migration to Groundwater De Minimis Standards. However, as noted within this report, the concentrations of these metals are well within the documented range of naturally occurring metals in West Virginia soils (Shacklette and Boerngen, 1984). Further, none of the metals concentrations identified in the newly installed landfill wells (TMW-13 through TMW-17) exceed their respective De Minimis Standard for Groundwater (GWDMS).

The chlorinated CVOCs found in groundwater in the 25th Street Landfill also do not appear to be influenced by landfill contents. None of the RFI Data Gap soil samples revealed detections of CVOCs. The PCE and TCE concentrations in groundwater have remained stable over time and the presence of cis-1,2 dichloroethene in TMW-5D, TMW-7D and TMW-17 supports the conclusion that reductive dechlorination is occurring in the landfill.

6.1.4 Recommendations

Soils in the 25th Street Landfill (AOC 1) appear to be adequately characterized. First, no constituents were found at levels greater than their respective WVDEP ISDMS. Second, the only constituents that exceeded their respective MGWDMS were arsenic, cobalt and iron. As none of these metals are present in groundwater at concentrations which exceed their respective GWDMS, no constituent concentrations in soil appear to be a risk of influencing groundwater concentrations. No further investigation of soils within the 25th Street Landfill (AOC 1) is recommended.

6.2. AOC 2 – Former Process Sewers

As stated previously, the RFI Phase II investigation identified several areas of impact along the former process sewer lines where constituent concentrations exceeded the De Minimis Standards for Industrial Soils (ISDMS). Specifically, constituents were found at levels greater than the WVDEP ISDMS in three (3) locations:

- Arsenic was found at a concentration of 48.1 mg/kg at AOC2-04 (ISDMS of 27 mg/kg);
- Trichloroethene (TCE) was found at a concentration of 2.3 mg/kg at AOC2-17 (ISDMS of 0.92 mg/kg); and
- Arsenic, lead, TCE, 1,2,4-trichlorobenzene and PCBs were found at levels greater than their respective ISDMS at location AOC2-18. The concentration of PCBs (3,400 mg/kg) was also above the EPA level for applicability of the TSCA regulations for site clean-up.

Aniline was also identified along the former process sewer lines at concentrations which exceeded the Migration to Groundwater De Minimis Standards (AOC2-16, AOC 2-17 and AOC2-20), though none of these concentrations exceeded their respective ISDMS.

Additional soil sampling was conducted during this RFI Data Gap Investigation for AOC-2 at the three (3) locations at which constituents were found at levels greater than the WVDEP ISDMS and in the locations where elevated aniline levels were found.

6.2.1 Soil Investigation Scope and Procedures

Soil samples were collected from the locations depicted on **Figures 5C and 5D**. The GPS coordinates of the previous RFI Phase II borings (AOC2-04, AOC2-16, AOC2-17, AOC2-18 and AOC2-20) were used to locate the areas of identified contamination. These locations were used as a starting point for the RFI Data Gap soil delineation activities. For the original locations, samples collected during this RFI Data Gap Investigation were given sample IDs with a “B” designation to differentiate from the original RFI Phase II sample (i.e., AOC2-16B or AOC2-18B).

After confirmation samples were collected from the original locations, delineation activities were conducted by installing borings approximately 10 feet north, south, east, and west from the

original boring location, where technically feasible. Actual locations were determined in the field based on Site-specific utilities location results, the location of tanks and structures, and professional judgment. If field screening indicated there was potential contamination in a sample at the 10-foot distance interval, an additional boring was installed an additional 10 feet away in the same direction. This iterative process was continued until there was no indication of contamination either by observation or field screening. In each new boring, the interval from the surface to the water table was screened on five-foot intervals by a PID and visually examined by a field geologist. A sample from each interval was submitted to the laboratory for analysis if field screening indicated the potential for contamination. **Table 2.1** below summarizes analytical parameters for each sample location and depths of historical impacts and **Table 2.2** below summarizes the field approach for this RFI Data Gap Investigation (AOC 2 – Former Process Sewers).

Table 2.1

AOC 2 Analytical Parameters

Location	TAL Metals	TCL VOCs	TCL SVOCs	TCL PCBs	Depth of Historical Impact	Rationale
AOC2-04	✓	✓			7.5 - 8.0 ft	Arsenic was detected above background. "R" Qualified Values for VOCs during RFI Phase II.
AOC2-16			✓		10.0 - 10.5 ft	Aniline was detected during RFI Phase II.
AOC2-17		✓	✓		11.0 - 11.5 ft	Aniline was detected during RFI Phase II; VOCs were detected above the lower of ISDMS or Industrial RSLs.
AOC2-18	✓	✓	✓	✓	11.0 - 11.5 ft	Arsenic was detected above background; VOCs and PCBs were detected above the lower of ISDMS or Industrial RSLs.

Table 2.2

AOC 2 Field Summary

Location	Screened 5-foot Intervals from Surface to Water Table	Confirmed Concentrations at Depth of Previous Detection(s)	Sent Sample to Laboratory if Positive Screening Result at Other Depths for VOCs	Sent Sample from every Interval to Laboratory for PCBs	Additional Borings at 10 Feet N, S, E, W	Additional Borings in Same Direction if Positive Screening at Any Interval
AOC2-04	✓	✓	✓			✓
AOC2-16	✓	✓	✓		✓	✓
AOC2-17	✓	✓	✓		✓	✓
AOC2-18	✓	✓	✓	✓	✓	✓

In the case of AOC2-04B, delineation samples were not collected in the east or west direction due to the location of site buildings. In the case of AOC2-20B, a delineation sample was not collected in the southern direction due to the location of Wet Well #2 and the water treatment infrastructure.

For most locations, field screening results (visual or PID) biased the depth from which samples were collected. In the case of AOC2-18B, a sample was submitted from every five-foot interval due to the nature of the contaminants (metals, PCBs and SVOCs). If field screening or observation indicated the presence of contamination in a sample collected from a boring 10 feet from AOC2-18B, an additional boring was taken an additional 10 feet from that boring using the same screening methods. Groundwater grab samples were also collected in the AOC2-16B cluster location (TMW-24) and the AOC2-18B cluster location (TMW-25) and analyzed for the constituents specified for that sample location. Groundwater results are discussed in Section 7.

One duplicate soil sample (DUP-02) was collected from sample location AOC2-33-12.5 (AOC2-17B cluster). A MS/MSD sample was also collected from AOC2-32-12.5. Sample locations and results where one (1) or more of the comparison criteria were exceeded are illustrated on **Figure 5D** and analytical results are presented on **Table 2**. The soil boring logs are provided in **Appendix A**.

6.2.2 Soil Investigation Results

Results from the RFI Data Gap Investigation helped confirm historical data and further define the lateral and vertical extent of source areas along the wastewater line. Constituents were found at levels greater than the WVDEP ISDMS in four (4) cluster locations in AOC 2 (along Former Process Sewer/Wastewater Lines) as follows:

<u>AOC2-04B Cluster</u>

- 1,2,4-trichlorobenzene was found at a concentration of 17,000 mg/kg at AOC2-40-17.5 (ISDMS of 280 mg/kg); and
- 1,2,4-trichlorobenzene was also found at a concentration of 3,700 mg/kg at AOC2-41-20.

<u>AOC2-16B Cluster</u>

- 1,2,4-trichlorobenzene was found at a concentration of 5500 mg/kg at AOC2-22-13.5; and
- 1,2,4-trichlorobenzene was found at a concentration of 36000 mg/kg at AOC2-25-15.

<u>AOC2-18B Cluster</u>

- PCBs (Aroclor-1248) were detected at AOC2-18B-15 at a concentration of 95 mg/kg (ISDMS of 10 mg/kg). Aroclor-1248 was also detected at the depth intervals between 7.5 feet bgs and 25 feet bgs in this location at concentrations which exceeded the MGWDMS of 0.1 mg/kg (0.19 mg/kg at 7.5 feet bgs, 3.9 mg/kg at 11.5 feet bgs, 4.3 mg/kg at 20 feet bgs and 0.98 mg/kg at 25 feet bgs). The Aroclor-1248 concentration of 0.21 mg/kg identified at AOC2-39-15 (10 feet west of AOC2-18B) also exceeded the MGWDMS. The Aroclor-1248 concentration of 19 mg/kg detected in AOC2-36-10 exceeded the ISDMS of 10 mg/kg.
- 1,2,4-trichlorobenzene was detected at a concentration of 2,400 mg/kg in AOC2-18B-15, which exceeded the ISDMS of 280 mg/kg. The 1,2,4-trichlorobenzene concentrations identified at 11.5 feet bgs (5.6 mg/kg) and 20 feet bgs (120 mg/kg) in this boring location

exceeded the MGWDMS of 4.1 mg/kg.

- 1,2,4-trichlorobenzene was detected at a concentration of 1,900 mg/kg in sample AOC2-36-10 (20 feet east of AOC2-18B). The 1,2,4-trichlorobenzene concentration detected in AOC2-36-15 (22 mg/kg) exceeded the MGWDMS of 4.1 mg/kg.

- Benzidine was detected at a concentration of 3.6 mg/kg in sample AOC2-36-10, which exceeded the ISDMS of 0.11 mg/kg. It should be noted this concentration was qualified with a "J flag" and is considered estimated.

<u>AOC2-20B Cluster</u>

- Lead was detected at a concentration of 1300 mg/kg in AOC2-28-5, which exceeded the ISDMS of 1000 mg/kg. It should be noted this concentration has been qualified with a "B flag," which signifies method blank contamination. Lead was detected in the method blank at a reportable level.

No other constituent concentrations exceeded their respective ISDMS in AOC 2 – Former Process Sewers/Wastewater Lines. Analytical results are presented on **Table 2** and the locations and results that exceeded the WVDEP ISDMS are presented on **Figure 5D**.

Aniline was detected at low concentrations in many of the soil samples. Of these, the concentrations found at 22 locations exceeded the WVDEP MGWDMS of 0.08 mg/kg. Six (6) of these samples (AOC2-16B-10.5, AOC2-21-15, AOC-22-13.5, AOC2-37-10, AOC2-28-5 and AOC2-36-10) exhibited aniline concentrations greater than 1 mg/kg, the highest of which was 38 mg/kg at AOC2-28-5.

Other organic constituents which exceeded their respective MGWDMS in one (1) or more sample location include 1,2-diphenylhydrazine (as azobenzene), 1,2-dichlorobenzene, 1,4-dichlorobenzene, naphthalene, benzene, cis-1,2-dichloroethene, PCE, trichloroethene (TCE), 1,1-biphenyl, 2-methylnaphthalene and benzo(a)anthracene as presented on **Figure 5D** and **Table 2**.

Metals detected at concentrations exceeding the WVDEP MGWDMS include antimony (AOC2-28-5 only), arsenic, barium, cobalt, copper, iron and lead as summarized on **Table 2**.

6.2.3 Conclusions

Soil data collected during this RFI Data Gap Investigation support a conclusion that VOCs, SVOCs, metals and PCBs are present beneath the former process sewers (AOC 2). Most impacts are present between 10 to 15 feet bgs (approximate trench depth of the wastewater line). In some cases, these concentrations exceed their respective WVDEP ISDMS and/or MGWDMS.

The lateral and vertical extent of these impacts was further defined during this investigation. In the AOC2-16B cluster location, soil impacts appear to have been delineated in each direction except eastward. Samples collected from the AOC2-21 boring location had concentrations of aniline, naphthalene and 1,2-diphenylhydrazine that exceeded their respective MGWDMS. However, the groundwater grab sample collected in this location (TMW-24) only revealed one (1) constituent (1,2,4-trichlorobenzene) at a concentration which exceeded its respective WVDEP Groundwater De Minimis Concentration or MCL.

In the AOC2-17B cluster location, the TCE concentrations in soil which exceed the MGWDMS were not delineated to the east, west or south due to physical limitations. The MGWDMS exceedances were identified consistently for approximately 75 feet along the wastewater line (between AOC2-36 and AOC2-33). However, neither of the groundwater grab samples collected in this part of the Site (TMW-24 or TMW-25) revealed detectable concentrations of TCE. The aniline and 1,2,4-trichlorobenzene concentrations identified in the AOC2-17B location are below the MGWDMS approximately 10 feet to the east and south.

In the AOC2-18B cluster location, organic compounds were not fully delineated due to nearby utilities (electrical and natural gas) and site infrastructure (pH monitoring sump). These include 1,2,4-trichlorobenzene, 1,4-dichlorobenzene, aniline, naphthalene and PCBs (Aroclor-1248), which are present at concentrations which exceed their respective ISDMS and/or MGWDMS. The groundwater grab sample collected from this location (TMW-25) identified concentrations of

Aroclor-1248, 1,2,4-trichlorobenzene, and naphthalene which exceeded their respective Groundwater De Minimis Standard.

Metals including arsenic, barium, cobalt, and iron were identified in soil samples collected along this section of the wastewater line at concentrations which exceeded their respective MGWDMS. In addition to these metals, the groundwater grab sample collected from this location (TMW-25) identified concentrations of chromium, lead, manganese, and vanadium which exceeded their respective Groundwater De Minimis Standard. Groundwater sampling results will be discussed in further detail in Section 7.

In the AOC2-20B cluster location, the only constituent that exceeded the ISDMS was lead (1,300 mg/kg). This sample was collected from AOC2-28-5 (five (5) feet bgs). It should be noted this concentration was qualified with a "B flag," which signifies method blank contamination. Lead was detected in the method blank at a reportable level. The sample collected from the 7.5-10 feet bgs interval (AOC2-28-10) revealed a lead concentration of 72 mg/kg, below the MGWDMS of 270 mg/kg. Other metals that exceeded their respective MGWDMS in the AOC2-20B cluster location were antimony, arsenic, barium, cobalt, copper, and iron. The only organic compounds that exceeded the MGWDMS in this location were aniline, 1,2-diphenylhydrazine, and naphthalene.

In summary, VOCs, SVOCs, metals, and PCBs are present along the wastewater line at concentrations which exceed the ISDMS and/or MGWDMS. The only location where the ISDMS exceedances have not been fully delineated is the AOC2-18 cluster location. Soil is delineated as far as technically and safely feasible in the westward direction due to nearby utilities (electrical and natural gas) and site infrastructure (pH monitoring vault). The groundwater data collected in this part of the Site (TMW-24 and TMW-25) support the conclusion that the 1,2,4-trichlorobenzene, naphthalene, and Aroclor-1248 concentrations along the wastewater line have impacted groundwater.

As stated previously, PCBs (Aroclor 1248) were detected in two (2) locations during the Phase II RFI at concentrations which exceeded the MGWDMS:

- AOC5-05-22.0 at a concentration of 0.065 mg/kg (MGWDMS at that time was 0.059

mg/kg and is now 0.10 mg/kg); and

- AOC5-07-20.0 at a concentration of 0.16 mg/kg.

The PCBs identified in AOC-5-05 and AOC5-07 were not thought to be pervasive or a threat to impacting groundwater at the Site at that time. Groundwater data collected during this RFI Data Gap Investigation (see Section 7) indicates that groundwater in that area has been impacted by PCBs.

There are no occupied structures within more than 100 feet of AOC 2 where contaminants were detected, indicating that screening for indoor air vapor intrusion is not required for this area.

6.3. AOC 6 – Aboveground Storage Tanks

The RFI Phase II investigation identified one (1) location (AOC6-07) near the former toluene and xylenes AST areas where constituent concentrations exceeded the De Minimis Standards for Industrial Soils (ISDMS). In this location, ethylbenzene (18,000 mg/kg), toluene (6,100 mg/kg) and total xylenes (12,000 mg/kg) were found in the 2.0-foot depth interval at levels greater than the WVDEP ISDMS and MGWDMS.

Bulk storage of aniline as well as bulk material transfer (railroad car off-loading) is conducted in the general vicinity of AOC 6. Aniline was detected at locations AOC6-07, AOC6-08, AOC6-08 and AOC6-10 at concentrations ranging from 35 to 120 mg/kg at depths of 2.0 to 6.5 feet bgs. These sample locations were near former and existing aniline ASTs and the railroad car off-loading area.

Additional soil sampling was conducted during the RFI Data Gap Investigation for AOC 6 in the locations at which BTEX compounds and aniline were found at levels greater than the WVDEP ISDMS and/or MGWDMS.

6.3.1 Aniline Spill (September 2009)

On September 8, 2009, approximately 50,000 pounds of aniline was released from a rail car parked on-Site in the rail unloading area. A significant portion of the release was captured by the spill pan under the rail unloading area and drained into the diked secondary containment

area around the adjacent ASTs. The remainder of the release flowed or splashed beyond the spill pan and was either captured by the onsite stormwater containment system or infiltrated into a limited number of nearby unpaved areas.

Since the September 8, 2009 aniline railcar spill, several rounds of assessment and remediation activities have been conducted at the Site, including soil excavation, soil and groundwater sampling and injection gallery installations. This work was completed by Flint Pigments (the owner at the time of the spill), the results of which have been submitted to the EPA under separate cover.

6.3.2 Soil Investigation Scope and Procedures

Soil samples were collected from the locations depicted on **Figures 5C and 5D**. The GPS coordinates of the previous RFI Phase II borings (AOC6-07, AOC6-08, AOC6-09 and AOC6-10) were used to locate the areas of identified contamination. These locations were used as a starting point for this RFI Data Gap soil delineation.

After confirmation samples were collected from the original locations, delineation activities were conducted by installing borings approximately 10 feet north, south, east, and west from the original boring location, where technically feasible. Actual locations were determined in the field based on Site-specific utilities location results, the location of tanks and containment structures, and professional judgment. If field screening indicated there was potential contamination in a sample at the 10-foot distance interval, an additional boring was installed an additional 10 feet away in the same direction. This iterative process was continued until there was no indication of contamination either by observation or field screening. In each new boring, each interval from the surface to the water table was screened on five-foot intervals by a PID and visually examined by a field geologist. A sample from each interval was submitted to the laboratory for analysis if field screening indicated the potential for contamination.

6.3.3 Soil Investigation Results

Results from this RFI Data Gap Investigation helped confirm historical data and further define the lateral and vertical extent of BTEX and aniline source areas near the ASTs and railroad car

off-loading area. Constituents were found at levels greater than the WVDEP ISDMS in five (5) locations of AOC 6 as follows:

AOC6-07

- Ethylbenzene was found at a concentration of 990 mg/kg at AOC6-07-7.5 (ISDMS of 290 mg/kg);
- Toluene was also found a concentration of 1,100 mg/kg in AOC6-07-7.5 (ISDMS of 820 mg/kg. It should be noted this concentration has been qualified with a “B flag,” which signifies method blank contamination. Toluene was detected in the method blank at a reportable level; and
- Xylenes were also found at a concentration of 4,500 mg/kg at AOC6-07-7.5 (ISDMS of 260 mg/kg).

AOC6-17

- Ethylbenzene was found at a concentration of 1,500 mg/kg at AOC6-17-10;
- Toluene was also found a concentration of 1,300 mg/kg in AOC6-17-10 (also with a “B flag”); and
- Xylenes were also found at a concentration of 6800 mg/kg at AOC6-17-10.

AOC6-19

- Ethylbenzene was found at a concentration of 340 mg/kg at AOC6-19-20; and
- Xylenes were also found at a concentration of 1,500 mg/kg at AOC6-19-20.

AOC6-20

- Xylenes were found at a concentration of 300 mg/kg at AOC6-20-15.

AOC6-22

The most impacted depth interval in this boring location was 7.5-10.0 feet bgs. Two (2) samples (AOC6-22-10 and DUP-4) were collected from this location and depth interval. The concentrations reported for DUP-4 were higher and have been listed here for discussion.

- Ethylbenzene was found at a concentration of 610 mg/kg in duplicate sample DUP-4 (AOC-22-10);
- Toluene was also found a concentration of 3,700 mg/kg in DUP-4; and
- Xylenes were also found at a concentration of 2,600 mg/kg in DUP-4.

It should be noted that the above concentrations identified in duplicate soil sample (DUP-4) were "J flagged" and are considered estimated. Duplicate soil sample (DUP-4) also revealed a GRO concentration of 13,000 mg/kg (ISDMS of 6,600 mg/kg).

No other constituent concentrations exceeded their respective ISDMS in AOC 6 – Aboveground Storage Tanks. Analytical results are presented on **Table 2** and the locations and results that exceeded the WVDEP ISDMS are presented on **Figure 5D**.

With the exception of AOC6-20 and AOC6-21, aniline was detected in each boring location at concentrations which exceeded the MGWDMS. Other organic constituents which exceeded their respective MGWDMS in one (1) or more sample location include benzene, isopropylbenzene, diphenylamine, naphthalene, N-nitrosodiphenylamine, 2,4-dinitrotoluene, 1,2,4-trichlorobenzene, and 1,4-dichlorobenzene as presented on **Figure 5D** and **Table 2**.

The only metal sampled for in AOC-6 was lead (boring locations AOC6-19, AOC6-20, AOC6-21, AOC6-22 and AOC6-23). The only lead concentration that exceeded the MGWDMS was found in AOC6-07-2.5 (790 mg/kg). It should be noted this concentration has been qualified with a "B flag," which signifies method blank contamination. Lead was detected in the method blank at a reportable level.

6.3.4 Conclusions

Ethylbenzene, toluene and/or total xylenes were detected in five (5) boring locations (AOC6-07, AOC6-17, AOC6-19, AOC6-20 and AOC6-22) at concentrations which exceeded their respective ISDMS. The horizontal and vertical extents of these WVDEP ISDMS exceedances were more fully defined during this RFI Data Gap Investigation. The impacted zone extends approximately 50 feet in an east-west direction along the railroad car off-loading area (between AOC6-07 and AOC6-21) down to an approximate depth of 20 feet, and extends approximately 30 feet in a north-south direction adjacent to the aniline tank farm (dike 83, between AOC6-07 and AOC6-08) down to an approximate depth of 10 feet.

The source area mass outlined above has impacted the nearby monitoring wells, TMW-4S and TMW-4D. These monitoring wells, along with the groundwater grab samples collected in this area (TMW-32, TMW-34 and TMW-36), contained concentrations of ethylbenzene, toluene and/or xylenes which exceeded the WVDEP Groundwater De Minimis Standards (**Figure 6**).

As discussed above, aniline and other SVOCs were found at levels above the WVDEP MGWDMS in samples collected adjacent to the former and existing aniline ASTs. The aniline concentrations found in samples AOC6-07, AOC6-08, AOC6-09 and AOC6-10 represent a likely source of dissolved-phase constituents in groundwater. Further, groundwater grab samples were collected in the AOC6-07 (TMW-32), AOC6-08 (TMW-36) and AOC6-10 (TMW-33) locations contained aniline concentrations which exceeded the Groundwater De Minimis Standard. Other SVOCs, including naphthalene, diphenylamine and N-nitrosodiphenylamine, were present in one or more AOC 6 groundwater grab samples at concentrations which exceeded their respective De Minimis Standard. Groundwater results are discussed further in Section 7.

Buildings were inspected in the areas in and around AOC 2 and AOC 6 during the field investigation. There are no occupied buildings within 100 feet of the soil containing VOCs where there is the potential for indoor air vapor intrusion. Storage areas and control areas for railcar and truck off-loading are also unoccupied.

6.4. AOC 11 – Shipping and Warehouse Area

The RFI Data Gap objective for this portion of the Site was to delineate the groundwater exceedance that has historically been present in TMW-9D. The approved scope of work for AOC 11 involved collecting four (4) groundwater grab samples in this area to delineate groundwater upgradient and cross-gradient of TMW-9D.

Soils were screened in five-foot intervals from the ground surface to the water table using a calibrated PID. The PID readings recorded during the soil screening activities in AOC 11 are suspected to be erroneous. The PID readings were very erratic and would not stabilize on any consistent given value. The PID was recalibrated several times and the vendor from which the PID meter was rented was contacted to troubleshoot the issue. Field personnel followed the vendor's instructions for resetting and calibration of the meter. Although the PID readings are recorded on the field boring logs, the data is considered suspect. Further, the soils from each boring in AOC 11 exhibited no odors or staining. However, to be conservative, the soil sample which exhibited the highest PID reading from each boring was collected for laboratory analysis of TCL VOCs and TCL SVOCs.

Acetone was detected in two (2) of the soil samples at concentrations well below the MGWDMS. Both concentrations were “B flagged” because acetone was detected in the method blank. Acetone in this case is considered a laboratory contaminant. Minor concentrations of bis(2-ethylhexyl)phthalate were detected in the three (3) soil samples which were also below the MGWDMS and ‘B flagged’. Phenanthrene was detected in two (2) of the soil samples at concentrations which were well below the MGWDMS. No other constituents were detected in the soil samples collected in AOC 11 – Shipping and Warehouse Area. Given these findings, no further investigation of soils in this part of the Site is recommended.

7. RFI Data Gap Groundwater Investigation

The following sections summarize groundwater investigations as outlined in Section 1.2.

7.1. Summary of Groundwater Investigation Scope and Procedures

A Site-wide groundwater sampling event was completed as part of this RFI Data Gap investigation. The groundwater study involved installing five (5) new monitoring wells in AOC 1 – 25th Street Landfill and six (6) new monitoring wells in AOC 10 – North Parking Lot. These wells were placed as close as possible to adjacent residences and businesses to evaluate the risk for vapor intrusion as well as to establish groundwater concentrations in the study area. Details regarding the installation and construction of the wells are presented in Section 5.2.2 and the well boring logs are included in **Appendix A**. In addition, 12 groundwater grab samples were collected in AOC 2 – Former Process Sewers/Wastewater Line, AOC 6 – Aboveground Storage Tank Areas and AOC 11 – Shipping Warehouse Area.

The groundwater sampling event was completed between August 29 and 31, 2016 and included existing site monitoring wells (11 wells) and the aforementioned new monitoring wells (11 wells) resulting in a total of 22 wells. The above-referenced 12 groundwater grab samples were collected as the borings were installed for the soil investigation in each AOC (see Section 6). In total, 34 groundwater samples were collected during this RFI Data Gap Investigation.

Site-wide water levels were measured on August 29, 2016 using a field decontaminated Testwell water level meter. Depths to groundwater, surveyed top of casing elevations and relative groundwater elevations relative to top of casing are summarized in **Table 3**. Purging was accomplished by using a variable speed peristaltic pump with the pumping rate adjusted to equal the approximate recharge rate of the well. A field decontaminated stainless steel Monsoon submersible pump was used for several monitoring wells due to the depth to groundwater. Indicator parameters of pH, temperature, specific conductance, turbidity, oxidation-reduction potential, and dissolved oxygen were measured regularly during purging with a Horiba U-52 water quality meter until the measured values stabilized within an approximate 10 percent tolerance. This low-flow method allows the collection of groundwater samples that have the least total suspended solid count obtainable without filtering in the field, thus giving a more accurate indication of dissolved constituents present in the groundwater. **Table 4** summarizes the stabilized groundwater quality parameters that were obtained in the field prior to sampling each monitoring well. Field data sheets are attached as **Appendix E**.

Groundwater results are presented in **Table 5** and the laboratory data reports are attached as **Appendix D**. The concentrations of constituents found in groundwater were screened against the WVCSR 60-3 Voluntary Remediation and Redevelopment Rule, De Minimis Standards for Groundwater (GWDMS). The June 2014 GWDMS are equal to or more stringent than the EPA May 2016 RSLs and MCLs for tap water.

7.2. Groundwater Results

Groundwater results for this RFI Data Gap Investigation are consistent with results obtained from the Site between 2002 to 2013, and further document the trends in groundwater concentrations observed over time. The discussion below summarizes results by constituent type.

Consistent with previous sampling results, chlorinated VOCs, primarily PCE, TCE and/or 1,1,2,2-tetrachloroethane (1,1,2,2-PCA), were detected at concentrations above the WVDEP GWDMS in following three (3) locations on the Site:

- In the North Parking Lot (AOC 10), in monitoring wells TMW-26, TMW-27, TMW-28, TMW-29, TMW-30, TMW-31 and TMW-1D;

- In the Shipping/Warehouse Area (AOC 11), in monitoring well TMW-9D and groundwater grab sample locations TMW-19 and TMW-22; and

- In the 25th Street Landfill (AOC 1), in monitoring wells TMW-5D, TMW-7D and TMW-17.

Vinyl chloride was also detected in the downgradient off-site monitoring well, TMW-12D, at a concentration of 2.1 ug/L, which exceeds the GWDMS of 2.0 ug/L. No other groundwater exceedances were detected in the off-Site sentinel well.

Also similar to previous results, aromatic VOCs (ethylbenzene, toluene and total xylenes) and SVOCs (aniline, naphthalene, diphenylamine, and n-nitrosodiphenylamine) were detected in monitoring wells located in the southern, upgradient portion of the site (AOC 6), TMW-4S, TMW-4D and TMW-11S, at concentrations above the WVDEP GWDMS. As mentioned previously, the exceedances of ethylbenzene, toluene and/or xylenes also extend eastward beyond this

well cluster, as evidenced by the concentrations identified in groundwater grab samples TMW-32, TMW-34 and TMW-36, which were collected near the railroad car off-loading area and tank dike 83.

The compound 1,2,4-trichlorobenzene, for which exceedances of the MGWDMS were detected in locations along the former process sewer and wastewater lines (AOC 2), was detected in groundwater grab sample TMW-24 at a concentration of 73 ug/L, which exceeds the GWDMS of 70 ug/L. No other groundwater exceedances for this compound were identified during this RFI Data Gap sampling event.

PCBs (Aroclor-1248) were detected at 210 ug/L in TMW-25, which exceeds the GWDMS of 0.034 ug/L. PCBs in groundwater have not been historically delineated along the former process sewer/wastewater line (AOC 2). No other groundwater samples were analyzed for PCBs in this portion of the Site.

Aniline concentrations which exceeded the GWDMS were identified in groundwater grab samples TMW-32, TMW-33 and TMW-36, which are located adjacent to tank dikes 83 (aniline tank farm) and 84 (mid-plant tank farm) in AOC 6.

The only metal exceedances were identified in monitoring well TMW-2D (arsenic, iron and manganese) and groundwater grab sample TMW-25 (arsenic, barium, chromium, cobalt, iron, lead, manganese and vanadium). The metal concentrations found in TMW-25 are most likely due to turbidity as this sample was collected as a groundwater grab sample directly through a Geoprobe water sampler instead of from a fully developed well with a pre-packed well screen.
The RFI Data Gap groundwater data results for exceedances to the WVDEP GWDMS are summarized on **Figure 6**, and the results for analyzed compounds are presented in **Table 5**.

7.3. Conclusions

Results of this RFI Data Gap groundwater sampling event provide the following new information regarding groundwater conditions at the Site:

- The eastern extent of the chlorinated solvent plume (TCE, PCE and 1,1,2,2-PCA) in the

North Parking Lot (AOC 10) has not been delineated. Concentrations of these chlorinated solvents exceed their respective residential Vapor Intrusion Screening Levels (see Section 8). The source area of the chlorinated solvents found in groundwater in AOC 10 is currently unknown.

- Downgradient of the Site's northern property boundary, in off-site sentinel well TMW-12D, vinyl chloride is the only constituent that is present in groundwater at a concentration (2.1 ug/L) which slightly exceeds the MCL and GWDMS (2.0 ug/L).

- With the exception of 1,1,2,2-PCA and naphthalene, for which the respective WVDEP GWDMS are very low (0.067 ug/L and 0.14 ug/L, respectively), all constituents of interest achieve or approach their respective WVDEP GWDMS in the Shipping/Warehouse Area (AOC 11). Naphthalene was only detected in one (1) location in this part of the Site (TMW-9D), at a concentration of 0.91 ug/L. All three (3) 1,1,2,2-PCA concentrations identified in AOC-11 were estimated and flagged with “J” qualifiers.

- TCE and/or PCE concentrations in AOC 1 - 25th Street Landfill (TMW-5D, TMW-7D and TMW-17) still appear to be limited to its eastern margin. The newly installed well, TMW-17, was installed as close to the upgradient property corner as possible. It is unknown whether the chlorinated solvents in groundwater are originating on-Site or from the upgradient CSX property. No chlorinated solvents were identified in any of the RFI Data Gap soil samples collected from the 25th Street Landfill. Indoor air modeling for MW-7D is discussed in Section 8.

- Degradation of the aromatic VOCs and the SVOCs found in the upgradient monitoring wells is being observed. Concentrations of ethylbenzene, toluene and xylenes declined significantly in TMW-11S between 2013 and 2016, while the levels of those constituents in TMW-4S remained at levels well below the levels identified between 2002 and 2009. Aniline levels in both wells have also declined since 2013.

- The exceedances of ethylbenzene, toluene and/or xylenes have been further delineated, extending eastward beyond monitoring wells TMW-4S, TMW-4D and TMW-11S, as evidenced by the concentrations identified in groundwater grab samples TMW-32, TMW-34 and TMW-36, which were collected near the railroad car off-loading area and tank

dike 83 (AOC 6).

- Aniline concentrations that exceeded the GWDMS were identified in groundwater grab samples TMW-32, TMW-33 and TMW-36, which are located in AOC 6 adjacent to tank dikes 83 (aniline tank farm) and 84 (mid-plant tank farm).

- PCBs (Aroclor-1248) were identified in TMW-25 in excess of the GWDMS. PCBs in groundwater have not been delineated along the former process sewer/wastewater line (AOC 2). No other groundwater samples were analyzed for PCBs in this part of the Site. Also, 1,2,4 trichlorobenzene was detected above standards in AOC 2.

7.3.1 Nature and Extent of Groundwater Impacts

Four (4) categories of constituents were found in groundwater at concentrations greater than the EPA MCLs and/or the WVDEP GWDMS:

- Chlorinated VOCs were found in the 25th Street Landfill (AOC 1), in the downgradient monitoring wells located in the North Parking Lot (AOC 10) and in the Shipping/Warehouse area (AOC 11);

- Aromatic VOCs and SVOCs were found in the most upgradient monitoring wells and/or groundwater sample locations (AOC 6);

- PCBs (Aroclor-1248) were found along the wastewater line (AOC 2) near the western property boundary in groundwater grab sample location TMW-25; and

- Metal exceedances were identified in monitoring well TMW-2D (arsenic, iron and manganese) and groundwater grab sample TMW-25 (arsenic, barium, chromium, cobalt, iron, lead, manganese and vanadium). The metal concentrations found in TMW-25 are most likely due to turbidity; this sample was collected as a groundwater grab sample directly through a Geoprobe water sampler instead of from a fully developed well with a well screen and sand pack. Metals do not appear to be a significant issue at the Site.

The extent of the groundwater constituents is generally well understood in AOC 1 (25th Street Landfill). The chlorinated VOCs found in the wells installed in the 25th Street Landfill are relatively low and have remained stable since 2013. The extent is limited based on the absence

of these constituents in the monitoring wells installed on the western end of the landfill (TMW-6D, TMW-8D, TMW-13, TMW-14, TMW-15 and TMW-16).

The extent of the chlorinated VOCs found in AOC 11 (Shipping/Warehouse Area) is also generally well understood. Based on the August 2016 groundwater data, the PCE and TCE exceedances found in the North Parking Lot Area (AOC 10) do not extend westward onto AOC 11. Though PCE and/or TCE were identified in AOC 11 groundwater sample locations (TMW-9D, TMW-19 and TMW-22), no exceedances for these compounds were identified. With the exception of 1,1,2,2-PCA and naphthalene, for which the respective WVDEP GWDMS are very low (0.067 ug/L and 0.14 ug/L, respectively), constituents of interest achieve or approach their respective WVDEP GWDMS in the Shipping/Warehouse Area (AOC 11). Naphthalene was only detected in one (1) location in this part of the Site (TMW-9D), at a concentration of 0.91 ug/L. All three (3) 1,1,2,2-PCA concentrations identified in AOC-11 were estimated and flagged with “J” qualifiers.

The aromatic VOC (ethylbenzene, toluene and xylenes) concentrations found in upgradient monitoring wells TMW-4S and TMW-11S have declined significantly since 2002. Concentrations indicative of 2002 levels were identified in groundwater grab samples TMW-32 and TMW-34 during this RFI Data Gap investigation. The exceedances of ethylbenzene, toluene and/or xylenes have been further delineated, extending eastward beyond monitoring wells TMW-4S, TMW-4D and TMW-11S, as evidenced by the concentrations identified in groundwater grab samples TMW-32, TMW-34 and TMW-36, all of which were collected near the railroad car off-loading area and tank dike 83. The extent of these groundwater constituents appear to be well defined in these areas, as evidenced by their absence in sample locations TMW-33, TMW-35 and TMW-37 and low concentrations in monitoring well TMW-11S.

The extent to which aniline concentrations exceed the GWDMS is also better understood after this investigation. Aniline concentrations which exceeded the GWDMS were identified in groundwater grab samples TMW-32, TMW-33 and TMW-36, which are located adjacent to tank dikes 83 (aniline tank farm) and 84 (mid-plant tank farm). No other exceedances for aniline were identified in groundwater.

The extent of the chlorinated solvent plume in the North Parking Lot (AOC 10) remains unknown along the eastern property boundary towards Homestead Court. The off-Site sentinel well to the north, TMW-12D, only had one groundwater exceedance (vinyl chloride) which indicates reductive dechlorination is occurring at the Site. Further definition of the groundwater plume is warranted along the northern and eastern property boundaries of the North Parking Lot. TCE and PCE soil gas concentrations (TMW-26V through TMW-31V) exceed the Vapor Intrusion Screening Levels for residential properties (see Section 8).

The other area of groundwater contamination that requires further evaluation is along the former process sewer/wastewater line (AOC 2). PCBs (Aroclor-1248) were identified in TMW-25 and 1,2,4 trichlorobenzene was identified in TMW-24 and TMW-25 in excess of the GWDMS.

8. RFI Data Gap Soil Gas Investigation

As discussed in Section 7, groundwater monitoring wells were installed and sampled in the 25th Street Landfill (AOC 1) and the North Parking Lot (AOC 10). Existing wells were also sampled as part of this RFI Data Gap investigation.

Seven (7) wells in the North Parking Lot (AOC 10), revealed concentrations of PCE, TCE and 1,1,2,2-tetrachloroethane (1,1,2,2-PCA) above the May 2016 VISL for groundwater. It should be noted the off-site sentinel well, TMW-12D, revealed a vinyl chloride concentration that also exceeded the May 2016 VISL screening levels for groundwater. In addition, three (3) wells in the 25th Street Landfill, TMW-5D, TMW-7D and TMW-17 had concentrations of PCE and/or TCE that exceeded the May 2016 VISL values.

8.1. Summary of Soil Gas Investigation Scope and Procedures

Soil vapor probes were installed at each of the new groundwater monitoring well locations to evaluate the vapor intrusion pathway for the residences along the northern and eastern property boundaries of the northern Site parking lot (AOC-10) and for the structures immediately downgradient of the 25th Street Landfill (AOC-1). As noted in Section 5.2.3, one (1) soil vapor probe was installed at each of the new groundwater monitoring well locations and was given a “V” designation. A total of 11 soil vapor probes (five (5) in the 25th Street Landfill and six (6) in

the North Parking Lot) were installed as part of this RFI Data Gap investigation. Soil vapor probe locations are depicted on **Figure 7**.

Pressures within the Summa canisters were recorded before and after sample collection. After collection of each sample, the Summa canisters were closed, sealed with a brass cap, and shipped under chain-of-custody (COC) procedures to Air Toxics Ltd. in Folsom, California for analysis. Samples were analyzed by Modified USEPA Method TO-15 for total VOCs (full-scan).

Soil gas data were compared to the residential and commercial screening values listed in the EPA VISL Calculator Version 3.5.1. The Exterior Soil Gas Concentration to Indoor Air Concentration (SGC-IAC) Calculator Version 3.5.1 was also used to obtain calculated indoor air values, VI carcinogenic risk and VI hazard. A TCR of 1.00E-06 and a THQ for Non-Carcinogens (THQ) of 1 were used for the screening process.

Soil gas results are presented in **Table 6** and the laboratory data reports are attached as **Appendix D**. Results for soil gas were screened using the May 2016 VISL Calculator to estimate potential risk. Exceedances of the May 2016 Vapor Intrusion Screening Levels are shown on **Figure 7** and the VISL Risk Estimation calculations are attached as **Appendix F**.

8.2. Deep Soil Gas Results

As noted above, results of the laboratory analysis for VOCs in deep soil gas samples are presented in **Table 6** and are compared to the May 2016 residential and commercial Vapor Intrusion Screening Levels. Exceedances of the residential and/or commercial VISL screening values are presented on **Figure 7**. The laboratory data reports are included in **Appendix D**. The VISL spreadsheets for AOC 1 and AOC 10 sample locations are included in Appendix F.

Analytical results indicate that 25 VOC constituents were detected in the 11 soil gas samples collected during this RFI Data Gap investigation. Constituents detected in soil gas samples include: ethanol, acetone, carbon disulfide, carbon tetrachloride, hexane, cyclohexane, benzene, heptane, trichloroethene, toluene, tetrachloroethene, ethylbenzene, m,p-xylene, o-xylene, 4-ethyltoluene, 1,3,5-trimethylbenzene, 1,2,4-trimethylbenzene, 4-methyl-2-pentanone,

2-butanone, 1,2-dichloroethane, styrene, propylbenzene, 2-propanol, 2,2,4-trimethylpentane, and chloroform.

Of the detections above, only three (3) constituents were detected at concentrations above their respective May 2016 Vapor Intrusion Screening Levels:

- Carbon tetrachloride (TMW-29V, TMW-30V, and TMW-31V, with concentrations ranging from 9.1 to 100 ug/m^3);
- Tetrachloroethene (TMW-26V, TMW-27V, TMW-29V, and TMW-30V, with concentrations ranging from 210 to 4200 ug/m^3); and
- Trichloroethene (TMW-26V, TMW-27V, TMW-30V and TMW-31V, with concentrations ranging from 12 to 54 ug/m^3).

Residential screening values were used for screening the detections in AOC 10 because residential properties are located along the eastern boundary of the North Parking Lot. Commercial screening values were used in AOC 1 since the downgradient structures have non-residential occupancies. The soil gas exceedances were found in the North Parking Lot (AOC 10). No exceedances for deep soil gas were identified in the 25th Street Landfill. However, MW-7D, which was installed on the northeast boundary of the 25th Street Landfill parcel, exceeded the VISL groundwater screening level for TCE with an estimated VI carcinogenic risk of 4.5 x 10^{-6} and VI hazard of 1.4.

The soil gas data for the 25th Street Landfill support the conclusion that concentrations do not pose an exposure risk to indoor air (i.e., do not exceed the VISL screening levels along the northern boundary of the landfill). The groundwater VI screening level exceedance in MW-7D will need to be reviewed with respect to the occupancy directly downgradient of that well.

8.3. Conclusions of Deep Soil Gas Results

A deep soil gas field investigation was completed to evaluate the vapor intrusion pathway for the residences along the northern and eastern property boundaries of the North Parking Lot (AOC-10) and for the structures immediately downgradient of the 25th Street Landfill (AOC-1). Analytical results indicate that 25 VOCs were detected in the 11 soil gas samples collected.

Three (3) of those constituents were detected in concentrations greater than their respective residential and/or commercial soil gas VISL screening levels: carbon tetrachloride, tetrachloroethene, and trichloroethene.

No soil gas exceedances were identified in AOC 1 – 25th Street Landfill. Since MW-7D on the northeastern border of the landfill parcel had a VI screening level exceedance for TCE, additional consideration needs to be given to evaluating the structure downgradient of that well.

VISL exceedances for soil gas were found in the North Parking Lot (AOC 10), along the northern and eastern property boundaries as depicted in **Figure 7**. Residential properties along Homestead Court are located approximately 75 feet to the east of the property boundary and identified screening level exceedances. In addition, residences and a business are located approximately 100 feet to the north of the property boundary and identified screening level exceedances. The residences appear to be constructed with a crawl space and the business is slab-on-grade construction.

Additional information is necessary to further evaluate the vapor intrusion pathway for the residences immediately to the east along Homestead Court and to the north along 4th Avenue. Groundwater and deep soil gas data support the conclusion that residential indoor air within the vicinity of the groundwater contaminant plume could potentially be impacted. As noted in Section 7, the downgradient and eastern extent of PCE, TCE, 1,1,2,2-PCA, and vinyl chloride in groundwater in the North Parking Lot (adjacent to Homestead Place) requires further delineation.

9. Conclusions

The following conclusions are provided based on work completed during this RFI Data Gap Investigation.

9.1. Conclusions from RFI Data Gap Soil Results

9.1.1 AOC 1 – 25th Street Landfill

No further investigation of soils within the 25th Street Landfill (AOC-1) are necessary. No constituents of concern exceeded their potential for impact to human health (i.e., no constituents were found at levels greater than their respective WVDEP ISDMS) and the only constituents that exceeded their respective MGWDMS were arsenic, cobalt and iron. As none of these metals are present in groundwater at concentrations which exceed their respective GWDMS, no constituent concentrations in soil appear to be a risk of influencing groundwater concentrations. Additionally, the CVOCs found in groundwater in the 25th Street Landfill also do not appear to be influenced by landfill contents given none of the RFI Data Gap soil samples revealed detections of CVOCs. The PCE and TCE concentrations in groundwater have remained stable over time and the presence of cis-1,2 dichloroethene in TMW-5D, TMW-7D and TMW-17 supports the conclusion that reductive dechlorination is occurring in the landfill.

9.1.2 AOC 2 – Former Process Sewers / Wastewater Lines

VOCs, SVOCs, metals and PCBs are present along the wastewater line at concentrations which exceed the ISDMS and/or MGWDMS. The only location where the ISDMS exceedances have not been fully delineated is the AOC2-18 cluster location. Soil is delineated as far as technically and safely feasible in the westward direction due to nearby utilities (electrical and natural gas) and site infrastructure (pH monitoring vault). The groundwater data collected in this part of the Site support the conclusion that the 1,2,4-trichlorobenzene, naphthalene and Aroclor-1248 concentrations along the wastewater line have impacted groundwater.

9.1.3 AOC 6 – AST Areas

The horizontal and vertical extents of WVDEP ISDMS exceedances were more fully defined during this RFI Data Gap Investigation. The contaminated zone extends approximately 50 feet in an east-west direction along the railroad car off-loading area down to an approximate depth of 20 feet, and extends approximately 30 feet in a north-south direction adjacent to the aniline tank farm. The source area mass outlined above has likely impacted the nearby monitoring wells, TMW-4S and TMW-4D.

Aniline and other SVOCs were found at levels above the WVDEP MGWDMS in samples collected adjacent to the former and existing aniline ASTs. The aniline concentrations dected may represent a source of dissolved-phase constituents in groundwater.

9.2. Conclusions from RFI Data Gap Groundwater Results

Four (4) categories of constituents were found in groundwater at concentrations greater than the EPA MCLs and/or the WVDEP GWDMS:

- Chlorinated VOCs were found in the 25th Street Landfill (AOC 1), in the downgradient monitoring wells located in the North Parking Lot (AOC 10) and in the Shipping/Warehouse area (AOC 11);
- Aromatic VOCs and SVOCs were found in the most upgradient monitoring wells and/or groundwater sample locations (AOC 6);
- PCBs (Aroclor-1248) and 1,2,4 trichlorobenzene were found along the wastewater line (AOC 2) near the western property boundary in groundwater grab sample location TMW-24 and/or TMW-25; and
- Metal exceedances were identified in monitoring well TMW-2D (arsenic, iron and manganese) and groundwater grab sample TMW-25 (arsenic, barium, chromium, cobalt, iron, lead, manganese and vanadium). Metals do not appear to be a significant issue at the Site.

The extent of the groundwater constituents is generally well understood in AOC 1 (25th Street Landfill) and in AOC 11 (Shipping/Warehouse Area). The aromatic VOC (ethylbenzene, toluene and xylenes) concentrations at the Site have declined significantly since 2002 have been further delineated and the extent of these groundwater constituents appear to be well defined. The extent to which aniline concentrations exceed the GWDMS is also better understood after this investigation and do not require additional groundwater delineation.

The extent of the chlorinated solvent plume in the North Parking Lot (AOC 10) remains unknown along the eastern property boundary towards Homestead Court and requires additional delineation. The off-Site sentinel well to the north only had one groundwater exceedance (vinyl

chloride at 2.1 ug/L) which slightly exceeded its standard of 2.0 ug/L and further provides evidence that reductive dechlorination is occurring at the Site.

The remaining area of groundwater impact that requires further evaluation is along the former process sewer/wastewater line (AOC 2). PCBs (Aroclor-1248) and 1,2,4 trichlorobenzene were identified in excess of the GWDMS.

9.3. Conclusions from RFI Data Gap Soil Gas Results

The deep soil gas field investigation completed to assess the vapor intrusion pathway for the residences along the northern and eastern property boundaries of the North Parking Lot (AOC-10) and for the structures immediately downgradient of the 25th Street Landfill (AOC-1) indicated three (3) constituents were detected in concentrations greater than their respective residential and/or commercial soil gas VISL screening levels: carbon tetrachloride, tetrachloroethene, and trichloroethene.

No soil gas exceedances were identified in AOC 1 – 25th Street Landfill. Since MW-7D on the northeastern border of the landfill parcel had a VI screening level exceedance for TCE, additional consideration needs to be given to evaluating the structure downgradient of that well.

Additional information is necessary to further evaluate the vapor intrusion pathway for the residences immediately to the east along Homestead Court and to the north along 4th Avenue. Groundwater and deep soil gas data support the conclusion that residential indoor air within the vicinity of the groundwater contaminant plume could potentially be impacted.

10. References

ELM Group. 2003a. Initial Phase RCRA Facility Investigation Report. Environmental Liability Management, Inc. August 2003.

ELM Group. 2010. RCRA Facility Investigation Phase II Report. Environmental Liability Management, Inc. May 2010.

Johnson, Paul C. 2002. Identification of Critical Parameters for the Johnson and Ettinger (1991) Vapor Intrusion Model. American Petroleum Institute.

Landres, RA, Lessing, P. 1989. Water Resources of the Guyandotte River Basin. United States Geological Survey, RBB-7.

Schwietering, J.F. 1981. Brief Description of Groundwater Conditions and Aquifers in West Virginia. West Virginia Geological and Economic Survey. OF8102.

Shacklette, H.T; Boerngen, J.G. 1984. Element Concentrations in Soils and Other Surficial Materials of the Conterminous United States. US Geological Survey. USGS Professional Paper 1270.

USEPA. 1989. RCRA Facility Investigation (RFI) Guidance (Volumes I - IV), USEPA, May 1989.

USEPA 1988. Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, Interim Final, USEPA, 1988.

USEPA, 2015. OSWER Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air. OSWER Publication 9200.2-154 .

Vosnakis, Kelly AS. and Perry, Elizabeth. 2009. "Background Versus Risk-Based Screening Levels - An Examination of Arsenic Background Soil Concentrations in Seven States," *International journal of Soil, Sediment and Water:* Vol. 2: Iss. 2, Article 2.

WVDEP. Undated. West Virginia Voluntary Remediation and Redevelopment Act Guidance Manual, Version 2.1, West Virginia Department of Environmental Protection, Office of Environmental Remediation, undated.

TABLES

TABLE 1
QA/QC DATA SUMMARY
FORMER BASF HUNTINGTON WORKS FACILITY
HUNTINGTON, WEST VIRGINIA

	A	B	C	D	E	F	G	H	I	J	K	L
1	Sample	**EB-01**	**EB-02**	**EB-03**	**EB-04**	**EB-05**	**EB-06**	**EB-07**	**EB-08**	**EB-09**	**EB-10**	**EB-11**
2	Sample Type	**EB**	**EB**	**EB**	**EB**	**EB**	**EB**	**EB**	**EB**	**EB**	**EB**	**EB**
3	Matrix	**WH**	**WH**	**WH**	**WH**	**WH**	**WQ**	**WQ**	**WQ**	**WQ**	**WQ**	**SQ**
4	Sample Date	**25 Jul 2016**	**26 Jul 2016**	**27 Jul 2016**	**01 Aug 2016**	**02 Aug 2016**	**03 Aug 2016**	**04 Aug 2016**	**08 Aug 2016**	**09 Aug 2016**	**16 Aug 2016**	**18 Aug 2016**
5	Lab Sample ID	**240-67605-7**	**240-67605-17**	**240-67662-3**	**240-67885-2**	**240-67885-10**	**240-67954-7**	**240-68008-9**	**240-68094-6**	**240-68160-15**	**240-68448-4**	**240-68503-9**
6	Unit	**ug/l**	**ug/l**	**ug/l**	**ug/l**	**ug/l**	**ug/l**	**ug/l**	**ug/l**	**ug/l**	**ug/l**	**ug/l**
7												
8	**SW8260B**											
9	1,1,1-Trichloroethane	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U
10	1,1,2,2-Tetrachloroethane	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
11	1,1,2-Trichloro-1,2,2-trifluoroethane	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U
12	1,1,2-Trichloroethane	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
13	1,1-Dichloroethane	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
14	1,1-Dichloroethene	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U
15	1,2,4-Trichlorobenzene	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.47 J	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U
16	1,2-Dibromo-3-Chloropropane	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U
17	1,2-Dichlorobenzene	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
18	1,2-Dichloroethane	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U
19	1,2-Dichloropropane	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
20	1,3-Dichlorobenzene	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
21	1,4-Dichlorobenzene	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
22	2-Butanone (MEK)	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U
23	2-Hexanone	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U
24	4-Methyl-2-pentanone (MIBK)	0.99 U	0.99 U	0.99 U	0.99 U	0.99 U	0.99 U	0.99 U	0.99 U	0.99 U	0.99 U	0.99 U
25	Acetone	1.3 J	2.9 J	4 J	2.6 J	4 J	3 J	0.94 U	1.8 J	4.8 K	0.94 U	3.8 J
26	Benzene	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U
27	Bromoform	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U
28	Bromomethane	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.5 K	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U
29	Carbon disulfide	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U
30	Carbon tetrachloride	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U
31	Chlorobenzene	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
32	Chlorodibromomethane	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U
33	Chloroethane	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U
34	Chloroform	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
35	Chloromethane	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.58 J	0.44 U	0.46 J
36	cis-1,2-Dichloroethene	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
37	cis-1,3-Dichloropropene	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U
38	Cyclohexane	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U
39	Dichlorobromomethane	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U
40	Dichlorodifluoromethane	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U
41	Ethylbenzene	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.26 J	0.25 U
42	Ethylene Dibromide	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U
43	Isopropylbenzene	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U
44	Methyl acetate	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U
45	Methyl tert-butyl ether	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
46	Methylcyclohexane	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U
47	Methylene Chloride	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
48	Styrene	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U
49	Tetrachloroethene	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U
50	Toluene	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.31 J	0.23 U
51	trans-1,2-Dichloroethene	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
52	trans-1,3-Dichloropropene	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U
53	Trichloroethene	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
54	Trichlorofluoromethane	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U
55	Vinyl chloride	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U
56	Xylenes, Total	0.52 U	0.52 U	0.52 U	0.52 U	0.52 U	0.52 U	0.52 U	0.52 U	0.52 U	0.52 U	0.52 U
57												
58	**Notes:**											
59	All concentrations reported in micrograms per liter (ug/L).											
60	U - Target analyte not detected above listed Method Detection Limit											
61	J - Estimated result. Result is less greater than the Method Detection Limit (MDL) but less than the labaratory method Reporting Limit (RL).											
62	K - Analyte is present. Reported value may be biased high. Actual value is expected to be lower.											
63	L - Analyte is present. Reported value may be biased low. Actual value is expected to be higher.											

TABLE 1
QA/QC DATA SUMMARY
FORMER BASF HUNTINGTON WORKS FACILITY
HUNTINGTON, WEST VIRGINIA

	A	M	N	O	P	Q	R	S	T	U	V	W
1	Sample	**EB-12**	**EB-13**	**EB-14**	**TRIP BLANK**	**TRIP BLANK (TB-07)**	**TRIP BLANK(TB-08)**	**TRIP BLANK-01**	**TRIP BLANK-02**	**TRIP BLANK-03**	**TRIP BLANK-04**	**TRIP BLANK-06**
2	Sample Type	**EB**	**EB**	**EB**	**TB**	**TB**	**TB**	**TB**	**TB**	**TB**	**TB**	**TB**
3	Matrix	**SQ**	**WQ**	**WQ**	**WQ**	**WQ**	**WQ**	**WQ**	**WQ**	**WQ**	**WQ**	**WQ**
4	Sample Date	**19 Aug 2016**	**22 Aug 2016**	**29 Aug 2016**	**04 Aug 2016**	**09 Aug 2016**	**09 Aug 2016**	**26 Jul 2016**	**27 Jul 2016**	**02 Aug 2016**	**03 Aug 2016**	**08 Aug 2016**
5	Lab Sample ID	**240-68573-11**	**240-68618-4**	**240-68908-2**	**240-68008-10**	**240-68160-16**	**240-68193-3**	**240-67605-18**	**240-67662-4**	**240-67885-11**	**240-67954-9**	**240-68094-7**
6	Unit	**ug/l**	**ug/l**	**ug/l**	**ug/l**	**ug/l**	**ug/l**	**ug/l**	**ug/l**	**ug/l**	**ug/l**	**ug/l**
7												
8	**SW8260B**											
9	1,1,1-Trichloroethane	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U
10	1,1,2,2-Tetrachloroethane	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
11	1,1,2-Trichloro-1,2,2-trifluoroethane	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U
12	1,1,2-Trichloroethane	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
13	1,1-Dichloroethane	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
14	1,1-Dichloroethene	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U
15	1,2,4-Trichlorobenzene	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	1.6 J	0.32 U
16	1,2-Dibromo-3-Chloropropane	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U
17	1,2-Dichlorobenzene	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
18	1,2-Dichloroethane	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U
19	1,2-Dichloropropane	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
20	1,3-Dichlorobenzene	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
21	1,4-Dichlorobenzene	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
22	2-Butanone (MEK)	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U
23	2-Hexanone	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U
24	4-Methyl-2-pentanone (MIBK)	0.99 U	0.99 U	0.99 U	0.99 U	0.99 U	0.99 U	0.99 U	0.99 U	0.99 U	0.99 U	0.99 U
25	Acetone	0.94 U	0.94 U	0.94 U	2.8 J	7.4 K	4.8 J	4.2 J	4.8 J	5.9 J	4.8 J	1.5 J
26	Benzene	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U
27	Bromoform	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U
28	Bromomethane	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U
29	Carbon disulfide	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U
30	Carbon tetrachloride	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U
31	Chlorobenzene	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
32	Chlorodibromomethane	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U
33	Chloroethane	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U
34	Chloroform	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
35	Chloromethane	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U
36	cis-1,2-Dichloroethene	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
37	cis-1,3-Dichloropropene	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U
38	Cyclohexane	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U
39	Dichlorobromomethane	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U
40	Dichlorodifluoromethane	0.32 UL	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U
41	Ethylbenzene	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
42	Ethylene Dibromide	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U
43	Isopropylbenzene	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U
44	Methyl acetate	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U
45	Methyl tert-butyl ether	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
46	Methylcyclohexane	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U
47	Methylene Chloride	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
48	Styrene	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U
49	Tetrachloroethene	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U
50	Toluene	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U
51	trans-1,2-Dichloroethene	0.3 U	0.3 U	1.8	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
52	trans-1,3-Dichloropropene	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U
53	Trichloroethene	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
54	Trichlorofluoromethane	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U
55	Vinyl chloride	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U
56	Xylenes, Total	0.52 U	0.52 U	0.52 U	0.52 U	0.52 U	0.52 U	0.52 U	0.52 U	0.52 U	0.52 U	0.52 U
57												
58	**Notes:**											
59	All concentrations reported in microgra											
60	U - Target analyte not detected above											
61	J - Estimated result. Result is less grea											
62	K - Analyte is present. Reported value											
63	L - Analyte is present. Reported value											

TABLE 1
QA/QC DATA SUMMARY
FORMER BASF HUNTINGTON WORKS FACILITY
HUNTINGTON, WEST VIRGINIA

	A	X	Y	Z	AA	AB	AC	AD	AE
1	Sample	**TRIP BLANK-09**	**TRIP BLANK-10**	**TRIP BLANK-11**	**TRIP BLANK-12**	**TRIP BLANK-13**	**TRIP BLANK-14**	**TRIP BLANK-15**	**TRIP BLANK-16**
2	Sample Type	**TB**	**TB**	**TB**	**TB**	**TB**	**TB**	**TB**	**TB**
3	Matrix	**WQ**	**WQ**	**WQ**	**WQ**	**WQ**	**WQ**	**WQ**	**WQ**
4	Sample Date	**16 Aug 2016**	**16 Aug 2016**	**18 Aug 2016**	**19 Aug 2016**	**22 Aug 2016**	**30 Aug 2016**	**31 Aug 2016**	**01 Sep 2016**
5	Lab Sample ID	**240-68451-5**	**240-68448-15**	**240-68503-8**	**240-68573-12**	**240-68618-5**	**240-68908-6**	**240-68972-10**	**240-69057-4**
6	Unit	**ug/l**	**ug/l**	**ug/l**	**ug/l**	**ug/l**	**ug/l**	**ug/l**	**ug/l**
7									
8	**SW8260B**								
9	1,1,1-Trichloroethane	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U
10	1,1,2,2-Tetrachloroethane	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
11	1,1,2-Trichloro-1,2,2-trifluoroethane	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U
12	1,1,2-Trichloroethane	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
13	1,1-Dichloroethane	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
14	1,1-Dichloroethene	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U
15	1,2,4-Trichlorobenzene	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U
16	1,2-Dibromo-3-Chloropropane	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U
17	1,2-Dichlorobenzene	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
18	1,2-Dichloroethane	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U
19	1,2-Dichloropropane	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
20	1,3-Dichlorobenzene	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
21	1,4-Dichlorobenzene	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
22	2-Butanone (MEK)	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U
23	2-Hexanone	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U
24	4-Methyl-2-pentanone (MIBK)	0.99 U	0.99 U	0.99 U	0.99 U	0.99 U	0.99 U	0.99 U	0.99 U
25	Acetone	4.8 J	3.9 J	4.7 J	4.6 K	5.8 J	5.8 J	5.1 J	5.1 J
26	Benzene	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U
27	Bromoform	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U
28	Bromomethane	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U
29	Carbon disulfide	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.4 J	0.38 U
30	Carbon tetrachloride	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U
31	Chlorobenzene	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
32	Chlorodibromomethane	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U
33	Chloroethane	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U
34	Chloroform	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
35	Chloromethane	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U
36	cis-1,2-Dichloroethene	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
37	cis-1,3-Dichloropropene	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U
38	Cyclohexane	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U
39	Dichlorobromomethane	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U
40	Dichlorodifluoromethane	0.32 U	0.32 U	0.32 U	0.32 UL	0.32 U	0.32 U	0.32 U	0.32 U
41	Ethylbenzene	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
42	Ethylene Dibromide	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U
43	Isopropylbenzene	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U
44	Methyl acetate	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U
45	Methyl tert-butyl ether	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
46	Methylcyclohexane	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U
47	Methylene Chloride	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
48	Styrene	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U
49	Tetrachloroethene	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U
50	Toluene	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U
51	trans-1,2-Dichloroethene	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
52	trans-1,3-Dichloropropene	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U
53	Trichloroethene	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
54	Trichlorofluoromethane	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U
55	Vinyl chloride	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U
56	Xylenes, Total	0.52 U	0.52 U	0.52 U	0.52 U	0.52 U	0.52 U	0.52 U	0.52 U
57									
58	**Notes:**								
59	All concentrations reported in microgra								
60	U - Target analyte not detected above								
61	J - Estimated result. Result is less grea								
62	K - Analyte is present. Reported value								
63	L - Analyte is present. Reported value								

TABLE 2
SUMMARY OF SOIL ANALYTICAL DATA
AOC 1 - 25TH STREET LANDFILL
FORMER BASF HUNTINGTON WORKS FACILITY
HUNTINGTON, WEST VIRGINIA

				Location	AOC1-06	AOC1-06	AOC1-07	AOC1-07	AOC1-08	AOC1-08	AOC1-09	AOC1-09	AOC1-10	AOC1-10	AOC1-11
				Sample	AOC1-06-15	AOC1-06-20	AOC1-07-10	AOC1-07-20	AOC1-08-15	AOC1-08-20	AOC1-09-12.5	AOC1-09-20	AOC1-10-12.5	AOC1-10-17.5	AOC1-11-12.5
				Sample Type	N	N	N	N	N	N	N	N	N	N	N
				Matrix	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
				Sample Date	25 Jul 2016	25 Jul 2016	25 Jul 2016	25 Jul 2016	25 Jul 2016	25 Jul 2016	25 Jul 2016	25 Jul 2016	26 Jul 2016	26 Jul 2016	26 Jul 2016
				Lab Sample ID	240-67605-1	240-67605-2	240-67605-3	240-67605-4	240-67605-5	240-67605-6	240-67605-8	240-67605-9	240-67605-10	240-67605-11	240-67605-12
				Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
	CAS NO.	WVDEP INDUSTRIAL SOIL DE MINIMIS STANDARD	EPA INDUSTRIAL SOIL SCREENING LEVEL (MG/KG)	WVDEP MIGRATION TO GROUNDWATER DE MINIMIS STANDARD											
SW6020A															
Aluminum	7429-90-5	1000000	1100000	470000	3600 J	2500 J	3800 J	2000 J	4000 J	2300 J	4900 J	1800 J	4400 J	1900 J	5300 J
Antimony	7440-36-0	820	470	5.7	0.082 L	0.38 L	0.082 L	0.1 L	0.096 L	0.081 L	0.095 L	0.26 L	0.11 L	0.041 L	0.1 L
Arsenic	7440-38-2	27	3	5.8	4.8	11	5.2	4.6	5.4	4.4	6.1	8.9	6.5	3	6.5
Barium	7440-39-3	360000	220000	1600	32	58	40	35	35	44	56	27	38	52	41
Beryllium	7440-41-7	3900	2300	63	0.45	0.31	0.41	0.25	0.42	0.24	0.5	0.22	0.49	0.17 J	0.56
Cadmium	7440-43-9	800	980	7.5	0.081 JB	0.089 JB	0.083 JB	0.066 JB	0.09 JB	0.071 JB	0.1 JB	0.049 JB	0.13 JB	0.055 JB	0.11 JB
Calcium	7440-70-2	NS	NS	NS	440	290	300	130 J	240	130 J	350	180 J	330	160 J	370
Chromium	7440-47-3	NS	NS	NS	6.3 B	4.5 B	6.1 B	3.9 B	6.5 B	3.7 B	8.4 B	3.8 B	9.2 B	3.7 B	9 B
Cobalt	7440-48-4	600	350	4.2	5.4 B	5.7 B	5.6 B	4.3 B	5.9 B	4.5 B	6.7 B	4.1 B	7.1 B	3.1 B	7.7 B
Copper	7440-50-8	82000	47000	440	6.1 B	7.6 B	6 B	4.8 B	6.1 B	3.6 B	7.4 B	4.5 B	8.3 B	2.8 B	9.1 B
Iron	7439-89-6	1000000	820000	5500	13000 J	15000 B	13000 J	12000 J	14000 J	11000 J	16000 J	10000 J	16000 J	7600 J	17000 J
Lead	7439-92-1	1000	800	270	6.1 B	18 B	6.2 B	3.1 B	6.3 B	4.2 B	7.3 B	5.1 B	7.9 B	2.4 B	8.2 B
Magnesium	7439-95-4	NS	NS	NS	800 B	660 B	810 B	420 B	810 B	520 B	970 B	350 B	970 B	560 B	1100 B
Manganese	7439-96-5	72000	26000	960	290 J	510 J	310 J	360 J	320 J	490 J	360 J	280 J	360 J	450 J	370 J
Nickel	7440-02-0	38000	22000	410	8.1 B	9.2 J	9.2 B	8.1 B	9 B	6.9 B	11 B	7.4 B	10 B	5.7 B	11 B
Potassium	7440-09-7	NS	NS	NS	390 B	220 B	410 B	180 JB	410 B	190 B	580 B	200 B	460 B	160 JB	530 B
Selenium	7782-49-2	10000	5800	5.2	0.56 J	0.51 J	0.66 J	0.48 J	0.58 J	0.42 J	0.82 J	0.37 J	0.91 J	0.25 J	0.84 J
Silver	7440-22-4	10000	5800	13	0.0069 JB	0.0036 JB	0.0066 JB	0.0033 JB	0.0073 JB	0.0038 JB	0.0074 JB	0.003 JB	0.0092 JB	0.0046 JB	0.0098 JB
Sodium	7440-23-5	NS	NS	NS	17 JB	22 JB	17 JB	29 JB	20 JB	18 JB	21 JB	39 JB	20 JB	17 JB	25 JB
Thallium	7440-28-0	20	12	2.8	0.068 K	0.05 K	0.058 K	0.032 K	0.061 K	0.033 K	0.076 K	0.028 K	0.072 K	0.042 K	0.085 J
Vanadium	7440-62-2	140	5800	22	10	6.2	9.8	5.7	11	6.4	13	6.1	12	5	14
Zinc	7440-66-6	610000	350000	5800	25 B	28 B	26 B	18 B	26 B	18 B	30 B	15 B	29 B	14 B	33 B
SW7471A															
Mercury	7439-97-6	610	46	2.1	0.014 U	0.016 U	0.016 U	0.013 U	0.016 U	0.013 U	0.014 U	0.015 U	0.016 U	0.015 U	0.017 U
SW8082															
Aroclor-1016	12674-11-2	50	27	1.8	0.013 U	0.014 U	0.014 U	0.013 U	0.013 U	0.013 U	0.014 U	0.04 U	0.014 U	0.013 U	0.014 U
Aroclor-1221	11104-28-2	12	0.83	0.0023	0.017 U	0.019 U	0.018 U	0.017 U	0.018 U	0.017 U	0.018 U	0.053 U	0.019 U	0.017 U	0.019 U
Aroclor-1232	11141-16-5	12	0.72	0.0023	0.021 U	0.024 U	0.023 U	0.021 U	0.022 U	0.021 U	0.023 U	0.066 U	0.023 U	0.021 U	0.024 U
Aroclor-1242	53469-21-9	10	0.95	0.11	0.012 U	0.013 U	0.012 U	0.012 U	0.012 U	0.012 U	0.013 U	0.036 U	0.013 U	0.012 U	0.013 U
Aroclor-1248	12672-29-6	10	0.95	0.1	0.0085 U	0.0095 U	0.0091 U	0.0084 U	0.009 U	0.0085 U	0.0092 U	0.026 U	0.0093 U	0.0084 U	0.0097 U
Aroclor-1254	11097-69-1	10	0.97	0.18	0.015 U	0.017 U	0.016 U	0.015 U	0.016 U	0.015 U	0.016 U	0.046 U	0.016 U	0.015 U	0.017 U
Aroclor-1260	11096-82-5	10	0.99	0.47	0.0096 U	0.011 U	0.01 U	0.0094 U	0.01 U	0.0096 U	0.01 U	0.03 U	0.01 U	0.0094 U	0.011 U
Aroclor-1262	37324-23-5	NS	NS	NS	0.011 U	0.012 U	0.011 U	0.01 U	0.011 U	0.011 U	0.011 U	0.033 U	0.012 U	0.01 U	0.012 U
Aroclor-1268	11100-14-4	NS	NS	NS	0.014 U	0.015 U	0.015 U	0.014 U	0.015 U	0.014 U	0.015 U	0.043 U	0.015 U	0.014 U	0.016 U

TABLE 2
SUMMARY OF SOIL ANALYTICAL DATA
AOC 1 - 25TH STREET LANDFILL
FORMER BASF HUNTINGTON WORKS FACILITY
HUNTINGTON, WEST VIRGINIA

					Location	AOC1-06	AOC1-06	AOC1-07	AOC1-07	AOC1-08	AOC1-08	AOC1-09	AOC1-09	AOC1-10	AOC1-10	AOC1-11
					Sample	AOC1-06-15	AOC1-06-20	AOC1-07-10	AOC1-07-20	AOC1-08-15	AOC1-08-20	AOC1-09-12.5	AOC1-09-20	AOC1-10-12.5	AOC1-10-17.5	AOC1-11-12.5
					Sample Type	N	N	N	N	N	N	N	N	N	N	N
					Matrix	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
					Sample Date	25 Jul 2016	25 Jul 2016	25 Jul 2016	25 Jul 2016	25 Jul 2016	25 Jul 2016	25 Jul 2016	25 Jul 2016	26 Jul 2016	26 Jul 2016	26 Jul 2016
					Lab Sample ID	240-67605-1	240-67605-2	240-67605-3	240-67605-4	240-67605-5	240-67605-6	240-67605-8	240-67605-9	240-67605-10	240-67605-11	240-67605-12
					Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
SW8260B																
1,1,1-Trichloroethane	71-55-6	640	36000	1.4		0.00059 U	0.00053 U	0.00064 U	0.00068 U	0.00064 U	0.00064 U	0.0008 U	0.00062 U	0.00064 U	0.00063 U	0.00066 U
1,1,2,2-Tetrachloroethane	79-34-5	31	2.7	0.00053		0.00028 U	0.00025 U	0.0003 U	0.00032 U	0.00031 U	0.0003 U	0.00038 U	0.00029 U	0.0003 U	0.0003 U	0.00031 U
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	910	170000	2800		0.00038 U	0.00034 U	0.00041 U	0.00044 U	0.00042 U	0.00041 U	0.00052 U	0.0004 U	0.00041 U	0.0004 U	0.00043 U
1,1,2-Trichloroethane	79-00-5	57	5	0.032		0.00033 U	0.0003 U	0.00036 U	0.00039 U	0.00037 U	0.00036 U	0.00045 U	0.00035 U	0.00036 U	0.00036 U	0.00038 U
1,1-Dichloroethane	75-34-3	170	16	0.014		0.00031 U	0.00028 U	0.00033 U	0.00036 U	0.00034 U	0.00033 U	0.00042 U	0.00032 U	0.00033 U	0.00033 U	0.00035 U
1,1-Dichloroethene	75-35-4	1100	1000	0.05		0.00072 U	0.00066 U	0.00079 U	0.00084 U	0.00079 U	0.00079 U	0.00098 U	0.00076 U	0.00079 U	0.00077 U	0.00081 U
1,2,4-Trichlorobenzene	120-82-1	280	110	4.1		0.00034 U	0.00031 U	0.00037 U	0.0004 U	0.00038 U	0.00037 U	0.00047 U	0.00036 U	0.00037 U	0.00037 U	0.00039 U
1,2-Dibromo-3-Chloropropane	96-12-8	71	0.064	0.0017		0.0025 U	0.0022 U	0.0027 U	0.0028 U	0.0027 U	0.0027 U	0.0033 U	0.0026 U	0.0027 U	0.0026 U	0.0028 U
1,2-Dichlorobenzene	95-50-1	380	9300	12		0.00031 U	0.00028 U	0.00033 U	0.00036 U	0.00034 U	0.00033 U	0.00042 U	0.00032 U	0.00033 U	0.00033 U	0.00035 U
1,2-Dichloroethane	107-06-2	23	2	0.028		0.00042 U	0.00038 U	0.00045 U	0.00048 U	0.00046 U	0.00045 U	0.00057 U	0.00044 U	0.00045 U	0.00044 U	0.00047 U
1,2-Dichloropropane	78-87-5	47	4.4	0.033		0.00013 U	0.00011 U	0.00014 U	0.00015 U	0.00014 U	0.00014 U	0.00017 U	0.00013 U	0.00014 U	0.00013 U	0.00014 U
1,3-Dichlorobenzene	541-73-1	NS	NS	NS		0.00062 U	0.00057 U	0.00068 U	0.00072 U	0.00068 U	0.00068 U	0.00085 U	0.00065 U	0.00068 U	0.00066 U	0.0007 U
1,4-Dichlorobenzene	106-46-7	140	11	1.4		0.00025 U	0.00023 U	0.00028 U	0.00029 U	0.00028 U	0.00027 U	0.00034 U	0.00027 U	0.00028 U	0.00027 U	0.00028 U
2-Butanone (MEK)	78-93-3	28000	190000	21		0.001 U	0.00092 U	0.0011 U	0.0013 B	0.0011 U	0.0012 B	0.0014 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U
2-Hexanone	591-78-6	NS	1300	NS		0.00062 U	0.00056 U	0.00067 U	0.00071 U	0.00067 U	0.00067 U	0.00084 U	0.00065 U	0.00067 U	0.00065 U	0.00069 U
4-Methyl-2-pentanone (MIBK)	108-10-1	3400	140000	4.7		0.0011 U	0.001 U	0.0012 U	0.0013 U	0.0012 U	0.0012 U	0.0015 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U
Acetone	67-64-1	110000	670000	47		0.011 B	0.0061 B	0.011 B	0.011 B	0.017 B	0.0089 B	0.016 B	0.0082 B	0.0056 U	0.013 B	0.014 B
Benzene	71-43-2	57	5.1	0.051		0.00081 U	0.00074 U	0.00088 U	0.00094 U	0.00089 U	0.00088 U	0.0011 U	0.00085 U	0.00089 U	0.00087 U	0.00091 U
Bromoform	75-25-2	3100	86	0.045		0.00022 U	0.0002 U	0.00024 U	0.00025 U	0.00024 U	0.00024 U	0.00029 U	0.00023 U	0.00024 U	0.00023 U	0.00024 U
Bromomethane	74-83-9	33	30	0.036		0.00038 U	0.00034 U	0.00041 U	0.00044 U	0.00042 U	0.00041 U	0.00052 U	0.0004 U	0.00041 U	0.0004 U	0.00043 U
Carbon disulfide	75-15-0	740	3500	4.5		0.00053 U	0.00048 U	0.00058 U	0.00062 U	0.00059 U	0.00058 U	0.00073 U	0.00056 U	0.00058 U	0.00057 U	0.0006 U
Carbon tetrachloride	56-23-5	32	2.9	0.039		0.00059 U	0.00053 U	0.00064 U	0.00068 U	0.00064 U	0.00064 U	0.0008 U	0.00062 U	0.00064 U	0.00063 U	0.00066 U
Chlorobenzene	108-90-7	760	1300	1.4		0.00048 U	0.00044 U	0.00052 U	0.00056 U	0.00053 U	0.00052 U	0.00065 U	0.0005 U	0.00052 U	0.00051 U	0.00054 U
Chlorodibromomethane	124-48-1	290	39	0.0043		0.00033 U	0.0003 U	0.00036 U	0.00039 U	0.00037 U	0.00036 U	0.00045 U	0.00035 U	0.00036 U	0.00036 U	0.00038 U
Chloroethane	75-00-3	2100	57000	120		0.0004 U	0.00036 U	0.00043 U	0.00046 U	0.00044 U	0.00043 U	0.00054 U	0.00042 U	0.00043 U	0.00042 U	0.00045 U
Chloroform	67-66-3	15	1.4	0.0011		0.00033 U	0.0003 U	0.00035 U	0.00038 U	0.00036 U	0.00035 U	0.00044 U	0.00034 U	0.00035 U	0.00035 U	0.00037 U
Chloromethane	74-87-3	510	460	0.98		0.00071 U	0.00065 U	0.00078 U	0.00083 U	0.00078 U	0.00078 U	0.00097 U	0.00075 U	0.00078 U	0.00076 U	0.0008 U
cis-1,2-Dichloroethene	156-59-2	82	2300	0.41		0.00025 U	0.00023 U	0.00028 U	0.00029 U	0.00028 U	0.00027 U	0.00034 U	0.00027 U	0.00028 U	0.00027 U	0.00028 U
cis-1,3-Dichloropropene	10061-01-5	NS	NS	NS		0.00064 U	0.00058 U	0.0007 U	0.00074 U	0.0007 U	0.0007 U	0.00087 U	0.00067 U	0.0007 U	0.00068 U	0.00072 U
Cyclohexane	110-82-7	120	27000	260		0.00043 U	0.00039 U	0.00047 U	0.0005 U	0.00048 U	0.00047 U	0.00059 U	0.00046 U	0.00047 U	0.00046 U	0.00049 U
Dichlorobromomethane	75-27-4	14	1.3	0.00064		0.00026 U	0.00024 U	0.00029 U	0.0003 U	0.00029 U	0.00028 U	0.00036 U	0.00028 U	0.00029 U	0.00028 U	0.00029 U
Dichlorodifluoromethane	75-71-8	800	370	11		0.00025 U	0.00023 U	0.00028 U	0.00029 U	0.00028 U	0.00027 U	0.00034 U	0.00027 U	0.00028 U	0.00027 U	0.00028 U
Ethylbenzene	100-41-4	290	25	16		0.00029 U	0.00026 U	0.00031 U	0.00034 U	0.00032 U	0.00031 U	0.00039 U	0.0003 U	0.00031 U	0.00031 U	0.00033 U
Ethylene Dibromide	106-93-4	1.8	0.16	0.00028		0.00048 U	0.00044 U	0.00052 U	0.00056 U	0.00053 U	0.00052 U	0.00065 U	0.0005 U	0.00052 U	0.00051 U	0.00054 U
Isopropylbenzene	98-82-8	270	9900	18		0.00018 U	0.00016 U	0.0002 U	0.00021 U	0.0002 U	0.0002 U	0.00025 U	0.00019 U	0.0002 U	0.00019 U	0.0002 U
Methyl acetate	79-20-9	29000	1200000	21		0.0018 U	0.0016 U	0.002 U	0.0021 U	0.002 U	0.002 U	0.0025 U	0.0019 U	0.002 U	0.0019 U	0.002 U
Methyl tert-butyl ether	1634-04-4	2300	210	0.056		0.00039 U	0.00035 U	0.00042 U	0.00045 U	0.00043 U	0.00042 U	0.00053 U	0.00041 U	0.00042 U	0.00041 U	0.00044 U
Methylcyclohexane	108-87-2	NS	NS	NS		0.00052 U	0.00048 U	0.00057 U	0.00061 U	0.00058 U	0.00057 U	0.00071 U	0.00055 U	0.00057 U	0.00056 U	0.00059 U
Methylene Chloride	75-09-2	3300	1000	0.026		0.0017 J	0.00061 U	0.0023 J	0.0013 J	0.0028 J	0.0016 J	0.00091 U	0.0011 J	0.00073 U	0.0023 J	0.00075 U
Styrene	100-42-5	870	35000	2.2		0.00036 U	0.00033 U	0.00039 U	0.00042 U	0.0004 U	0.00039 U	0.00049 U	0.00038 U	0.00039 U	0.00039 U	0.00041 U
Tetrachloroethene	127-18-4	170	100	0.045		0.00072 U	0.00066 U	0.00079 U	0.00084 U	0.00079 U	0.00079 U	0.00098 U	0.00076 U	0.00079 U	0.00077 U	0.00081 U
Toluene	108-88-3	820	47000	14		0.00024 U	0.00022 U	0.00027 U	0.00028 U	0.00027 U	0.00027 U	0.00033 U	0.00026 U	0.00027 U	0.00026 U	0.00027 U
trans-1,2-Dichloroethene	156-60-5	700	23000	0.59		0.00029 U	0.00026 U	0.00031 U	0.00034 U	0.00032 U	0.00031 U	0.00039 U	0.0003 U	0.00031 U	0.00031 U	0.00033 U
trans-1,3-Dichloropropene	10061-02-6	NS	NS	NS		0.00026 U	0.00024 U	0.00029 U	0.0003 U	0.00029 U	0.00028 U	0.00036 U	0.00028 U	0.00029 U	0.00028 U	0.00029 U
Trichloroethene	79-01-6	21	6	0.036		0.00034 U	0.00031 U	0.00037 U	0.0004 U	0.00038 U	0.00037 U	0.00047 U	0.00036 U	0.00037 U	0.00037 U	0.00039 U
Trichlorofluoromethane	75-69-4	1200	350000	14		0.00026 U	0.00024 U	0.00029 U	0.0003 U	0.00029 U	0.00028 U	0.00036 U	0.00028 U	0.00029 U	0.00028 U	0.00029 U
Vinyl chloride	75-01-4	21	1.7	0.014		0.00027 U	0.00025 U	0.00029 U	0.00031 U	0.0003 U	0.00029 U	0.00037 U	0.00028 U	0.0003 U	0.00029 U	0.0003 U
Xylenes, Total	1330-20-7	260	2500	200		0.00049 U	0.00044 U	0.00053 U	0.00057 U	0.00054 U	0.00053 U	0.00066 U	0.00051 U	0.00053 U	0.00052 U	0.00055 U

TABLE 2
SUMMARY OF SOIL ANALYTICAL DATA
AOC 1 - 25TH STREET LANDFILL
FORMER BASF HUNTINGTON WORKS FACILITY
HUNTINGTON, WEST VIRGINIA

				Location	AOC1-06	AOC1-06	AOC1-07	AOC1-07	AOC1-08	AOC1-08	AOC1-09	AOC1-09	AOC1-10	AOC1-10	AOC1-11
				Sample	AOC1-06-15	AOC1-06-20	AOC1-07-10	AOC1-07-20	AOC1-08-15	AOC1-08-20	AOC1-09-12.5	AOC1-09-20	AOC1-10-12.5	AOC1-10-17.5	AOC1-11-12.5
				Sample Type	N	N	N	N	N	N	N	N	N	N	N
				Matrix	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
				Sample Date	25 Jul 2016	25 Jul 2016	25 Jul 2016	25 Jul 2016	25 Jul 2016	25 Jul 2016	25 Jul 2016	25 Jul 2016	26 Jul 2016	26 Jul 2016	26 Jul 2016
				Lab Sample ID	240-67605-1	240-67605-2	240-67605-3	240-67605-4	240-67605-5	240-67605-6	240-67605-8	240-67605-9	240-67605-10	240-67605-11	240-67605-12
				Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
SW8270D															
1,1-Biphenyl	92-52-4	220	200	0.17	0.0038 U	0.0042 U	0.004 U	0.0037 U	0.0039 U	0.0037 U	0.004 U	0.0037 U	0.0041 U	0.0037 U	0.0043 U
1,2-Diphenylhydrazine(as Azobenzene)	122-66-7	31	2.9	0.0054	0.018 U	0.021 U	0.019 U	0.018 U	0.019 U	0.018 U	0.019 U	0.018 U	0.02 U	0.018 U	0.021 U
1,4-Dioxane	123-91-1	250	24	0.0028	0.024 U	0.027 U	0.025 U	0.023 U	0.025 U	0.023 U	0.025 U	0.023 U	0.026 U	0.023 U	0.027 U
2,4,5-Trichlorophenol	95-95-4	88000	82000	120	0.027 U	0.03 U	0.028 U	0.026 U	0.028 U	0.026 U	0.029 U	0.027 U	0.029 U	0.026 U	0.031 U
2,4,6-Trichlorophenol	88-06-2	880	210	0.46	0.0096 U	0.011 U	0.01 U	0.0093 U	0.0099 U	0.0094 U	0.01 U	0.0094 U	0.01 U	0.0094 U	0.011 U
2,4-Dichlorophenol	120-83-2	2600	2500	1.1	0.021 U	0.024 U	0.023 U	0.021 U	0.022 U	0.021 U	0.023 U	0.021 U	0.023 U	0.021 U	0.025 U
2,4-Dimethylphenol	105-67-9	18000	16000	7.4	0.021 U	0.024 U	0.023 U	0.021 U	0.022 U	0.021 U	0.023 U	0.021 U	0.023 U	0.021 U	0.025 U
2,4-Dinitrophenol	51-28-5	1800	1600	0.7	0.023 U	0.025 U	0.024 U	0.022 U	0.023 U	0.022 U	0.024 U	0.022 U	0.024 U	0.022 U	0.026 U
2,4-Dinitrotoluene	121-14-2	80	7.4	0.0059	0.018 U	0.021 U	0.019 U	0.018 U	0.019 U	0.018 U	0.019 U	0.018 U	0.02 U	0.018 U	0.021 U
2,6-Dinitrotoluene	606-20-2	890	1.5	0.43	0.023 U	0.025 U	0.024 U	0.022 U	0.023 U	0.022 U	0.024 U	0.022 U	0.024 U	0.022 U	0.026 U
2-Chloronaphthalene	91-58-7	64000	60000	41	0.00048 U	0.00054 U	0.00051 U	0.00047 U	0.0005 U	0.00047 U	0.00052 U	0.00048 U	0.00052 U	0.00048 U	0.00056 U
2-Chlorophenol	95-57-8	5100	5800	0.41	0.0088 U	0.0099 U	0.0093 U	0.0086 U	0.0091 U	0.0086 U	0.0094 U	0.0087 U	0.0096 U	0.0087 U	0.01 U
2-Methylnaphthalene	91-57-6	8200	3000	0.51	0.00054 U	0.0006 U	0.00056 U	0.00052 U	0.00056 U	0.00053 U	0.00057 U	0.00053 U	0.00058 U	0.00053 U	0.00062 U
2-Methylphenol	95-48-7	44000	41000	13	0.012 U	0.013 U	0.013 U	0.012 U	0.012 U	0.012 U	0.013 U	0.012 U	0.013 U	0.012 U	0.014 U
2-Nitroaniline	88-74-4	8500	8000	1.3	0.0098 U	0.011 U	0.01 U	0.0095 U	0.01 U	0.0096 U	0.01 U	0.0097 U	0.011 U	0.0096 U	0.011 U
2-Nitrophenol	88-75-5	NS	NS	NS	0.0089 U	0.01 U	0.0094 U	0.0087 U	0.0093 U	0.0087 U	0.0095 U	0.0088 U	0.0097 U	0.0088 U	0.01 U
2-Toluidine	95-53-4	100	140	0.0024	0.039 U	0.043 U	0.041 U	0.038 U	0.04 U	0.038 U	0.041 U	0.038 U	0.042 U	0.038 U	0.044 U
3 & 4 Methylphenol	MEPH3MEPH4	NS	NS	NS	0.021 U	0.024 U	0.023 U	0.021 U	0.022 U	0.021 U	0.023 U	0.021 U	0.023 U	0.021 U	0.025 U
3,3-Dichlorobenzidine	91-94-1	55	5.1	0.02	0.019 U	0.022 U	0.02 U	0.019 U	0.02 U	0.019 U	0.021 U	0.019 U	0.021 U	0.019 U	0.022 U
3,3-Dimethoxybenzidine	119-90-4	1800	1.4	0.12	0.055 U	0.062 U	0.058 U	0.053 U	0.057 U	0.054 U	0.058 U	0.054 U	0.059 U	0.054 U	0.063 U
3,3-Dimethylbenzidine	119-93-7	2.2	0.21	0.0008	0.068 U	0.076 U	0.071 U	0.066 U	0.07 U	0.066 U	0.072 U	0.067 U	0.073 U	0.067 U	0.078 U
3-Nitroaniline	99-09-2	NS	NS	NS	0.017 U	0.019 U	0.018 U	0.017 U	0.018 U	0.017 U	0.018 U	0.017 U	0.019 U	0.017 U	0.02 U
4,6-Dinitro-2-methylphenol	534-52-1	NS	66	NS	0.0099 U	0.011 U	0.01 U	0.0096 U	0.01 U	0.0097 U	0.011 U	0.0098 U	0.011 U	0.0097 U	0.011 U
4-Bromophenyl phenyl ether	101-55-3	NS	NS	NS	0.014 U	0.016 U	0.015 U	0.014 U	0.015 U	0.014 U	0.015 U	0.014 U	0.015 U	0.014 U	0.016 U
4-Chloro-3-methylphenol	59-50-7	NS	82000	NS	0.023 U	0.025 U	0.024 U	0.022 U	0.023 U	0.022 U	0.024 U	0.022 U	0.024 U	0.022 U	0.026 U
4-Chloroaniline	106-47-8	120	11	0.0029	0.018 U	0.021 U	0.019 U	0.018 U	0.019 U	0.018 U	0.019 U	0.018 U	0.02 U	0.018 U	0.021 U
4-Chlorophenyl phenyl ether	7005-72-3	NS	NS	NS	0.014 U	0.016 U	0.015 U	0.014 U	0.015 U	0.014 U	0.015 U	0.014 U	0.015 U	0.014 U	0.016 U
4-Nitroaniline	100-01-6	NS	110	NS	0.028 U	0.031 U	0.029 U	0.027 U	0.029 U	0.027 U	0.03 U	0.028 U	0.03 U	0.028 U	0.032 U
4-Nitrophenol	100-02-7	NS	NS	NS	0.018 U	0.021 U	0.019 U	0.018 U	0.019 U	0.018 U	0.019 U	0.018 U	0.02 U	0.018 U	0.021 U
Acenaphthene	83-32-9	66000	45000	61	0.00082 U	0.00092 U	0.00086 U	0.0008 U	0.00085 U	0.0008 U	0.00087 U	0.00081 U	0.00089 U	0.0008 U	0.00094 U
Acenaphthylene	208-96-8	74000	NS	61	0.00038 U	0.00042 U	0.0004 U	0.00037 U	0.00039 U	0.00037 U	0.0004 U	0.00037 U	0.00041 U	0.00037 U	0.00043 U
Acetophenone	98-86-2	2500	120000	9.5	0.0099 U	0.011 U	0.01 U	0.0096 U	0.01 U	0.0097 U	0.011 U	0.0098 U	0.011 U	0.0097 U	0.011 U
Aniline	62-53-3	4300	400	0.08	0.012 U	0.013 U	0.012 U	0.012 U	0.012 U	0.012 U	0.013 U	0.012 U	0.013 U	0.012 U	0.014 U
Anthracene	120-12-7	610000	230000	3100	0.00084 U	0.00094 U	0.00088 U	0.00082 U	0.00087 U	0.00082 U	0.00089 U	0.00083 U	0.00091 U	0.00083 U	0.00096 U
Atrazine	1912-24-9	110	10	0.039	0.0098 U	0.011 U	0.01 U	0.0095 U	0.01 U	0.0096 U	0.01 U	0.0097 U	0.011 U	0.0096 U	0.011 U
Benzaldehyde	100-52-7	1200	820	2.2	0.013 U	0.014 U	0.014 U	0.013 U	0.013 U	0.013 U	0.014 U	0.013 U	0.014 U	0.013 U	0.015 U
Benzidine	92-87-5	0.11	0.01	4.8E-06	0.031 U	0.035 U	0.033 U	0.03 U	0.032 U	0.03 U	0.033 U	0.031 U	0.034 U	0.031 U	0.036 U
Benzo[a]anthracene	56-55-3	29	2.9	0.21	0.00068 U	0.00076 U	0.00071 U	0.00066 U	0.0007 U	0.00066 U	0.00072 U	0.00067 U	0.00073 U	0.00067 U	0.00078 U
Benzo[a]pyrene	50-32-8	2.9	0.29	4.7	0.00069 U	0.00077 U	0.00072 U	0.00067 U	0.00071 U	0.00067 U	0.00073 U	0.00068 U	0.00075 U	0.00068 U	0.00079 U
Benzo[b]fluoranthene	205-99-2	29	2.9	0.71	0.00063 U	0.00071 U	0.00067 U	0.00062 U	0.00066 U	0.00062 U	0.00068 U	0.00063 U	0.00069 U	0.00062 U	0.00073 U
Benzo[g,h,i]perylene	191-24-2	23000	NS	37000	0.00038 U	0.00042 U	0.0004 U	0.00037 U	0.00039 U	0.00037 U	0.0004 U	0.00037 U	0.00041 U	0.00037 U	0.00043 U
Benzo[k]fluoranthene	207-08-9	290	29	6.9	0.00073 U	0.00082 U	0.00077 U	0.00071 U	0.00076 U	0.00071 U	0.00078 U	0.00072 U	0.00079 U	0.00072 U	0.00084 U
bis (2-chloroisopropyl) ether	108-60-1	300	47000	0.0024	0.01 U	0.011 U	0.011 U	0.0099 U	0.011 U	0.01 U	0.011 U	0.01 U	0.011 U	0.01 U	0.012 U
Bis(2-chloroethoxy)methane	111-91-1	NS	2500	NS	0.024 U	0.027 U	0.025 U	0.023 U	0.025 U	0.023 U	0.025 U	0.023 U	0.026 U	0.023 U	0.027 U
Bis(2-chloroethyl)ether	111-44-4	13	1	6.3E-05	0.0021 U	0.0024 U	0.0023 U	0.0021 U	0.0022 U	0.0021 U	0.0023 U	0.0021 U	0.0023 U	0.0021 U	0.0025 U
Bis(2-ethylhexyl) phthalate	117-81-7	1800	160	29	0.036 J	0.036 J	0.022 J	0.02 U	0.025 J	0.021 J	0.022 U	0.02 J	0.029 J	0.02 U	0.036 J
Butyl benzyl phthalate	85-68-7	13000	1200	10	0.011 U	0.012 U	0.011 U	0.01 U	0.011 U	0.011 U	0.011 U	0.011 U	0.012 U	0.011 U	0.012 U
Caprolactam	105-60-2	440000	400000	39	0.04 U	0.045 U	0.042 U	0.039 U	0.041 U	0.039 U	0.042 U	0.039 U	0.043 U	0.039 U	0.046 U
Carbazole	86-74-8	NS	NS	NS	0.029 U	0.033 U	0.031 U	0.028 U	0.03 U	0.028 U	0.031 U	0.029 U	0.031 U	0.029 U	0.033 U
Chrysene	218-01-9	2900	290	21	0.0012 U	0.0013 U	0.0012 U	0.0012 U	0.0044 J	0.0012 U	0.0013 U	0.0012 U	0.0055 J	0.0012 U	0.0051 J
Dibenz(a,h)anthracene	53-70-3	2.9	0.29	0.23	0.00071 U	0.0008 U	0.00075 U	0.00069 U	0.00074 U	0.00069 U	0.00076 U	0.0007 U	0.00077 U	0.0007 U	0.00081 U
Dibenzofuran	132-64-9	2000	1000	5.8	0.00071 U	0.0008 U	0.00075 U	0.00069 U	0.00074 U	0.00069 U	0.00076 U	0.0007 U	0.00077 U	0.0007 U	0.00081 U
Diethyl phthalate	84-66-2	700000	660000	100	0.017 U	0.019 U	0.018 U	0.017 U	0.018 U	0.017 U	0.018 U	0.017 U	0.019 U	0.017 U	0.02 U
Dimethyl phthalate	131-11-3	NS	NS	NS	0.018 U	0.021 U	0.019 U	0.018 U	0.019 U	0.018 U	0.019 U	0.018 U	0.02 U	0.018 U	0.021 U
Di-n-butyl phthalate	84-74-2	88000	82000	79	0.016 U	0.018 U	0.017 U	0.016 U	0.017 U	0.016 U	0.017 U	0.016 U	0.02 J	0.016 U	0.019 U
Di-n-octyl phthalate	117-84-0	NS	8200	NS	0.0085 U	0.0095 U	0.0089 U	0.0083 U	0.0088 U	0.0083 U	0.009 U	0.0084 U	0.0092 U	0.0084 U	0.0097 U
Diphenylamine	122-39-4	22000	21000	14	0.023 U	0.025 U	0.024 U	0.022 U	0.023 U	0.022 U	0.024 U	0.022 U	0.024 U	0.022 U	0.026 U
Fluoranthene	206-44-0	30000	30000	1400	0.00059 U	0.00066 U	0.00062 U	0.00058 U	0.00061 U	0.00058 U	0.00063 U	0.00058 U	0.00064 U	0.00058 U	0.00068 U
Fluorene	86-73-7	57000	30000	74	0.00057 U	0.00064 U	0.0006 U	0.00055 U	0.00059 U	0.00056 U	0.00061 U	0.00056 U	0.00062 U	0.00056 U	0.00065 U
Hexachlorobenzene	118-74-1	15	0.96	0.25	0.0023 U	0.0025 U	0.0024 U	0.0022 U	0.0023 U	0.0022 U	0.0024 U	0.0022 U	0.0024 U	0.0022 U	0.0026 U
Hexachlorobutadiene	87-68-3	320	5.3	0.033	0.006 U	0.0068 U	0.0063 U	0.0059 U	0.0062 U	0.0059 U	0.0064 U	0.0059 U	0.0065 U	0.0059 U	0.0069 U
Hexachlorocyclopentadiene	77-47-4	5300	7.5	3.1	0.0087 U	0.0098 U	0.0092 U	0.0085 U	0.009 U	0.0085 U	0.0093 U	0.0086 U	0.0094 U	0.0086 U	0.01 U
Hexachloroethane	67-72-1	620	8	0.02	0.0097 U	0.011 U	0.01 U	0.0094 U	0.01 U	0.0095 U	0.01 U	0.0096 U	0.01 U	0.0095 U	0.011 U
Indeno[1,2,3-cd]pyrene	193-39-5	29	2.9	2.3	0.00038 U	0.00042 U	0.0004 U	0.00037 U	0.00039 U	0.00037 U	0.0004 U	0.00037 U	0.00041 U	0.00037 U	0.00043 U
Isophorone	78-59-1	26000	2400	0.47	0.014 U	0.016 U	0.015 U	0.014 U	0.015 U	0.014 U	0.015 U	0.014 U	0.015 U	0.014 U	0.016 U
Naphthalene	91-20-3	180	17	0.0094	0.00088 U	0.00099 U	0.00093 U	0.00086 U	0.00091 U	0.00086 U	0.00094 U	0.00087 U	0.00096 U	0.00087 U	0.001 U
Nitrobenzene	98-95-3	240	22	0.0016	0.0024 U	0.0027 U	0.0025 U	0.0023 U	0.0025 U	0.0023 U	0.0025 U	0.0023 U	0.0026 U	0.0023 U	0.0027 U
N-Nitrosodi-n-propylamine	621-64-7	3.5	0.33	0.00014	0.0068 U	0.0076 U	0.0071 U	0.0066 U	0.007 U	0.0066 U	0.0072 U	0.0067 U	0.0073 U	0.0067 U	0.0078 U
N-Nitrosodiphenylamine	86-30-6	5000	470	1.5	0.023 U	0.025 U	0.024 U	0.022 U	0.023 U	0.022 U	0.024 U	0.022 U	0.024 U	0.022 U	0.026 U
Pentachlorophenol	87-86-5	33	4	0.2	0.0098 U	0.011 U	0.01 U	0.0095 U	0.01 U	0.0096 U	0.01 U	0.0097 U	0.011 U	0.0096 U	0.011 U
Phenanthrene	85-01-8	610000	NS	3200	0.0078	0.00088 U	0.00082 U	0.00076 U	0.006 J	0.00077 U	0.0051 J	0.00077 U	0.011	0.00077 U	0.0092
Phenol	108-95-2	260000	250000	54	0.0078 U	0.0088 U	0.0082 U	0.0076 U	0.0081 U	0.0077 U	0.0084 U	0.0077 U	0.0085 U	0.0077 U	0.009 U
Pyrene	129-00-0	58000	23000	320	0.00047 U	0.00053 U	0.0005 U	0.00046 U	0.00049 U	0.00046 U	0.0005 U	0.00047 U	0.00051 U	0.00047 U	0.00054 U

Notes:
All concentrations reported in milligrams per kilogram (mg/kg)
Underlined values exceed the WVDEP 60CSR3 Table 60-3B Migration to Groundwater Soil De Minimis Standard.
Bolded values exceed the WVDEP 60CSR3 Table 60-3B Industrial Soil De Minimis Standard.

U - Target analyte not detected above listed Method Detection Limit.
J - Estimated result. Result is less greater than the Method Detection Limit but less than the labaratory method Reporting Limit
B - Method blank contamination. The associated method blank contains the target analyte at a reportable leve
K - Analyte is present. Reported value may be biased high. Actual value is expected to be lower
L - Analyte is present. Reported value may be biased low. Actual value is expected to be higher

TABLE 2
SUMMARY OF SOIL ANALYTICAL DATA
AOC 1 - 25TH STREET LANDFILL
FORMER BASF HUNTINGTON WORKS FACILITY
HUNTINGTON, WEST VIRGINIA

				AOC1-11	AOC1-12	AOC1-12	AOC1-12	AOC1-13	AOC1-13
				AOC1-11-22.5	AOC1-12-20	AOC1-12-27.5	DUP-1	AOC1-13-17.5	AOC1-13-30
				N	N	N	FD	N	N
				SO	SO	SO	SO	SO	SO
				26 Jul 2016	26 Jul 2016	26 Jul 2016	26 Jul 2016	27 Jul 2016	27 Jul 2016
				240-67605-13	240-67605-14	240-67605-15	240-67605-16	240-67662-1	240-67662-2
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
	CAS NO.	WVDEP INDUSTRIAL SOIL DE MINIMIS	EPA INDUSTRIAL SOIL SCREENING						
SW6020A									
Aluminum	7429-90-5	1000000	1100000	2800 J	9300 J	3100 J	3300 J	9500 B	2200 B
Antimony	7440-36-0	820	470	0.096 L	0.2 L	0.072 L	0.064 L	0.16 L	0.11 L
Arsenic	7440-38-2	27	3	4.4	6.8	5.1	4.4	5.8 B	5.8 B
Barium	7440-39-3	360000	220000	41	110	110 J	45 J	120	48
Beryllium	7440-41-7	3900	2300	0.2	1	0.3	0.22	1.1	0.58
Cadmium	7440-43-9	800	980	0.042 JB	0.13 JB	0.11 JB	0.067 JB	0.083 JB	0.077 JB
Calcium	7440-70-2	NS	NS	260	310	350	340	370	160 J
Chromium	7440-47-3	NS	NS	9.9 B	14 B	5.9 J	11 J	17 B	6.3 B
Cobalt	7440-48-4	600	350	3.4 B	13 B	5.7 B	4.3 B	8.7 B	6 B
Copper	7440-50-8	82000	47000	5 B	17 B	6.4 B	6.3 B	17 B	6.4 B
Iron	7439-89-6	1000000	820000	14000 J	25000 J	16000 J	11000 J	26000 B	22000 B
Lead	7439-92-1	1000	800	3 B	15 B	4.1 B	4.4 B	12 B	4.4 B
Magnesium	7439-95-4	NS	NS	660 B	2200 B	740 B	1000 B	2400 B	460 B
Manganese	7439-96-5	72000	26000	340 J	650 J	910 J	340 J	430 J	600 J
Nickel	7440-02-0	38000	22000	7.2 B	18 B	9.8 B	8.5 B	18	7.2
Potassium	7440-09-7	NS	NS	270 B	970 B	240 B	260 B	1000 B	230 B
Selenium	7782-49-2	10000	5800	0.54 J	1.6	0.73 J	0.51 J	1.2 B	0.58 JB
Silver	7440-22-4	10000	5800	0.008 JB	0.022 JB	0.0059 JB	0.043 JB	0.021 JB	0.0087 JB
Sodium	7440-23-5	NS	NS	21 JB	40 JB	37 JB	32 JB	50 JB	28 JB
Thallium	7440-28-0	20	12	0.033 J	0.2 J	0.051 J	0.041 J	0.17 J	0.072 J
Vanadium	7440-62-2	140	5800	7.3	20	7.6	8	20	8.3
Zinc	7440-66-6	610000	350000	19 B	58 B	23 B	23 B	57 B	23 B
SW7471A									
Mercury	7439-97-6	610	46	0.015 U	0.019 U	0.018 U	0.013 U	0.025 J	0.017 U
SW8082									
Aroclor-1016	12674-11-2	50	27	0.013 U	0.015 U	0.015 U	0.013 U	0.045 U	0.04 U
Aroclor-1221	11104-28-2	12	0.83	0.017 U	0.02 U	0.02 U	0.017 U	0.06 U	0.054 U
Aroclor-1232	11141-16-5	12	0.72	0.021 U	0.025 U	0.025 U	0.021 U	0.075 U	0.067 U
Aroclor-1242	53469-21-9	10	0.95	0.012 U	0.014 U	0.014 U	0.012 U	0.041 U	0.037 U
Aroclor-1248	12672-29-6	10	0.95	0.0084 U	0.01 U	0.0099 U	0.0085 U	0.03 U	0.027 U
Aroclor-1254	11097-69-1	10	0.97	0.015 U	0.018 U	0.017 U	0.015 U	0.053 U	0.047 U
Aroclor-1260	11096-82-5	10	0.99	0.0094 U	0.011 U	0.011 U	0.0096 U	0.034 U	0.03 U
Aroclor-1262	37324-23-5	NS	NS	0.01 U	0.013 U	0.012 U	0.011 U	0.038 U	0.034 U
Aroclor-1268	11100-14-4	NS	NS	0.014 U	0.016 U	0.016 U	0.014 U	0.049 U	0.044 U

TABLE 2
SUMMARY OF SOIL ANALYTICAL DATA
AOC 1 - 25TH STREET LANDFILL
FORMER BASF HUNTINGTON WORKS FACILITY
HUNTINGTON, WEST VIRGINIA

				AOC1-11	AOC1-12	AOC1-12	AOC1-12	AOC1-13	AOC1-13
				AOC1-11-22.5	AOC1-12-20	AOC1-12-27.5	DUP-1	AOC1-13-17.5	AOC1-13-30
				N	N	N	FD	N	N
				SO	SO	SO	SO	SO	SO
				26 Jul 2016	26 Jul 2016	26 Jul 2016	26 Jul 2016	27 Jul 2016	27 Jul 2016
				240-67605-13	240-67605-14	240-67605-15	240-67605-16	240-67662-1	240-67662-2
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
SW8260B									
1,1,1-Trichloroethane	71-55-6	640	36000	0.00053 U	0.00058 UL	0.00076 U	0.0006 U	0.00061 U	0.00064 U
1,1,2,2-Tetrachloroethane	79-34-5	31	2.7	0.00025 U	0.00028 U	0.00036 U	0.00029 U	0.00029 U	0.00031 U
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	910	170000	0.00034 U	0.00038 UL	0.00049 U	0.00039 U	0.0004 U	0.00042 U
1,1,2-Trichloroethane	79-00-5	57	5	0.0003 U	0.00033 U	0.00043 U	0.00034 U	0.00035 U	0.00037 U
1,1-Dichloroethane	75-34-3	170	16	0.00028 U	0.0003 UL	0.0004 U	0.00032 U	0.00032 U	0.00034 U
1,1-Dichloroethene	75-35-4	1100	1000	0.00065 U	0.00072 UL	0.00093 U	0.00074 U	0.00076 U	0.00079 U
1,2,4-Trichlorobenzene	120-82-1	280	110	0.00031 U	0.00034 U	0.00044 U	0.00035 U	0.00036 U	0.00038 U
1,2-Dibromo-3-Chloropropane	96-12-8	71	0.064	0.0022 U	0.0024 U	0.0032 U	0.0025 U	0.0026 U	0.0027 U
1,2-Dichlorobenzene	95-50-1	380	9300	0.00028 U	0.0003 U	0.0004 U	0.00032 U	0.00032 U	0.00034 U
1,2-Dichloroethane	107-06-2	23	2	0.00038 U	0.00041 UL	0.00054 U	0.00043 U	0.00044 U	0.00046 U
1,2-Dichloropropane	78-87-5	47	4.4	0.00011 U	0.00013 UL	0.00016 U	0.00013 U	0.00013 U	0.00014 U
1,3-Dichlorobenzene	541-73-1	NS	NS	0.00056 U	0.00062 U	0.0008 U	0.00064 U	0.00065 U	0.00068 U
1,4-Dichlorobenzene	106-46-7	140	11	0.00023 U	0.00025 U	0.00033 U	0.00026 U	0.00026 U	0.00028 U
2-Butanone (MEK)	78-93-3	28000	190000	0.00091 U	0.001 UL	0.0013 U	0.001 U	0.0011 U	0.0011 U
2-Hexanone	591-78-6	NS	1300	0.00056 U	0.00061 UL	0.00079 U	0.00063 U	0.00064 U	0.00067 U
4-Methyl-2-pentanone (MIBK)	108-10-1	3400	140000	0.001 U	0.0011 UL	0.0014 U	0.0011 U	0.0012 U	0.0012 U
Acetone	67-64-1	110000	670000	0.0078 B	0.0051 U	0.0093 B	0.011 B	0.0054 U	0.0068 B
Benzene	71-43-2	57	5.1	0.00073 U	0.00081 UL	0.001 U	0.00083 U	0.00085 U	0.00089 U
Bromoform	75-25-2	3100	86	0.0002 U	0.00022 U	0.00028 U	0.00022 U	0.00023 U	0.00024 U
Bromomethane	74-83-9	33	30	0.00034 U	0.00038 U	0.00049 U	0.00039 U	0.0004 U	0.00042 U
Carbon disulfide	75-15-0	740	3500	0.00048 U	0.00053 U	0.00069 U	0.00055 U	0.00056 U	0.00058 U
Carbon tetrachloride	56-23-5	32	2.9	0.00053 U	0.00058 U	0.00076 U	0.0006 U	0.00061 U	0.00064 U
Chlorobenzene	108-90-7	760	1300	0.00043 U	0.00047 U	0.00062 U	0.00049 U	0.0005 U	0.00053 U
Chlorodibromomethane	124-48-1	290	39	0.0003 U	0.00033 U	0.00043 U	0.00034 U	0.00035 U	0.00037 U
Chloroethane	75-00-3	2100	57000	0.00036 U	0.00039 U	0.00051 U	0.00041 U	0.00042 U	0.00044 U
Chloroform	67-66-3	15	1.4	0.00029 U	0.00032 UL	0.00042 U	0.00033 U	0.00034 U	0.00036 U
Chloromethane	74-87-3	510	460	0.00065 U	0.00071 U	0.00092 U	0.00073 U	0.00075 U	0.00078 U
cis-1,2-Dichloroethene	156-59-2	82	2300	0.00023 U	0.00025 UL	0.00033 U	0.00026 U	0.00026 U	0.00028 U
cis-1,3-Dichloropropene	10061-01-5	NS	NS	0.00058 U	0.00064 U	0.00083 U	0.00066 U	0.00067 U	0.0007 U
Cyclohexane	110-82-7	120	27000	0.00039 U	0.00043 U	0.00056 U	0.00045 U	0.00045 U	0.00048 U
Dichlorobromomethane	75-27-4	14	1.3	0.00024 U	0.00026 U	0.00034 U	0.00027 U	0.00027 U	0.00029 U
Dichlorodifluoromethane	75-71-8	800	370	0.00023 U	0.00025 U	0.00033 U	0.00026 U	0.00026 U	0.00028 U
Ethylbenzene	100-41-4	290	25	0.00026 U	0.00029 U	0.00037 U	0.0003 U	0.0003 U	0.00032 U
Ethylene Dibromide	106-93-4	1.8	0.16	0.00043 U	0.00047 U	0.00062 U	0.00049 U	0.0005 U	0.00053 U
Isopropylbenzene	98-82-8	270	9900	0.00016 U	0.00018 U	0.00023 U	0.00019 U	0.00019 U	0.0002 U
Methyl acetate	79-20-9	29000	1200000	0.0016 U	0.0018 U	0.0023 U	0.0019 U	0.0019 U	0.002 U
Methyl tert-butyl ether	1634-04-4	2300	210	0.00035 U	0.00039 UL	0.0005 U	0.0004 U	0.00041 U	0.00043 U
Methylcyclohexane	108-87-2	NS	NS	0.00047 U	0.00052 U	0.00068 U	0.00054 U	0.00055 U	0.00057 U
Methylene Chloride	75-09-2	3300	1000	0.00066 J	0.00066 UL	0.0028 J	0.0016 J	0.0007 U	0.00073 U
Styrene	100-42-5	870	35000	0.00033 U	0.00036 U	0.00047 U	0.00037 U	0.00038 U	0.0004 U
Tetrachloroethene	127-18-4	170	100	0.00065 U	0.00072 U	0.00093 U	0.00074 U	0.00076 U	0.00079 U
Toluene	108-88-3	820	47000	0.00022 U	0.00024 UL	0.00031 U	0.00025 U	0.00026 U	0.00027 U
trans-1,2-Dichloroethene	156-60-5	700	23000	0.00026 U	0.00029 UL	0.00037 U	0.0003 U	0.0003 U	0.00032 U
trans-1,3-Dichloropropene	10061-02-6	NS	NS	0.00024 U	0.00026 U	0.00034 U	0.00027 U	0.00027 U	0.00029 U
Trichloroethene	79-01-6	21	6	0.00031 U	0.00034 U	0.00044 U	0.00035 U	0.00036 U	0.00038 U
Trichlorofluoromethane	75-69-4	1200	350000	0.00024 U	0.00026 U	0.00034 U	0.00027 U	0.00027 U	0.00029 U
Vinyl chloride	75-01-4	21	1.7	0.00024 U	0.00027 U	0.00035 U	0.00028 U	0.00028 U	0.0003 U
Xylenes, Total	1330-20-7	260	2500	0.00044 U	0.00048 U	0.00063 U	0.0005 U	0.00051 U	0.00053 U

TABLE 2
SUMMARY OF SOIL ANALYTICAL DATA
AOC 1 - 25TH STREET LANDFILL
FORMER BASF HUNTINGTON WORKS FACILITY
HUNTINGTON, WEST VIRGINIA

				AOC1-11	AOC1-12	AOC1-12	AOC1-12	AOC1-13	AOC1-13
				AOC1-11-22.5	AOC1-12-20	AOC1-12-27.5	DUP-1	AOC1-13-17.5	AOC1-13-30
				N	N	N	FD	N	N
				SO	SO	SO	SO	SO	SO
				26 Jul 2016	26 Jul 2016	26 Jul 2016	26 Jul 2016	27 Jul 2016	27 Jul 2016
				240-67605-13	240-67605-14	240-67605-15	240-67605-16	240-67662-1	240-67662-2
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
SW8270D									
1,1-Biphenyl	92-52-4	220	200	0.0038 U	0.0044 U	0.0044 U	0.0037 U	0.0044 U	0.0038 U
1,2-Diphenylhydrazine(as Azobenzene)	122-66-7	31	2.9	0.018 U	0.021 U	0.022 U	0.018 U	0.021 U	0.019 U
1,4-Dioxane	123-91-1	250	24	0.024 U	0.028 U	0.028 U	0.023 U	0.028 U	0.024 U
2,4,5-Trichlorophenol	95-95-4	88000	82000	0.027 U	0.031 U	0.032 U	0.026 U	0.031 U	0.027 U
2,4,6-Trichlorophenol	88-06-2	880	210	0.0096 U	0.011 U	0.011 U	0.0093 U	0.011 U	0.0097 U
2,4-Dichlorophenol	120-83-2	2600	2500	0.021 U	0.025 U	0.025 U	0.021 U	0.025 U	0.022 U
2,4-Dimethylphenol	105-67-9	18000	16000	0.021 U	0.025 U	0.025 U	0.021 U	0.025 U	0.022 U
2,4-Dinitrophenol	51-28-5	1800	1600	0.023 U	0.026 U	0.027 U	0.022 U	0.026 U	0.023 U
2,4-Dinitrotoluene	121-14-2	80	7.4	0.018 U	0.021 U	0.022 U	0.018 U	0.021 U	0.019 U
2,6-Dinitrotoluene	606-20-2	890	1.5	0.023 U	0.026 U	0.027 U	0.022 U	0.026 U	0.023 U
2-Chloronaphthalene	91-58-7	64000	60000	0.00048 U	0.00056 U	0.00057 U	0.00047 U	0.00057 U	0.00049 U
2-Chlorophenol	95-57-8	5100	5800	0.0088 U	0.01 U	0.01 U	0.0086 U	0.01 U	0.009 U
2-Methylnaphthalene	91-57-6	8200	3000	0.00054 U	0.00063 U	0.00063 U	0.00052 U	0.00063 U	0.00055 U
2-Methylphenol	95-48-7	44000	41000	0.012 U	0.014 U	0.014 U	0.011 U	0.014 U	0.012 U
2-Nitroaniline	88-74-4	8500	8000	0.0098 U	0.011 U	0.012 U	0.0095 U	0.011 U	0.01 U
2-Nitrophenol	88-75-5	NS	NS	0.0089 U	0.01 U	0.011 U	0.0087 U	0.01 U	0.0091 U
2-Toluidine	95-53-4	100	140	0.039 U	0.045 U	0.046 U	0.038 U	0.045 U	0.039 U
3 & 4 Methylphenol	MEPH3MEPH4	NS	NS	0.021 U	0.025 U	0.025 U	0.021 U	0.025 U	0.022 U
3,3-Dichlorobenzidine	91-94-1	55	5.1	0.019 U	0.023 U	0.023 U	0.019 U	0.023 U	0.02 U
3,3-Dimethoxybenzidine	119-90-4	1800	1.4	0.055 U	0.064 U	0.065 U	0.053 U	0.064 U	0.056 U
3,3-Dimethylbenzidine	119-93-7	2.2	0.21	0.068 U	0.079 U	0.08 U	0.066 U	0.079 U	0.069 U
3-Nitroaniline	99-09-2	NS	NS	0.017 U	0.02 U	0.02 U	0.017 U	0.02 U	0.017 U
4,6-Dinitro-2-methylphenol	534-52-1	NS	66	0.0099 U	0.012 U	0.012 U	0.0096 U	0.012 U	0.01 U
4-Bromophenyl phenyl ether	101-55-3	NS	NS	0.014 U	0.016 U	0.016 U	0.014 U	0.016 U	0.014 U
4-Chloro-3-methylphenol	59-50-7	NS	82000	0.023 U	0.026 U	0.027 U	0.022 U	0.026 U	0.023 U
4-Chloroaniline	106-47-8	120	11	0.018 U	0.021 U	0.022 U	0.018 U	0.021 U	0.019 U
4-Chlorophenyl phenyl ether	7005-72-3	NS	NS	0.014 U	0.016 U	0.016 U	0.014 U	0.016 U	0.014 U
4-Nitroaniline	100-01-6	NS	110	0.028 U	0.033 U	0.033 U	0.027 U	0.033 U	0.028 U
4-Nitrophenol	100-02-7	NS	NS	0.018 U	0.021 U	0.022 U	0.018 U	0.021 U	0.019 U
Acenaphthene	83-32-9	66000	45000	0.00082 U	0.00095 U	0.00096 U	0.00079 U	0.00096 U	0.00083 U
Acenaphthylene	208-96-8	74000	NS	0.00038 U	0.00044 U	0.00044 U	0.00037 U	0.00044 U	0.00038 U
Acetophenone	98-86-2	2500	120000	0.0099 U	0.012 U	0.012 U	0.0096 U	0.012 U	0.01 U
Aniline	62-53-3	4300	400	0.012 U	0.014 U	0.014 U	0.011 U	0.014 U	0.012 U
Anthracene	120-12-7	610000	230000	0.00084 U	0.00098 U	0.00099 U	0.00081 U	0.00098 U	0.00085 U
Atrazine	1912-24-9	110	10	0.0098 U	0.011 U	0.012 U	0.0095 U	0.011 U	0.01 U
Benzaldehyde	100-52-7	1200	820	0.013 U	0.015 U	0.015 U	0.013 U	0.015 U	0.013 U
Benzidine	92-87-5	0.11	0.01	0.031 U	0.036 UE1	0.037 U	0.03 U	0.036 U	0.032 U
Benzo[a]anthracene	56-55-3	29	2.9	0.00068 U	0.00079 U	0.0008 U	0.00066 U	0.00079 U	0.00069 U
Benzo[a]pyrene	50-32-8	2.9	0.29	0.00069 U	0.0008 U	0.00081 U	0.00067 U	0.0008 U	0.0007 U
Benzo[b]fluoranthene	205-99-2	29	2.9	0.00063 U	0.00074 U	0.00075 U	0.00062 U	0.00074 U	0.00065 U
Benzo[g,h,i]perylene	191-24-2	23000	NS	0.00038 U	0.00044 U	0.00044 U	0.00037 U	0.00044 U	0.00038 U
Benzo[k]fluoranthene	207-08-9	290	29	0.00073 U	0.00085 U	0.00086 U	0.00071 U	0.00086 U	0.00074 U
bis (2-chloroisopropyl) ether	108-60-1	300	47000	0.01 U	0.012 U	0.012 U	0.0099 U	0.012 U	0.01 U
Bis(2-chloroethoxy)methane	111-91-1	NS	2500	0.024 U	0.028 U	0.028 U	0.023 U	0.028 U	0.024 U
Bis(2-chloroethyl)ether	111-44-4	13	1	0.0021 U	0.0025 U	0.0025 U	0.0021 U	0.0025 U	0.0022 U
Bis(2-ethylhexyl) phthalate	117-81-7	1800	160	0.023 J	0.024 U	0.027 J	0.039 J	0.024 U	0.021 U
Butyl benzyl phthalate	85-68-7	13000	1200	0.011 U	0.013 U	0.013 U	0.01 U	0.013 U	0.011 U
Caprolactam	105-60-2	440000	400000	0.04 U	0.046 U	0.047 U	0.039 U	0.047 U	0.04 U
Carbazole	86-74-8	029 U	NS	0.029 U	0.034 U	0.034 U	0.028 U	0.034 U	0.03 U
Chrysene	218-01-9	2900	290	0.0012 U	0.0014 U	0.0014 U	0.0011 U	0.0014 U	0.0012 U
Dibenz(a,h)anthracene	53-70-3	2.9	0.29	0.00071 U	0.00083 U	0.00084 U	0.00069 U	0.00083 U	0.00072 U
Dibenzofuran	132-64-9	2000	1000	0.00071 U	0.00083 U	0.00084 U	0.00069 U	0.00083 U	0.00072 U
Diethyl phthalate	84-66-2	700000	660000	0.017 U	0.02 U	0.02 U	0.017 U	0.02 U	0.017 U
Dimethyl phthalate	131-11-3	NS	NS	0.018 U	0.021 U	0.022 U	0.018 U	0.021 U	0.019 U
Di-n-butyl phthalate	84-74-2	88000	82000	0.016 U	0.019 U	0.019 U	0.018 J	0.019 U	0.016 U
Di-n-octyl phthalate	117-84-0	NS	8200	0.0085 U	0.0099 U	0.01 U	0.0082 U	0.0099 U	0.0086 U
Diphenylamine	122-39-4	22000	21000	0.023 U	0.026 U	0.027 U	0.022 U	0.026 U	0.023 U
Fluoranthene	206-44-0	30000	30000	0.00059 U	0.00069 U	0.0007 U	0.00057 U	0.00069 U	0.0006 U
Fluorene	86-73-7	57000	30000	0.00057 U	0.00066 U	0.00067 U	0.00055 U	0.00067 U	0.00058 U
Hexachlorobenzene	118-74-1	15	0.96	0.0023 U	0.0026 U	0.0027 U	0.0022 U	0.0026 U	0.0023 U
Hexachlorobutadiene	87-68-3	320	5.3	0.006 U	0.007 U	0.0071 U	0.0058 U	0.007 U	0.0061 U
Hexachlorocyclopentadiene	77-47-4	5300	7.5	0.0087 U	0.011 U	0.011 U	0.0085 U	0.011 U	0.0089 U
Hexachloroethane	67-72-1	620	8	0.0097 U	0.011 U	0.011 U	0.0094 U	0.011 U	0.0098 U
Indeno[1,2,3-cd]pyrene	193-39-5	29	2.9	0.00038 U	0.00044 U	0.00044 U	0.00037 U	0.00044 U	0.00038 U
Isophorone	78-59-1	26000	2400	0.014 U	0.016 U	0.016 U	0.014 U	0.016 U	0.014 U
Naphthalene	91-20-3	180	17	0.00088 U	0.001 U	0.001 U	0.00086 U	0.001 U	0.0009 U
Nitrobenzene	98-95-3	240	22	0.0024 U	0.0028 U	0.0028 U	0.0023 U	0.0028 U	0.0024 U
N-Nitrosodi-n-propylamine	621-64-7	3.5	0.33	0.0068 U	0.0079 U	0.008 U	0.0066 U	0.0079 U	0.0069 U
N-Nitrosodiphenylamine	86-30-6	5000	470	0.023 U	0.026 U	0.027 U	0.022 U	0.026 U	0.023 U
Pentachlorophenol	87-86-5	33	4	0.0098 U	0.011 U	0.012 U	0.0095 U	0.011 U	0.01 U
Phenanthrene	85-01-8	610000	NS	0.00078 U	0.00091 U	0.0054 J	0.0063 J	0.00092 U	0.017
Phenol	108-95-2	260000	250000	0.0078 U	0.0091 U	0.0093 U	0.0076 U	0.0092 U	0.008 U
Pyrene	129-00-0	58000	23000	0.00047 U	0.00055 U	0.00056 U	0.00046 U	0.00055 U	0.00048 U

Notes:
All concentrations reported in milligrams per kilogram (mg/kg)
Underlined values exceed the WVDEP 60CSR3 Table 60-3B Migration to Groundwater Soil De Minimis S
Bolded values exceed the WVDEP 60CSR3 Table 60-3B Industrial Soil De Minimis Standard.

U - Target analyte not detected above listed Method Detection Limit.
J - Estimated result. Result is less greater than the Method Detection Limit but less than the labaratory m
B - Method blank contamination. The associated method blank contains the target analyte at a reportable
K - Analyte is present. Reported value may be biased high. Actual value is expected to be lower
L - Analyte is present. Reported value may be biased low. Actual value is expected to be higher

TABLE 2
SUMMARY OF SOIL ANALYTICAL DATA
AOC 2 - FORMER PROCESS SEWERS AND WASTEWATER LINES
FORMER BASF HUNTINGTON WORKS FACILITY
HUNTINGTON, WEST VIRGINIA

				Location	AOC2-04B	AOC2-04B	AOC2-16B	AOC2-16B	AOC2-17B	AOC2-18B	AOC2-18B	AOC2-18B	AOC2-18B	AOC2-18B	AOC2-20B	AOC2-20B
				Sample	AOC2-04B-25	AOC2-04B-7.5	AOC2-16B-10.5	AOC2-16B-15	AOC2-17B-11.5	AOC2-18B-11.5	AOC2-18B-15	AOC2-18B-20	AOC2-18B-25	AOC2-18B-7.5	AOC2-20B-10	AOC2-20B-15
				Sample Type	N	N	N	N	N	N	N	N	N	N	N	N
				Matrix	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
				Sample Date	22 Aug 2016	22 Aug 2016	03 Aug 2016	03 Aug 2016	04 Aug 2016	08 Aug 2016	08 Aug 2016	08 Aug 2016	08 Aug 2016	08 Aug 2016	04 Aug 2016	04 Aug 2016
				Lab Sample ID	240-68618-2	240-68618-1	240-67954-1	240-67954-2	240-68008-5	240-68160-2	240-68160-3	240-68160-4	240-68160-5	240-68160-1	240-68008-6	240-68008-7
				Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
	CAS NO.	WVDEP INDUSTRIAL SOIL DE MINIMIS STANDARD (MG/KG)	EPA INDUSTRIAL SOIL SCREENING LEVEL (MG/KG)	WVDEP MIGRATION TO GROUNDWATER DE MINIMIS STANDARD (MG/KG)												
SW6020A																
Aluminum	7429-90-5	1000000	1100000	470000	940 B	11000 B	NA	NA	NA	8200 K	13000 K	8900 K	2600 K	4100 K	10000 K	8500 K
Antimony	7440-36-0	820	470	5.7	0.052 L	0.37 L	NA	NA	NA	0.36 L	0.15 L	0.06 L	0.09 L	0.24 L	0.3 L	0.24 L
Arsenic	7440-38-2	27	3	5.8	2	4.4	NA	NA	NA	9.2	6.9	2	2.2	3.7	9.1	3.3
Barium	7440-39-3	360000	220000	1600	18 K	230 K	NA	NA	NA	5100	2500	97	35	3600	4600	5400
Beryllium	7440-41-7	3900	2300	63	0.23 B	1.4 B	NA	NA	NA	0.98	1.6	1	0.51	0.52	0.93	1
Cadmium	7440-43-9	800	980	7.5	0.028 JB	0.044 JB	NA	NA	NA	0.19 J	0.6	0.24	0.062 J	0.066 J	0.15 J	0.11 J
Calcium	7440-70-2	NS	NS	NS	100 J	3000	NA	NA	NA	8800 B	6000 B	540 B	210 JB	990 B	2100	5200
Chromium	7440-47-3	NS	NS	NS	3.1 B	17 B	NA	NA	NA	17 B	23 B	14 B	4.8 B	37 B	17 B	18 B
Cobalt	7440-48-4	600	350	4.2	1.1 B	2.1 B	NA	NA	NA	9.2 B	14 B	14 B	2.4 B	4.4 B	14 B	11 B
Copper	7440-50-8	82000	47000	440	2.4 B	13 B	NA	NA	NA	61 B	38 B	16 B	5.3 B	24 B	20 B	27 B
Iron	7439-89-6	1000000	820000	5500	12000	7900	NA	NA	NA	19000	17000	13000	5900	9800	25000	14000
Lead	7439-92-1	1000	800	270	2.3	19	NA	NA	NA	29 B	24 B	13 B	4.3 B	19 B	29 B	32 B
Magnesium	7439-95-4	NS	NS	NS	200 B	630 B	NA	NA	NA	1500 B	3100 B	2300 B	590 B	580 B	2200 B	4300 B
Manganese	7439-96-5	72000	26000	960	43 B	45 B	NA	NA	NA	410 B	270 B	120 B	77 B	84 B	240	180
Nickel	7440-02-0	38000	22000	410	1.9 B	10 B	NA	NA	NA	19 B	34 B	23 B	4.5 B	15 B	23 B	24 B
Potassium	7440-09-7	NS	NS	NS	190	920	NA	NA	NA	780 B	1500 B	1200 B	470 B	350 B	1200 B	880 B
Selenium	7782-49-2	10000	5800	5.2	0.23 J	2.1	NA	NA	NA	1.5	2.6	1.9	0.57 J	0.69 J	2.1	2.2
Silver	7440-22-4	10000	5800	13	0.0043 J	0.055 J	NA	NA	NA	0.052 J	0.058 J	0.026 J	0.0074 J	0.016 J	0.042 J	0.057 J
Sodium	7440-23-5	NS	NS	NS	76 J	300	NA	NA	NA	130 JB	350 B	170 JB	140 JB	55 JB	120 JB	170 JB
Thallium	7440-28-0	20	12	2.8	0.038 J	0.24 J	NA	NA	NA	0.18 J	0.23 J	0.14 J	0.066 J	0.054 J	0.19 J	0.17 J
Vanadium	7440-62-2	140	5800	22	3.4	18	NA	NA	NA	27	30	17	7	7.5	20	19
Zinc	7440-66-6	610000	350000	5800	7.1 B	26 B	NA	NA	NA	77 B	110 B	60 B	17 B	92 B	69	75
SW7471A																
Mercury	7439-97-6	610	46	2.1	0.014 U	0.026 J	NA	NA	NA	0.045 J	0.042 J	0.016 U	0.015 U	0.019 U	0.018 U	0.15
SW8082																
Aroclor-1016	12674-11-2	50	27	1.8	NA	NA	NA	NA	NA	0.11 U	2.8 U	0.21 U	0.05 U	0.0094 U	NA	NA
Aroclor-1221	11104-28-2	12	0.83	0.0023	NA	NA	NA	NA	NA	0.1 U	2.7 U	0.2 U	0.048 U	0.009 U	NA	NA
Aroclor-1232	11141-16-5	12	0.72	0.0023	NA	NA	NA	NA	NA	0.071 U	1.9 U	0.14 U	0.034 U	0.0063 U	NA	NA
Aroclor-1242	53469-21-9	10	0.95	0.11	NA	NA	NA	NA	NA	0.089 U	2.3 U	0.17 U	0.042 U	0.0078 U	NA	NA
Aroclor-1248	12672-29-6	10	0.95	0.1	NA	NA	NA	NA	NA	3.9	**95 K**	4.3	0.98	0.19	NA	NA
Aroclor-1254	11097-69-1	10	0.97	0.18	NA	NA	NA	NA	NA	0.062 U	*1.6 U*	0.12 U	0.029 U	0.0055 U	NA	NA
Aroclor-1260	11096-82-5	10	0.99	0.47	NA	NA	NA	NA	NA	0.08 U	*2.1 U*	0.16 U	0.038 U	0.0071 U	NA	NA
Aroclor-1262	37324-23-5	NS	NS	NS	NA	NA	NA	NA	NA	0.036 U	0.93 U	0.07 U	0.017 U	0.0031 U	NA	NA
Aroclor-1268	11100-14-4	NS	NS	NS	NA	NA	NA	NA	NA	0.089 U	2.3 U	0.17 U	0.042 U	0.0078 U	NA	NA

TABLE 2
SUMMARY OF SOIL ANALYTICAL DATA
AOC 2 - FORMER PROCESS SEWERS AND WASTEWATER LINES
FORMER BASF HUNTINGTON WORKS FACILITY
HUNTINGTON, WEST VIRGINIA

				Location	AOC2-04B	AOC2-04B	AOC2-16B	AOC2-16B	AOC2-17B	AOC2-18B	AOC2-18B	AOC2-18B	AOC2-18B	AOC2-18B	AOC2-20B	AOC2-20B
				Sample	AOC2-04B-25	AOC2-04B-7.5	AOC2-16B-10.5	AOC2-16B-15	AOC2-17B-11.5	AOC2-18B-11.5	AOC2-18B-15	AOC2-18B-20	AOC2-18B-25	AOC2-18B-7.5	AOC2-20B-10	AOC2-20B-15
				Sample Type	N	N	N	N	N	N	N	N	N	N	N	N
				Matrix	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
				Sample Date	22 Aug 2016	22 Aug 2016	03 Aug 2016	03 Aug 2016	04 Aug 2016	08 Aug 2016	08 Aug 2016	08 Aug 2016	08 Aug 2016	08 Aug 2016	04 Aug 2016	04 Aug 2016
				Lab Sample ID	240-68618-2	240-68618-1	240-67954-1	240-67954-2	240-68008-5	240-68160-2	240-68160-3	240-68160-4	240-68160-5	240-68160-1	240-68008-6	240-68008-7
				Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
	CAS NO.	WVDEP INDUSTRIAL SOIL DE MINIMIS STANDARD (MG/KG)	EPA INDUSTRIAL SOIL SCREENING LEVEL (MG/KG)	WVDEP MIGRATION TO GROUNDWATER DE MINIMIS STANDARD (MG/KG)												
SW8260B																
1,1,1-Trichloroethane	71-55-6	640	36000	1.4	0.028 U	0.00058 U	NA	NA	0.061 U	0.029 U	16 U	0.7 U	0.035 U	0.00069 U	NA	NA
1,1,2,2-Tetrachloroethan	79-34-5	31	2.7	0.00053	0.026 U	0.00028 U	NA	NA	0.057 U	0.027 U	15 U	0.65 U	0.032 U	0.00033 U	NA	NA
1,1,2-Trichloro-1,2,2-trifluoroethan	76-13-1	910	170000	2800	0.043 U	0.00037 U	NA	NA	0.095 U	0.045 U	25 U	1.1 U	0.054 U	0.00044 U	NA	NA
1,1,2-Trichloroethane	79-00-5	57	5	0.032	0.02 U	0.00033 U	NA	NA	0.043 U	0.02 U	11 U	0.49 U	0.024 U	0.00039 U	NA	NA
1,1-Dichloroethane	75-34-3	170	16	0.014	0.036 U	0.0003 U	NA	NA	0.08 U	0.037 U	21 U	0.91 U	0.045 U	0.00036 U	NA	NA
1,1-Dichloroethene	75-35-4	1100	1000	0.05	0.031 U	0.00071 U	NA	NA	0.068 U	0.032 U	18 U	0.78 U	0.038 U	0.00084 U	NA	NA
1,2,4-Trichlorobenzene	120-82-1	280	110	4.1	1.3 K	0.0018 B	NA	NA	4.7 K	5.6	**2400**	120	3.8	0.0004 U	NA	NA
1,2-Dibromo-3-Chloropropane	96-12-8	71	0.064	0.0017	0.073 U	0.0024 U	NA	NA	0.16 U	0.076 U	42 U	1.8 U	0.091 U	0.0029 U	NA	NA
1,2-Dichlorobenzene	95-50-1	380	9300	12	0.02 U	0.0003 U	NA	NA	0.33 K	0.41	13 J	0.49 U	0.024 U	0.00036 U	NA	NA
1,2-Dichloroethane	107-06-2	23	2	0.028	0.01 U	0.00041 U	NA	NA	0.023 U*	0.011 U	5.9 U	0.26 U	0.013 U	0.00049 U	NA	NA
1,2-Dichloropropane	78-87-5	47	4.4	0.033	0.033 U	0.00012 U	NA	NA	0.073 U	0.034 U	19 U	0.83 U	0.041 U	0.00015 U	NA	NA
1,3-Dichlorobenzene	541-73-1	NS	NS	NS	0.072 J	0.00061 U	NA	NA	0.49 K	6.6	18 U	0.78 U	0.038 U	0.00073 U	NA	NA
1,4-Dichlorobenzene	106-46-7	140	11	1.4	0.042 U	0.00025 U	NA	NA	2 K	2.4	24 J	1.1 U	0.053 U	0.0003 U	NA	NA
2-Butanone (MEK)	78-93-3	28000	190000	21	0.076 U	0.0022 J	NA	NA	0.17 U	0.078 U	43 U	1.9 U	0.094 U	0.0013 J	NA	NA
2-Hexanone	591-78-6	NS	1300	NS	0.087 U	0.0006 U	NA	NA	0.19 U	0.089 U	50 U	2.2 U	0.11 U	0.00072 U	NA	NA
4-Methyl-2-pentanone (MIBK	108-10-1	3400	140000	4.7	0.058 U	0.0011 U	NA	NA	0.13 U	0.06 U	33 U	1.5 U	0.072 U	0.0013 U	NA	NA
Acetone	67-64-1	110000	670000	47	0.23 U	0.018 JB	NA	NA	0.51 U	0.24 U	130 U	5.9 U	0.29 U	0.018 B	NA	NA
Benzene	71-43-2	57	5.1	0.051	0.0093 U	0.0008 U	NA	NA	0.1 K	0.0096 U	5.3 U	0.23 U	0.012 U	0.00095 U	NA	NA
Bromoform	75-25-2	3100	86	0.045	0.063 U	0.00021 U	NA	NA	0.14 U	0.065 U	36 U	1.6 U	0.078 U	0.00025 U	NA	NA
Bromomethane	74-83-9	33	30	0.036	0.053 U	0.00037 U	NA	NA	0.12 U	0.054 U	30 U	1.3 U	0.065 U	0.00044 U	NA	NA
Carbon disulfide	75-15-0	740	3500	4.5	0.058 U	0.0013 J	NA	NA	0.13 U	0.06 U	33 U	1.5 U	0.072 U	0.00062 U	NA	NA
Carbon tetrachloride	56-23-5	32	2.9	0.039	0.019 U	0.00058 U	NA	NA	0.041 U	0.019 U	11 U	0.47 U	0.023 U	0.00069 U	NA	NA
Chlorobenzene	108-90-7	760	1300	1.4	0.013 U	0.00047 U	NA	NA	0.03 U	0.05 J	7.7 U	0.34 U	0.017 U	0.00056 U	NA	NA
Chlorodibromomethane	124-48-1	290	39	0.0043	0.021 U	0.00033 U	NA	NA	0.045 U	0.021 U	12 U	0.52 U	0.026 U	0.00039 U	NA	NA
Chloroethane	75-00-3	2100	57000	120	0.053 U	0.00039 U	NA	NA	0.12 U	0.054 U	30 U	1.3 U	0.065 U	0.00046 U	NA	NA
Chloroform	67-66-3	15	1.4	0.0011	0.037 U	0.00032 U	NA	NA	0.082 U	0.038 U	**21 U**	0.94 U	0.046 U	0.00038 U	NA	NA
Chloromethane	74-87-3	510	460	0.98	0.05 U	0.0007 U	NA	NA	0.11 U	0.051 U	28 U	1.2 U	0.062 U	0.00083 U	NA	NA
cis-1,2-Dichloroethene	156-59-2	82	2300	0.41	0.039 U	0.00025 U	NA	NA	0.38 K	0.04 U	22 U	0.99 U	0.049 U	0.0003 U	NA	NA
cis-1,3-Dichloropropene	10061-01-5	NS	NS	NS	0.023 U	0.00063 U	NA	NA	0.05 U	0.023 U	13 U	0.57 U	0.028 U	0.00075 U	NA	NA
Cyclohexane	110-82-7	120	27000	260	0.031 U	0.00043 U	NA	NA	0.068 U	0.032 U	18 U	0.78 U	0.038 U	0.00051 U	NA	NA
Dichlorobromomethane	75-27-4	14	1.3	0.00064	0.039 U	0.00026 U	NA	NA	0.086 U	0.04 U	**22 U**	0.99 U	0.049 U	0.00031 U	NA	NA
Dichlorodifluoromethane	75-71-8	800	370	11	0.063 U	0.00025 U	NA	NA	0.14 U	0.065 U	36 U	1.6 U	0.078 U	0.0003 U	NA	NA
Ethylbenzene	100-41-4	290	25	16	0.036 U	0.00028 U	NA	NA	0.08 U	0.037 U	21 U	0.91 U	0.045 U	0.00034 U	NA	NA
Ethylene Dibromide	106-93-4	1.8	0.16	0.00028	0.033 U	0.00047 U	NA	NA	0.073 U*	0.034 U	**19 U**	*0.83 U*	0.041 U	0.00056 U	NA	NA
Isopropylbenzene	98-82-8	270	9900	18	0.013 U	0.00018 U	NA	NA	0.03 U	0.014 U	7.7 U	0.34 U	0.017 U	0.00021 U	NA	NA
Methyl acetate	79-20-9	29000	1200000	21	0.057 U	0.0018 U	NA	NA	0.13 K	0.12 J	33 U	1.4 U	0.25 J	0.0021 U	NA	NA
Methyl tert-butyl ethe	1634-04-4	2300	210	0.056	0.031 U	0.00038 U	NA	NA	0.068 U	0.032 U	18 U	0.78 U	0.038 U	0.00045 U	NA	NA
Methylcyclohexane	108-87-2	NS	NS	NS	0.039 U	0.00052 U	NA	NA	0.086 U	0.04 U	22 U	0.99 U	0.049 U	0.00061 U	NA	NA
Methylene Chloride	75-09-2	3300	1000	0.026	0.088 U	0.00066 U	NA	NA	0.19 U	0.09 U	50 U	2.2 U	0.11 U	0.00078 U	NA	NA
Styrene	100-42-5	870	35000	2.2	0.028 U	0.00036 U	NA	NA	0.061 U	0.029 U	16 U	0.7 U	0.035 U	0.00042 U	NA	NA
Tetrachloroethene	127-18-4	170	100	0.045	0.028 U	0.00071 U	NA	NA	0.061 U	0.029 U	16 U	0.7 U	0.035 U	0.00084 U	NA	NA
Toluene	108-88-3	820	47000	14	0.01 U	0.00024 U	NA	NA	0.023 U	0.011 U	5.9 U	0.26 U	0.013 U	0.00029 U	NA	NA
trans-1,2-Dichloroethene	156-60-5	700	23000	0.59	0.027 U	0.00028 U	NA	NA	0.059 U	0.028 U	15 U	0.68 U	0.033 U	0.00034 U	NA	NA
trans-1,3-Dichloropropene	10061-02-6	NS	NS	NS	0.027 U	0.00026 U	NA	NA	0.059 U	0.028 U	15 U	0.68 U	0.033 U	0.00031 U	NA	NA
Trichloroethene	79-01-6	21	6	0.036	0.04 U	0.00034 U	NA	NA	2.2 K	0.042 U	**23 U**	1 U	0.05 U	0.0004 U	NA	NA
Trichlorofluoromethane	75-69-4	1200	350000	14	0.036 U	0.00026 U	NA	NA	0.08 U	0.037 U	21 U	0.91 U	0.045 U	0.00031 U	NA	NA
Vinyl chloride	75-01-4	21	1.7	0.014	0.018 U	0.00027 U	NA	NA	0.039 U	0.018 U	10 U	0.44 U	0.022 U	0.00032 U	NA	NA
Xylenes, Tota	1330-20-7	260	2500	200	0.033 U	0.00048 U	NA	NA	0.073 U	0.034 U	19 U	0.83 U	0.041 U	0.00057 U	NA	NA

TABLE 2
SUMMARY OF SOIL ANALYTICAL DATA
AOC 2 - FORMER PROCESS SEWERS AND WASTEWATER LINES
FORMER BASF HUNTINGTON WORKS FACILITY
HUNTINGTON, WEST VIRGINIA

				Location	AOC2-04B	AOC2-04B	AOC2-16B	AOC2-16B	AOC2-17B	AOC2-18B	AOC2-18B	AOC2-18B	AOC2-18B	AOC2-18B	AOC2-20B	AOC2-20B
				Sample	AOC2-04B-25	AOC2-04B-7.5	AOC2-16B-10.5	AOC2-16B-15	AOC2-17B-11.5	AOC2-18B-11.5	AOC2-18B-15	AOC2-18B-20	AOC2-18B-25	AOC2-18B-7.5	AOC2-20B-10	AOC2-20B-15
				Sample Type	N	N	N	N	N	N	N	N	N	N	N	N
				Matrix	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
				Sample Date	22 Aug 2016	22 Aug 2016	03 Aug 2016	03 Aug 2016	04 Aug 2016	08 Aug 2016	08 Aug 2016	08 Aug 2016	08 Aug 2016	08 Aug 2016	04 Aug 2016	04 Aug 2016
				Lab Sample ID	240-68618-2	240-68618-1	240-67954-1	240-67954-2	240-68008-5	240-68160-2	240-68160-3	240-68160-4	240-68160-5	240-68160-1	240-68008-6	240-68008-7
				Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
	CAS NO.	WVDEP INDUSTRIAL SOIL DE MINIMIS STANDARD (MG/KG)	EPA INDUSTRIAL SOIL SCREENING LEVEL (MG/KG)	WVDEP MIGRATION TO GROUNDWATER DE MINIMIS STANDARD (MG/KG)												
SW8270D																
1,1-Bipheny	92-52-4	220	200	0.17	0.0037 U	0.0081 J	0.093 U	0.0044 U	0.03 J	0.0046 U	0.062 U	0.0046 U	0.0043 U	0.015 J	0.0047 U	0.0047 U
1,2-Diphenylhydrazine(as Azobenzene	122-66-7	31	2.9	0.0054	0.018 U	0.024 U	0.45 U	0.06 J	0.022 U	0.022 U	0.3 U	0.022 U	0.021 U	0.02 U	0.023 U	0.023 U
1,4-Dioxane	123-91-1	250	24	0.0028	0.024 U	0.031 U	0.58 U	0.028 U	0.028 U	0.029 U	0.39 U	0.029 U	0.027 U	0.026 U	0.029 U	0.029 U
2,4,5-Trichloropheno	95-95-4	88000	82000	120	0.027 U	0.035 U	0.66 U	0.031 U	0.032 U	0.033 U	0.44 U	0.033 U	0.031 U	0.03 U	0.033 U	0.033 U
2,4,6-Trichloropheno	88-06-2	880	210	0.46	0.0095 U	0.012 U	0.24 U	0.011 U	0.011 U	0.012 U	0.16 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U
2,4-Dichloropheno	120-83-2	2600	2500	1.1	0.021 U	0.028 U	0.53 U	0.025 U	0.026 U	0.026 U	0.35 U	0.026 U	0.025 U	0.024 U	0.027 U	0.027 U
2,4-Dimethylpheno	105-67-9	18000	16000	7.4	0.021 UF2	0.028 U	0.53 U	0.025 U	0.026 U	0.026 U	0.35 U	0.026 U	0.025 U	0.024 U	0.027 U	0.027 U
2,4-Dinitropheno	51-28-5	1800	1600	0.7	0.022 U	0.029 U	0.56 U	0.026 U	0.027 U	0.028 U	0.37 U	0.027 U	0.026 U	0.025 U	0.028 U	0.028 U
2,4-Dinitrotoluene	121-14-2	80	7.4	0.0059	0.018 U	0.024 U	0.45 U	0.021 U	0.022 U	0.022 U	0.3 U	0.022 U	0.021 U	0.02 U	0.023 U	0.023 U
2,6-Dinitrotoluene	606-20-2	890	1.5	0.43	0.022 U	0.029 U	0.56 U	0.026 U	0.027 U	0.028 U	0.37 U	0.027 U	0.026 U	0.025 U	0.028 U	0.028 U
2-Chloronaphthalene	91-58-7	64000	60000	41	0.00048 U	0.00063 U	0.012 U	0.00056 U	0.00057 U	0.00059 U	0.0079 U	0.00059 U	0.00056 U	0.00054 U	0.0006 U	0.0006 U
2-Chloropheno	95-57-8	5100	5800	0.41	0.0088 U	0.011 U	0.22 U	0.01 U	0.01 U	0.011 U	0.14 U	0.011 U	0.01 U	0.0098 U	0.011 U	0.011 U
2-Methylnaphthalene	91-57-6	8200	3000	0.51	0.00053 U	0.0007 U	0.013 U	0.00063 U	0.057	0.044	0.12	0.006 J	0.00062 U	0.082	0.022	0.0064 J
2-Methylpheno	95-48-7	44000	41000	13	0.012 UL	0.015 U	0.29 U	0.014 U	0.014 U	0.014 U	0.19 U	0.014 U	0.014 U	0.013 U	0.015 U	0.015 U
2-Nitroaniline	88-74-4	8500	8000	1.3	0.0097 U	0.013 U	0.24 U	0.011 U	0.012 U	0.012 U	0.16 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U
2-Nitropheno	88-75-5	NS	NS	NS	0.0089 U	0.012 U	0.22 U	0.011 U	0.011 U	0.011 U	0.15 U	0.011 U	0.01 U	0.0099 U	0.011 U	0.011 U
2-Toluidine	95-53-4	100	140	0.0024	0.038 U	0.05 U	0.95 U	0.045 U	0.046 U	0.047 U	0.63 U	0.047 U	0.045 U	0.043 U	0.048 U	0.048 U
3 & 4 Methylpheno	MEPH3MEPH4	NS	NS	NS	0.021 UL	0.028 U	0.53 U	0.025 U	0.026 U	0.026 U	0.35 U	0.026 U	0.025 U	0.024 U	0.027 U	0.027 U
3,3-Dichlorobenzidine	91-94-1	55	5.1	0.02	0.019 U	0.025 U	0.48 U	0.023 U	0.023 U	0.024 U	0.32 U	0.023 U	0.022 U	0.022 U	0.024 U	0.024 U
3,3-Dimethoxybenzidine	119-90-4	1800	1.4	0.12	0.054 U	0.071 U	1.3 U	0.064 U	0.065 U	0.067 U	0.9 U	0.066 U	0.063 U	0.061 U	0.068 U	0.068 U
3,3-Dimethylbenzidine	119-93-7	2.2	0.21	0.0008	0.067 U	0.088 U	*1.7 U*	0.079 U	0.08 U	0.083 U	*1.1 U*	0.082 U	0.078 U	0.075 U	0.084 U	0.084 U
3-Nitroaniline	99-09-2	NS	NS	NS	0.017 U	0.022 U	0.42 U	0.02 U	0.02 U	0.021 U	0.28 U	0.021 U	0.02 U	0.019 U	0.021 U	0.021 U
4,6-Dinitro-2-methylpheno	534-52-1	NS	66	NS	0.0098 U	0.013 U	0.24 U	0.012 U	0.012 U	0.012 U	0.16 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U
4-Bromophenyl phenyl ethe	101-55-3	NS	NS	NS	0.014 UF2	0.018 U	0.34 U	0.016 U	0.017 U	0.017 U	0.23 U	0.017 U	0.016 U	0.016 U	0.017 U	0.017 U
4-Chloro-3-methylpheno	59-50-7	NS	82000	NS	0.022 R	0.029 U	0.56 U	0.026 U	0.027 U	0.028 U	0.37 U	0.027 U	0.026 U	0.025 U	0.028 U	0.028 U
4-Chloroaniline	106-47-8	120	11	0.0029	0.018 U	0.024 U	0.45 U	0.021 U	0.022 U	0.022 U	0.3 U	0.022 U	0.021 U	0.02 U	0.023 U	0.023 U
4-Chlorophenyl phenyl ethe	7005-72-3	NS	NS	NS	0.014 U	0.018 U	0.34 U	0.016 U	0.017 U	0.017 U	0.23 U	0.017 U	0.016 U	0.016 U	0.017 U	0.017 U
4-Nitroaniline	100-01-6	NS	110	NS	0.028 U	0.036 U	0.69 U	0.033 U	0.033 U	0.034 U	0.46 U	0.034 U	0.032 U	0.031 U	0.035 U	0.035 U
4-Nitropheno	100-02-7	NS	NS	NS	0.018 UL	0.024 U	0.45 U	0.021 U	0.022 U	0.022 U	0.3 U	0.022 U	0.021 U	0.02 U	0.023 U	0.023 U
Acenaphthene	83-32-9	66000	45000	61	0.00081 U	0.0011 U	0.02 U	0.00095 U	0.007 J	0.013	0.013 U	0.00099 U	0.00094 U	0.00091 U	0.001 U	0.001 U
Acenaphthylene	208-96-8	74000		61	0.00037 U	0.00049 U	0.0093 U	0.00044 U	0.00045 U	0.00046 U	0.0062 U	0.00046 U	0.00043 U	0.00042 U	0.00047 U	0.00047 U
Acetophenone	98-86-2	2500	120000	9.5	0.0098 U	0.013 U	0.24 U	0.012 U	0.012 U	0.012 U	0.16 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U
Aniline	62-53-3	4300	400	0.08	0.012 U	1.9	20	0.32 J	0.18 J	0.18 J	0.25 J	0.014 U	0.014 U	0.065 J	0.015 U	0.32 J
Anthracene	120-12-7	610000	230000	3100	0.00083 U	0.0011 U	0.021 U	0.00098 U	0.0065 J	0.017	0.014 U	0.001 U	0.00097 U	0.0055 J	0.001 U	0.0046 J
Atrazine	1912-24-9	110	10	0.039	0.0097 UF2	0.013 U	0.24 U	0.011 U	0.012 U	0.012 U	0.16 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U
Benzaldehyde	100-52-7	1200	820	2.2	0.013 U	0.017 U	0.32 U	0.015 U	0.015 U	0.016 U	0.21 U	0.016 U	0.015 U	0.014 U	0.016 U	0.016 U
Benzidine	92-87-5	0.11	0.01	4.8E-06	*0.231 UF1*	0.04 U	**0.77 U**	0.036 U	0.037 U	0.038 U	**0.51 U**	0.038 U	0.036 U	*0.035 U*	0.039 U	0.039 U
Benzo[a]anthracene	56-55-3	29	2.9	0.21	0.00067 U	0.00088 U	0.017 U	0.00079 U	0.04	0.075	0.011 U	0.00082 U	0.00078 U	0.035	0.014	0.018
Benzo[a]pyrene	50-32-8	2.9	0.29	4.7	0.00068 U	0.00089 U	0.017 U	0.0008 U	0.062	0.092	0.011 U	0.00083 U	0.00079 U	0.04	0.019	0.011
Benzo[b]fluoranthene	205-99-2	29	2.9	0.71	0.00063 U	0.00082 U	0.016 U	0.00074 U	0.08	0.14	0.01 U	0.018	0.0058 J	0.062	0.033	0.024
Benzo[g,h,i]perylene	191-24-2	23000	NS	37000	0.00037 U	0.00049 U	0.0093 U	0.00044 U	0.065	0.054	0.0062 U	0.00046 U	0.00043 U	0.028	0.022	0.011
Benzo[k]fluoranthene	207-08-9	290	29	6.9	0.00073 U	0.00095 U	0.018 U	0.00085 U	0.031	0.058	0.012 U	0.00089 U	0.00084 U	0.021	0.0094	0.0098
bis (2-chloroisopropyl) ethe	108-60-1	300	47000	0.0024	0.01 U	0.013 U	0.25 U	0.012 U	0.012 U	0.012 U	0.17 U	0.012 U	0.012 U	0.011 U	0.013 U	0.013 U
Bis(2-chloroethoxy)methane	111-91-1	NS	2500	NS	0.024 U	0.031 U	0.58 U	0.028 U	0.028 U	0.029 U	0.39 U	0.029 U	0.027 U	0.026 U	0.029 U	0.029 U
Bis(2-chloroethyl)ethe	111-44-4	13	1	6.3E-05	0.0021 U	0.0028 U	0.053 U	0.0025 U	0.0026 U	0.0026 U	0.035 U	0.0026 U	0.0025 U	0.0024 U	0.0027 U	0.0027 U
Bis(2-ethylhexyl) phthalate	117-81-7	1800	160	29	0.02 UF2	0.026 U	0.5 U	0.047 J	0.024 B	0.23	3.3	0.14	0.053 J	0.044 J	0.027 B	0.22 B
Butyl benzyl phthalate	85-68-7	13000	1200	10	0.011 UF2	0.014 U	0.26 U	0.013 U	0.013 U	0.018 J	0.34 J	0.013 U	0.012 U	0.012 U	0.013 U	0.013 U
Caprolactam	105-60-2	440000	400000	39	0.04 U	0.052 U	0.98 U	0.047 J	0.047 U	0.049 U	0.65 U	0.048 U	0.046 U	0.044 U	0.05 U	0.049 U
Carbazole	86-74-8	NS	NS	NS	0.029 U	0.038 U	0.71 U	0.034 U	0.034 U	0.035 U	0.47 U	0.035 U	0.034 U	0.032 U	0.036 U	0.036 U
Chrysene	218-01-9	2900	290	21	0.0012 U	0.0015 U	0.029 U	0.0014 U	0.047	0.084	0.019 U	0.0014 U	0.0014 U	0.042	0.024	0.024
Dibenz(a,h)anthracene	53-70-3	2.9	0.29	0.23	0.00071 U	0.00092 U	0.017 U	0.00083 U	0.015	0.00087 U	0.012 U	0.00086 U	0.00082 U	0.00079 U	0.00088 U	0.00088 U
Dibenzofuran	132-64-9	2000	1000	5.8	0.00071 U	0.00092 U	0.017 U	0.00083 U	0.018 J	0.012 J	0.012 U	0.00086 U	0.00082 U	0.025 J	0.00088 U	0.00088 U
Diethyl phthalate	84-66-2	700000	660000	100	0.017 U	0.022 U	0.42 U	0.02 U	0.02 U	0.021 U	0.28 U	0.021 U	0.02 U	0.019 U	0.021 U	0.021 U
Dimethyl phthalate	131-11-3	NS	NS	NS	0.018 U	0.024 U	0.45 U	0.021 U	0.022 U	0.022 U	0.3 U	0.022 U	0.021 U	0.02 U	0.023 U	0.023 U
Di-n-butyl phthalate	84-74-2	88000	82000	79	0.016 UF2	0.021 U	0.4 U	0.053 B	0.024 J	0.026 J	0.26 U	0.022 J	0.019 U	0.018 J	0.023 J	0.02 U
Di-n-octyl phthalate	117-84-0	NS	8200	NS	0.0084 U	0.011 U	0.21 U	0.0099 U	0.01 U	0.01 U	0.14 U	0.01 U	0.0098 U	0.0095 U	0.011 U	0.011 U
Diphenylamine	122-39-4	22000	21000	14	0.022 U	0.56	0.56 U	0.026 U	0.027 U	0.055 J	0.37 U	0.027 U	0.026 U	0.025 U	0.028 U	0.048 J
Fluoranthene	206-44-0	30000	30000	1400	0.00059 U	0.00077 U	0.015 U	0.00069 U	0.05	0.12	0.06 J	0.00072 U	0.00068 U	0.046	0.033	0.07
Fluorene	86-73-7	57000	30000	74	0.00057 U	0.00074 U	0.014 U	0.00066 U	0.0045 J	0.0007 U	0.0093 U	0.00069 U	0.00066 U	0.00063 U	0.00071 U	0.00071 U
Hexachlorobenzene	118-74-1	15	0.96	0.25	0.0022 U	0.0029 U	0.056 U	0.0026 U	0.0027 U	0.0028 U	0.074 J	0.0027 U	0.0026 U	0.0025 U	0.0028 U	0.0028 U
Hexachlorobutadiene	87-68-3	320	5.3	0.033	0.006 U	0.0078 U	0.15 U	0.007 U	0.0071 U	0.0073 U	0.098 U	0.0073 U	0.0069 U	0.0067 U	0.0075 U	0.0075 U
Hexachlorocyclopentadiene	77-47-4	5300	7.5	3.1	0.0087 R	0.011 U	0.21 U	0.01 U	0.01 U	0.011 U	0.14 U	0.011 U	0.01 U	0.0097 U	0.011 U	0.011 U
Hexachloroethane	67-72-1	620	8	0.02	0.0096 U	0.013 U	0.24 U	0.011 U	0.011 U	0.012 U	0.16 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U
Indeno[1,2,3-cd]pyrene	193-39-5	29	2.9	2.3	0.00037 U	0.00049 U	0.0093 U	0.00044 U	0.048	0.051	0.0062 U	0.00046 U	0.00043 U	0.021	0.017	0.0087 J
Isophorone	78-59-1	26000	2400	0.47	0.014 U	0.018 U	0.34 U	0.016 U	0.017 U	0.017 U	0.23 U	0.017 U	0.016 U	0.016 U	0.017 U	0.017 U
Naphthalene	91-20-3	180	17	0.0094	0.00088 U	0.0011 U	0.022 U	0.0063 J	0.03	0.03	0.28	0.0088	0.001 U	0.048	0.015	0.0058 J
Nitrobenzene	98-95-3	240	22	0.0016	0.0024 U	0.0031 U	0.058 U	0.0028 U	0.0028 U	0.0029 U	0.039 U	0.0029 U	0.0027 U	0.0026 U	0.0029 U	0.0029 U
N-Nitrosodi-n-propylamine	621-64-7	3.5	0.33	0.00014	0.0067 U	0.0088 U	0.17 U	0.0079 U	0.008 U	0.0083 U	0.11 U	0.0082 U	0.0078 U	0.0075 U	0.0084 U	0.0084 U
N-Nitrosodiphenylamine	86-30-6	5000	470	1.5	0.022 UF2	0.66	0.56 U	0.028 J	0.027 U	0.065 J	0.37 U	0.027 U	0.026 U	0.025 U	0.028 U	0.056 J
Pentachloropheno	87-86-5	33	4	0.2	0.0097 U	0.013 U	0.24 U	0.011 U	0.012 U	0.012 U	0.16 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U
Phenanthrene	85-01-8	610000	NS	3200	0.00078 U	0.001 U	0.019 U	0.0064 J	0.097	0.064	0.073 J	0.00095 U	0.008 J	0.085	0.033	0.018
Phenol	108-95-2	260000	250000	54	0.0078 UL	0.01 U	0.19 U	0.0092 U	0.0093 U	0.0096 U	0.13 U	0.0095 U	0.0091 U	0.0087 U	0.0098 U	0.0098 U
Pyrene	129-00-0	58000	23000	320	0.00047 U	0.00061 U	0.012 U	0.00055 U	0.047	0.11	0.067 J	0.0059 J	0.00055 U	0.042	0.025	0.057

Notes:
All concentrations reported in milligrams per kilogram (mg/kg
Underlined values exceed the WVDEP 60CSR3 Table 60-3B Migration to Groundwater Soil De Minimis Standa
Bolded values exceed the WVDEP 60CSR3 Table 60-3B Industrial Soil De Minimis Standar

U - Target analyte not detected above listed Method Detection Lim
J - Estimated result. Result is less greater than the Method Detection Limit but less than the labaratory method Reporting Li
B - Method blank contamination. The associated method blank contains the target analyte at a reportable le
K - Analyte is present. Reported value may be biased high. Actual value is expected to be low
L - Analyte is present. Reported value may be biased low. Actual value is expected to be high
R - Data was rejected during the data validation proces

TABLE 2
SUMMARY OF SOIL ANALYTICAL DATA
AOC 2 - FORMER PROCESS SEWERS AND WASTEWATER LINES
FORMER BASF HUNTINGTON WORKS FACILITY
HUNTINGTON, WEST VIRGINIA

				Location	AOC2-20B	AOC2-21	AOC2-21	AOC2-22	AOC2-22	AOC2-23	AOC2-24	AOC2-25	AOC2-26	AOC2-27	AOC2-27	AOC2-28
				Sample	AOC2-20B-20	AOC2-21-12.5	AOC2-21-15	AOC2-22-13.5	AOC2-22-17.5	AOC2-23-17	AOC2-24-10	AOC2-25-15	AOC2-26-12.5	AOC2-27-15	AOC2-27-7.5	AOC2-28-10
				Sample Type	N	N	N	N	N	N	N	N	N	N	N	N
				Matrix	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
				Sample Date	04 Aug 2016	03 Aug 2016	03 Aug 2016	03 Aug 2016	03 Aug 2016	03 Aug 2016	04 Aug 2016	04 Aug 2016	04 Aug 2016	04 Aug 2016	04 Aug 2016	04 Aug 2016
				Lab Sample ID	240-68008-8	240-67954-3	240-67954-4	240-67954-5	240-67954-6	240-68008-1	240-68008-2	240-68008-3	240-68008-4	240-68008-12	240-68008-11	240-68094-10
				Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
	CAS NO.	WVDEP INDUSTRIAL SOIL DE MINIMIS STANDARD (MG/KG)	EPA INDUSTRIAL SOIL SCREENING LEVEL (MG/KG)	WVDEP MIGRATION TO GROUNDWATER DE MINIMIS STANDARD (MG/KG)												
SW6020A																
Aluminum	7429-90-5	1000000	1100000	470000	10000 K	NA	NA	NA	NA	NA	NA	NA	NA	10000 K	11000 K	12000 K
Antimony	7440-36-0	820	470	5.7	0.15 L	NA	NA	NA	NA	NA	NA	NA	NA	0.17 L	0.33 L	0.33 L
Arsenic	7440-38-2	27	3	5.8	3	NA	NA	NA	NA	NA	NA	NA	NA	3.9	7.4	5.2 B
Barium	7440-39-3	360000	220000	1600	350	NA	NA	NA	NA	NA	NA	NA	NA	130	14000	5400 J
Beryllium	7440-41-7	3900	2300	63	1.2	NA	NA	NA	NA	NA	NA	NA	NA	1.3	0.95	1
Cadmium	7440-43-9	800	980	7.5	5.6	NA	NA	NA	NA	NA	NA	NA	NA	1.5	0.1 J	0.18 J
Calcium	7440-70-2	NS	NS	NS	830	NA	NA	NA	NA	NA	NA	NA	NA	800	1900	2400 K
Chromium	7440-47-3	NS	NS	NS	16 B	NA	NA	NA	NA	NA	NA	NA	NA	17 B	16 B	40 B
Cobalt	7440-48-4	600	350	4.2	16 B	NA	NA	NA	NA	NA	NA	NA	NA	9.1 B	9.2 B	12 B
Copper	7440-50-8	82000	47000	440	18 B	NA	NA	NA	NA	NA	NA	NA	NA	40 B	28 B	29 B
Iron	7439-89-6	1000000	820000	5500	12000	NA	NA	NA	NA	NA	NA	NA	NA	9500	22000	20000
Lead	7439-92-1	1000	800	270	23 B	NA	NA	NA	NA	NA	NA	NA	NA	34 B	34 B	72 B
Magnesium	7439-95-4	NS	NS	NS	2400 B	NA	NA	NA	NA	NA	NA	NA	NA	2300 B	1700 B	1700 B
Manganese	7439-96-5	72000	26000	960	160	NA	NA	NA	NA	NA	NA	NA	NA	130	480	310 B
Nickel	7440-02-0	38000	22000	410	27 B	NA	NA	NA	NA	NA	NA	NA	NA	25 B	21 B	18 B
Potassium	7440-09-7	NS	NS	NS	1300 B	NA	NA	NA	NA	NA	NA	NA	NA	1200 B	1100 B	1100 B
Selenium	7782-49-2	10000	5800	5.2	3	NA	NA	NA	NA	NA	NA	NA	NA	2.9	2.2	1.7
Silver	7440-22-4	10000	5800	13	0.034 J	NA	NA	NA	NA	NA	NA	NA	NA	0.05 J	0.083 J	0.027 J
Sodium	7440-23-5	NS	NS	NS	180 JB	NA	NA	NA	NA	NA	NA	NA	NA	210 JB	310 B	160 JB
Thallium	7440-28-0	20	12	2.8	0.17 J	NA	NA	NA	NA	NA	NA	NA	NA	0.25 J	0.21 J	0.19 J
Vanadium	7440-62-2	140	5800	22	19	NA	NA	NA	NA	NA	NA	NA	NA	18	21	19
Zinc	7440-66-6	610000	350000	5800	91	NA	NA	NA	NA	NA	NA	NA	NA	210	70	93 B
SW7471A																
Mercury	7439-97-6	610	46	2.1	0.018 J	NA	NA	NA	NA	NA	NA	NA	NA	0.035 J	0.032 J	0.024 J
SW8082																
Aroclor-1016	12674-11-2	50	27	1.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1221	11104-28-2	12	0.83	0.0023	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1232	11141-16-5	12	0.72	0.0023	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1242	53469-21-9	10	0.95	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1248	12672-29-6	10	0.95	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1254	11097-69-1	10	0.97	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1260	11096-82-5	10	0.99	0.47	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1262	37324-23-5	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1268	11100-14-4	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 2
SUMMARY OF SOIL ANALYTICAL DATA
AOC 2 - FORMER PROCESS SEWERS AND WASTEWATER LINES
FORMER BASF HUNTINGTON WORKS FACILITY
HUNTINGTON, WEST VIRGINIA

				Location	AOC2-20B	AOC2-21	AOC2-21	AOC2-22	AOC2-22	AOC2-23	AOC2-24	AOC2-25	AOC2-26	AOC2-27	AOC2-27	AOC2-28
				Sample	AOC2-20B-20	AOC2-21-12.5	AOC2-21-15	AOC2-22-13.5	AOC2-22-17.5	AOC2-23-17	AOC2-24-10	AOC2-25-15	AOC2-26-12.5	AOC2-27-15	AOC2-27-7.5	AOC2-28-10
				Sample Type	N	N	N	N	N	N	N	N	N	N	N	N
				Matrix	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
				Sample Date	04 Aug 2016	03 Aug 2016	03 Aug 2016	03 Aug 2016	03 Aug 2016	03 Aug 2016	04 Aug 2016	04 Aug 2016	04 Aug 2016	04 Aug 2016	04 Aug 2016	04 Aug 2016
				Lab Sample ID	240-68008-8	240-67954-3	240-67954-4	240-67954-5	240-67954-6	240-68008-1	240-68008-2	240-68008-3	240-68008-4	240-68008-12	240-68008-11	240-68094-10
				Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
	CAS NO.	WVDEP INDUSTRIAL SOIL DE MINIMIS STANDARD (MG/KG)	EPA INDUSTRIAL SOIL SCREENING LEVEL (MG/KG)	WVDEP MIGRATION TO GROUNDWATER DE MINIMIS STANDARD (MG/KG)												
SW8260B																
1,1,1-Trichloroethane	71-55-6	640	36000	1.4	NA	NA	NA	20 U	NA	NA	NA	130 U	NA	NA	NA	NA
1,1,2,2-Tetrachloroethan	79-34-5	31	2.7	0.00053	NA	NA	NA	19 U*	NA	NA	NA	**120 U**	NA	NA	NA	NA
1,1,2-Trichloro-1,2,2-trifluoroethan	76-13-1	910	170000	2800	NA	NA	NA	31 U	NA	NA	NA	200 U	NA	NA	NA	NA
1,1,2-Trichloroethane	79-00-5	57	5	0.032	NA	NA	NA	14 U	NA	NA	NA	**92 U**	NA	NA	NA	NA
1,1-Dichloroethane	75-34-3	170	16	0.014	NA	NA	NA	26 U	NA	NA	NA	**170 U**	NA	NA	NA	NA
1,1-Dichloroethene	75-35-4	1100	1000	0.05	NA	NA	NA	22 U	NA	NA	NA	140 U	NA	NA	NA	NA
1,2,4-Trichlorobenzene	120-82-1	280	110	4.1	NA	NA	NA	**5500**	NA	NA	NA	**36000**	NA	NA	NA	NA
1,2-Dibromo-3-Chloropropan	96-12-8	71	0.064	0.0017	NA	NA	NA	53 U	NA	NA	NA	**340 U**	NA	NA	NA	NA
1,2-Dichlorobenzene	95-50-1	380	9300	12	NA	NA	NA	15 J	NA	NA	NA	160 J	NA	NA	NA	NA
1,2-Dichloroethane	107-06-2	23	2	0.028	NA	NA	NA	7.4 U	NA	NA	NA	**48 U***	NA	NA	NA	NA
1,2-Dichloropropane	78-87-5	47	4.4	0.033	NA	NA	NA	24 U	NA	NA	NA	**150 U**	NA	NA	NA	NA
1,3-Dichlorobenzene	541-73-1	NS	NS	NS	NA	NA	NA	22 U	NA	NA	NA	140 U	NA	NA	NA	NA
1,4-Dichlorobenzene	106-46-7	140	11	1.4	NA	NA	NA	30 U	NA	NA	NA	**200 U**	NA	NA	NA	NA
2-Butanone (MEK)	78-93-3	28000	190000	21	NA	NA	NA	54 U	NA	NA	NA	350 U	NA	NA	NA	NA
2-Hexanone	591-78-6	NS	1300	NS	NA	NA	NA	62 U	NA	NA	NA	400 U	NA	NA	NA	NA
4-Methyl-2-pentanone (MIBK	108-10-1	3400	140000	4.7	NA	NA	NA	42 U	NA	NA	NA	270 U	NA	NA	NA	NA
Acetone	67-64-1	110000	670000	47	NA	NA	NA	170 U	NA	NA	NA	1100 U	NA	NA	NA	NA
Benzene	71-43-2	57	5.1	0.051	NA	NA	NA	6.7 U	NA	NA	NA	43 U	NA	NA	NA	NA
Bromoform	75-25-2	3100	86	0.045	NA	NA	NA	45 U	NA	NA	NA	290 U	NA	NA	NA	NA
Bromomethane	74-83-9	33	30	0.036	NA	NA	NA	**38 U**	NA	NA	NA	**250 U**	NA	NA	NA	NA
Carbon disulfide	75-15-0	740	3500	4.5	NA	NA	NA	42 U	NA	NA	NA	270 U	NA	NA	NA	NA
Carbon tetrachloride	56-23-5	32	2.9	0.039	NA	NA	NA	13 U	NA	NA	NA	**87 U**	NA	NA	NA	NA
Chlorobenzene	108-90-7	760	1300	1.4	NA	NA	NA	9.7 U	NA	NA	NA	63 U	NA	NA	NA	NA
Chlorodibromomethan	124-48-1	290	39	0.0043	NA	NA	NA	15 U	NA	NA	NA	96 U	NA	NA	NA	NA
Chloroethane	75-00-3	2100	57000	120	NA	NA	NA	38 U	NA	NA	NA	250 U	NA	NA	NA	NA
Chloroform	67-66-3	15	1.4	0.0011	NA	NA	NA	**27 U**	NA	NA	NA	**170 U**	NA	NA	NA	NA
Chloromethane	74-87-3	510	460	0.98	NA	NA	NA	36 U	NA	NA	NA	230 U	NA	NA	NA	NA
cis-1,2-Dichloroethene	156-59-2	82	2300	0.41	NA	NA	NA	28 U	NA	NA	NA	**180 U**	NA	NA	NA	NA
cis-1,3-Dichloropropene	10061-01-5	NS	NS	NS	NA	NA	NA	16 U	NA	NA	NA	110 U	NA	NA	NA	NA
Cyclohexane	110-82-7	120	27000	260	NA	NA	NA	22 U	NA	NA	NA	**140 U**	NA	NA	NA	NA
Dichlorobromomethan	75-27-4	14	1.3	0.00064	NA	NA	NA	**28 U**	NA	NA	NA	**180 U**	NA	NA	NA	NA
Dichlorodifluoromethane	75-71-8	800	370	11	NA	NA	NA	45 U	NA	NA	NA	290 U	NA	NA	NA	NA
Ethylbenzene	100-41-4	290	25	16	NA	NA	NA	26 U	NA	NA	NA	170 U	NA	NA	NA	NA
Ethylene Dibromide	106-93-4	1.8	0.16	0.00028	NA	NA	NA	**24 U**	NA	NA	NA	**150 U***	NA	NA	NA	NA
Isopropylbenzene	98-82-8	270	9900	18	NA	NA	NA	9.7 U	NA	NA	NA	63 U	NA	NA	NA	NA
Methyl acetate	79-20-9	29000	1200000	21	NA	NA	NA	41 U	NA	NA	NA	270 U	NA	NA	NA	NA
Methyl tert-butyl ethe	1634-04-4	2300	210	0.056	NA	NA	NA	22 U	NA	NA	NA	140 U	NA	NA	NA	NA
Methylcyclohexane	108-87-2	NS	NS	NS	NA	NA	NA	28 U	NA	NA	NA	180 U	NA	NA	NA	NA
Methylene Chloride	75-09-2	3300	1000	0.026	NA	NA	NA	63 U	NA	NA	NA	410 U	NA	NA	NA	NA
Styrene	100-42-5	870	35000	2.2	NA	NA	NA	20 U	NA	NA	NA	130 U	NA	NA	NA	NA
Tetrachloroethene	127-18-4	170	100	0.045	NA	NA	NA	20 U	NA	NA	NA	130 U	NA	NA	NA	NA
Toluene	108-88-3	820	47000	14	NA	NA	NA	7.4 U	NA	NA	NA	48 U	NA	NA	NA	NA
trans-1,2-Dichloroethene	156-60-5	700	23000	0.59	NA	NA	NA	19 U	NA	NA	NA	130 U	NA	NA	NA	NA
trans-1,3-Dichloropropene	10061-02-6	NS	NS	NS	NA	NA	NA	19 U	NA	NA	NA	130 U	NA	NA	NA	NA
Trichloroethene	79-01-6	21	6	0.036	NA	NA	NA	**29 U**	NA	NA	NA	**190 U**	NA	NA	NA	NA
Trichlorofluoromethane	75-69-4	1200	350000	14	NA	NA	NA	26 U	NA	NA	NA	170 U	NA	NA	NA	NA
Vinyl chloride	75-01-4	21	1.7	0.014	NA	NA	NA	13 U	NA	NA	NA	**82 U**	NA	NA	NA	NA
Xylenes, Tota	1330-20-7	260	2500	200	NA	NA	NA	24 U	NA	NA	NA	150 U	NA	NA	NA	NA

TABLE 2
SUMMARY OF SOIL ANALYTICAL DATA
AOC 2 - FORMER PROCESS SEWERS AND WASTEWATER LINES
FORMER BASF HUNTINGTON WORKS FACILITY
HUNTINGTON, WEST VIRGINIA

				Location	AOC2-20B	AOC2-21	AOC2-21	AOC2-22	AOC2-22	AOC2-23	AOC2-24	AOC2-25	AOC2-26	AOC2-27	AOC2-27	AOC2-28
				Sample	AOC2-20B-20	AOC2-21-12.5	AOC2-21-15	AOC2-22-13.5	AOC2-22-17.5	AOC2-23-17	AOC2-24-10	AOC2-25-15	AOC2-26-12.5	AOC2-27-15	AOC2-27-7.5	AOC2-28-10
				Sample Type	N	N	N	N	N	N	N	N	N	N	N	N
				Matrix	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
				Sample Date	04 Aug 2016	03 Aug 2016	03 Aug 2016	03 Aug 2016	03 Aug 2016	03 Aug 2016	04 Aug 2016	04 Aug 2016	04 Aug 2016	04 Aug 2016	04 Aug 2016	04 Aug 2016
				Lab Sample ID	240-68008-8	240-67954-3	240-67954-4	240-67954-5	240-67954-6	240-68008-1	240-68008-2	240-68008-3	240-68008-4	240-68008-12	240-68008-11	240-68094-10
				Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
	CAS NO.	WVDEP INDUSTRIAL SOIL DE MINIMIS STANDARD (MG/KG)	EPA INDUSTRIAL SOIL SCREENING LEVEL (MG/KG)	WVDEP MIGRATION TO GROUNDWATER DE MINIMIS STANDARD (MG/KG)												
SW8270D																
1,1-Biphenyl	92-52-4	220	200	0.17	0.0044 U	0.043 U	0.0044 U	0.086 U	0.0043 U	0.0046 U	0.0043 U	0.085 U	0.0044 U	0.0048 U	0.023 U	0.0046 U
1,2-Diphenylhydrazine(as Azobenzene	122-66-7	31	2.9	0.0054	0.022 U	0.23 J	0.021 U	1.8	0.021 U	0.022 U	0.021 U	0.42 U	0.021 U	0.023 U	0.11 U	0.022 U
1,4-Dioxane	123-91-1	250	24	0.0028	0.028 U	0.27 U	0.028 U	0.54 U	0.027 U	0.029 U	0.027 U	0.54 U	0.028 U	0.03 U	0.14 U	0.029 U
2,4,5-Trichloropheno	95-95-4	88000	82000	120	0.032 U	0.31 U	0.031 U	0.62 U	0.031 U	0.033 U	0.031 U	0.61 U	0.032 U	0.034 U	0.4 J	0.033 U
2,4,6-Trichloropheno	88-06-2	880	210	0.46	0.011 U	0.11 U	0.011 U	0.22 U	0.011 U	0.012 U	0.011 U	0.22 U	0.011 U	0.012 U	0.058 U	0.012 U
2,4-Dichloropheno	120-83-2	2600	2500	1.1	0.025 U	0.25 U	0.025 U	0.49 U	0.025 U	0.026 U	0.025 U	0.49 U	0.025 U	0.027 U	0.13 U	0.026 U
2,4-Dimethylpheno	105-67-9	18000	16000	7.4	0.025 U	0.25 U	0.025 U	0.49 U	0.025 U	0.026 U	0.025 U	0.49 U	0.025 U	0.027 U	0.13 U	0.026 U
2,4-Dinitropheno	51-28-5	1800	1600	0.7	0.027 U	0.26 U	0.026 U	0.52 U	0.026 U	0.028 U	0.026 U	0.51 U	0.027 U	0.029 U	0.14 U	0.027 U
2,4-Dinitrotoluene	121-14-2	80	7.4	0.0059	0.022 U	0.21 U	0.021 U	0.42 U	0.021 U	0.022 U	0.021 U	0.42 U	0.021 U	0.023 U	0.11 U	0.022 U
2,6-Dinitrotoluene	606-20-2	890	1.5	0.43	0.027 U	0.26 U	0.026 U	0.52 U	0.026 U	0.028 U	0.026 U	0.51 U	0.027 U	0.029 U	0.14 U	0.027 U
2-Chloronaphthalene	91-58-7	64000	60000	41	0.00057 U	0.0056 U	0.00056 U	0.011 U	0.00056 U	0.00059 U	0.00056 U	0.011 U	0.00057 U	0.00061 U	0.0029 U	0.00059 U
2-Chloropheno	95-57-8	5100	5800	0.41	0.01 U	0.1 U	0.01 U	0.2 U	0.01 U	0.011 U	0.01 U	0.2 U	0.01 U	0.011 U	0.053 U	0.011 U
2-Methylnaphthalene	91-57-6	8200	3000	0.51	0.0056 J	0.0062 U	0.00063 U	0.35	0.00062 U	0.00066 U	0.00062 U	0.2	0.00063 U	0.00068 U	0.043	0.017
2-Methylpheno	95-48-7	44000	41000	13	0.014 U	0.14 U	0.014 U	0.27 U	0.014 U	0.014 U	0.014 U	0.27 U	0.014 U	0.015 U	0.071 U	0.014 U
2-Nitroaniline	88-74-4	8500	8000	1.3	0.012 U	0.11 U	0.011 U	0.22 U	0.011 U	0.012 U	0.011 U	0.22 U	0.011 U	0.012 U	0.059 U	0.012 U
2-Nitropheno	88-75-5	NS	NS	NS	0.011 U	0.1 U	0.01 U	0.2 U	0.01 U	0.011 U	0.01 U	0.2 U	0.01 U	0.011 U	0.054 U	0.011 U
2-Toluidine	95-53-4	100	140	0.0024	0.046 U	0.44 U	0.045 U	0.89 U	0.045 U	0.047 U	0.045 U	0.88 U	0.045 U	0.049 U	0.23 U	0.047 U
3 & 4 Methylpheno	MEPH3MEPH4	NS	NS	NS	0.025 U	0.25 U	0.025 U	0.49 U	0.025 U	0.026 U	0.025 U	0.49 U	0.025 U	0.027 U	0.13 U	0.026 U
3,3-Dichlorobenzidine	91-94-1	55	5.1	0.02	0.023 U	0.22 U	0.023 U	0.44 U	0.022 U	0.024 U	0.022 U	0.44 U	0.023 U	0.024 U	0.12 U	0.023 U
3,3-Dimethoxybenzidine	119-90-4	1800	1.4	0.12	0.065 U	0.63 U	0.064 U	1.3 U	0.063 U	0.067 U	0.063 U	1.2 U	0.064 U	0.069 U	0.33 U	0.066 U
3,3-Dimethylbenzidine	119-93-7	2.2	0.21	0.0008	0.08 U	*0.78 U*	0.079 U	*1.6 U*	0.078 U	0.083 U	0.078 U	*1.5 U*	0.08 U	0.086 U	*0.41 U*	0.082 U
3-Nitroaniline	99-09-2	NS	NS	NS	0.02 U	0.2 U	0.02 U	0.4 U	0.02 U	0.021 U	0.02 U	0.39 U	0.02 U	0.022 U	0.1 U	0.021 U
4,6-Dinitro-2-methylpheno	534-52-1	NS	66	NS	0.012 U	0.11 U	0.012 U	0.23 U	0.011 U	0.012 U	0.011 U	0.22 U	0.012 U	0.012 U	0.06 U	0.012 U
4-Bromophenyl phenyl ethe	101-55-3	NS	NS	NS	0.017 U	0.16 U	0.016 U	0.32 U	0.016 U	0.017 U	0.016 U	0.32 U	0.016 U	0.018 U	0.084 U	0.017 U
4-Chloro-3-methylpheno	59-50-7	NS	82000	NS	0.027 U	0.26 U	0.026 U	0.52 U	0.026 U	0.028 U	0.026 U	0.51 U	0.027 U	0.029 U	0.14 U	0.027 U
4-Chloroaniline	106-47-8	120	11	0.0029	0.022 U	0.21 U	0.021 U	0.42 U	0.021 U	0.022 U	0.021 U	0.42 U	0.021 U	0.023 U	0.11 U	0.022 U
4-Chlorophenyl phenyl ethe	7005-72-3	NS	NS	NS	0.017 U	0.16 U	0.016 U	0.32 U	0.016 U	0.017 U	0.016 U	0.32 U	0.016 U	0.018 U	0.084 U	0.017 U
4-Nitroaniline	100-01-6	NS	110	NS	0.033 U	0.32 U	0.033 U	0.64 U	0.032 U	0.034 U	0.032 U	0.63 U	0.033 U	0.035 U	0.17 U	0.034 U
4-Nitropheno	100-02-7	NS	NS	NS	0.022 U	0.21 U	0.021 U	0.42 U	0.021 U	0.022 U	0.021 U	0.42 U	0.021 U	0.023 U	0.11 U	0.022 U
Acenaphthene	83-32-9	66000	45000	61	0.00097 U	0.0094 U	0.00095 U	0.019 U	0.00094 U	0.001 U	0.00094 U	0.019 U	0.00096 U	0.001 U	0.0049 U	0.00099 U
Acenaphthylene	208-96-8	74000		61	0.00044 U	0.0043 U	0.00044 U	0.0086 U	0.00043 U	0.00046 U	0.00043 U	0.0085 U	0.00044 U	0.00048 U	0.0023 U	0.00046 U
Acetophenone	98-86-2	2500	120000	9.5	0.012 U	0.11 U	0.012 U	0.23 U	0.011 U	0.012 U	0.011 U	0.22 U	0.012 U	0.012 U	0.06 U	0.012 U
Aniline	62-53-3	4300	400	0.08	0.014 U	16	0.21 J	10	0.014 U	0.014 U	0.014 U	0.32 J	0.014 U	0.015 U	0.071 U	0.13 J
Anthracene	120-12-7	610000	230000	3100	0.00099 U	0.0096 U	0.00098 U	0.019 U	0.00097 U	0.001 U	0.00097 U	0.019 U	0.00099 U	0.0011 U	0.0051 U	0.001 U
Atrazine	1912-24-9	110	10	0.039	0.012 U	0.11 U	0.011 U	0.22 U	0.011 U	0.012 U	0.011 U	0.22 U	0.011 U	0.012 U	0.059 U	0.012 U
Benzaldehyde	100-52-7	1200	820	2.2	0.015 U	0.15 U	0.015 U	0.3 U	0.015 U	0.016 U	0.015 U	0.29 U	0.015 U	0.016 UL	0.078 U	0.016 U
Benzidine	92-87-5	0.11	0.01	4.8E-06	0.037 U	**0.36 U**	0.036 U	**0.72 U**	0.036 U	0.038 U	0.036 U	**0.71 U**	0.037 U	0.039 UF1	**0.19 U**	0.038 U
Benzo[a]anthracene	56-55-3	29	2.9	0.21	0.0041 J	0.0078 U	0.00079 U	0.016 U	0.00078 U	0.00083 U	0.00078 U	0.015 U	0.0008 U	0.00086 U	0.0041 U	0.033
Benzo[a]pyrene	50-32-8	2.9	0.29	4.7	0.00081 U	0.0079 U	0.0008 U	0.016 U	0.00079 U	0.00084 U	0.00079 U	0.016 U	0.00081 U	0.00087 U	0.0041 U	0.045
Benzo[b]fluoranthene	205-99-2	29	2.9	0.71	0.012	0.0073 U	0.00074 U	0.015 U	0.00073 U	0.00078 U	0.00073 U	0.014 U	0.0067 J	0.0008 U	0.0038 U	0.067
Benzo[g,h,i]perylene	191-24-2	23000	NS	37000	0.0066 J	0.0043 U	0.00044 U	0.0086 U	0.00043 U	0.00046 U	0.00043 U	0.0085 U	0.00044 U	0.00048 U	0.0023 U	0.058
Benzo[k]fluoranthene	207-08-9	290	29	6.9	0.00086 U	0.0084 U	0.00085 U	0.017 U	0.00084 U	0.0009 U	0.00084 U	0.017 U	0.00086 U	0.00092 U	0.0044 U	0.025
bis (2-chloroisopropyl) ethe	108-60-1	300	47000	0.0024	0.012 U	0.12 U	0.012 U	0.23 U	0.012 U	0.013 U	0.012 U	0.23 U	0.012 U	0.013 U	0.062 U	0.012 U
Bis(2-chloroethoxy)methane	111-91-1	NS	2500	NS	0.028 U	0.27 U	0.028 U	0.54 U	0.027 U	0.029 U	0.027 U	0.54 U	0.028 U	0.03 U	0.14 U	0.029 U
Bis(2-chloroethyl)ethe	111-44-4	13	1	6.3E-05	0.0025 U	0.025 U	0.0025 U	0.049 U	0.0025 U	0.0026 U	0.0025 U	0.049 U	0.0025 U	0.0027 U	0.013 U	0.0026 U
Bis(2-ethylhexyl) phthalate	117-81-7	1800	160	29	0.044 B	0.23 U	0.032 J	5.3	0.033 J	0.12 B	0.026 B	2.3 B	0.024 U	0.032 B	0.24 J	0.1
Butyl benzyl phthalate	85-68-7	13000	1200	10	0.013 U	0.12 U	0.013 U	0.25 U	0.012 U	0.013 U	0.012 U	0.24 U	0.013 U	0.014 U	0.065 U	0.013 U
Caprolactam	105-60-2	440000	400000	39	0.047 U	0.46 U	0.046 U	0.91 U	0.046 U	0.049 U	0.046 U	0.9 U	0.047 U	0.05 U	0.24 U	0.048 U
Carbazole	86-74-8	NS	NS	NS	0.034 U	0.33 U	0.034 U	0.67 U	0.033 U	0.036 U	0.033 U	0.66 U	0.034 U	0.037 U	0.18 U	0.035 U
Chrysene	218-01-9	2900	290	21	0.014	0.014 U	0.0014 U	0.027 U	0.0014 U	0.0014 U	0.0014 U	0.027 U	0.0014 U	0.0077 J	0.0071 U	0.046
Dibenz(a,h)anthracene	53-70-3	2.9	0.29	0.23	0.00084 U	0.0081 U	0.00083 U	0.016 U	0.00082 U	0.00087 U	0.00082 U	0.016 U	0.00083 U	0.0009 U	0.0043 U	0.00086 U
Dibenzofuran	132-64-9	2000	1000	5.8	0.00084 U	0.0081 U	0.00083 U	0.016 U	0.00082 U	0.00087 U	0.00082 U	0.016 U	0.00083 U	0.0009 U	0.0043 U	0.00086 U
Diethyl phthalate	84-66-2	700000	660000	100	0.02 U	0.2 U	0.02 U	0.4 U	0.02 U	0.021 U	0.02 U	0.39 U	0.02 U	0.022 U	0.1 U	0.021 U
Dimethyl phthalate	131-11-3	NS	NS	NS	0.022 U	0.21 U	0.021 U	0.42 U	0.021 U	0.022 U	0.021 U	0.42 U	0.021 U	0.023 U	0.11 U	0.022 U
Di-n-butyl phthalate	84-74-2	88000	82000	79	0.019 U	0.19 U	0.036 B	0.37 U	0.023 B	0.02 U	0.019 U	0.37 U	0.019 U	0.023 J	0.097 U	0.02 U
Di-n-octyl phthalate	117-84-0	NS	8200	NS	0.01 U	0.098 U	0.0099 U	0.2 U	0.0098 U	0.01 U	0.0098 U	0.19 U	0.01 U	0.011 U	0.051 U	0.01 U
Diphenylamine	122-39-4	22000	21000	14	0.027 U	0.26 U	0.026 U	0.52 U	0.026 U	0.028 U	0.026 U	0.51 U	0.027 U	0.029 U	0.14 U	0.027 U
Fluoranthene	206-44-0	30000	30000	1400	0.0054 J	0.0068 U	0.00069 U	0.014 U	0.00068 U	0.00072 U	0.00068 U	0.013 U	0.00069 U	0.0057 J	0.0036 U	0.042
Fluorene	86-73-7	57000	30000	74	0.00067 U	0.0065 U	0.00066 U	0.013 U	0.00066 U	0.0007 U	0.00066 U	0.013 U	0.00067 U	0.00072 U	0.0034 U	0.00069 U
Hexachlorobenzene	118-74-1	15	0.96	0.25	0.0027 U	0.026 U	0.0026 U	0.2	0.0026 U	0.0028 U	0.0026 U	0.051 U	0.0027 U	0.0029 U	0.014 U	0.019
Hexachlorobutadiene	87-68-3	320	5.3	0.033	0.0071 U	0.069 U	0.007 U	0.14 U	0.0069 U	0.0074 U	0.0069 U	0.14 U	0.0071 U	0.0076 U	0.036 U	0.0073 U
Hexachlorocyclopentadiene	77-47-4	5300	7.5	3.1	0.01 U	0.1 U	0.01 U	0.2 U	0.01 U	0.011 U	0.01 U	0.2 U	0.01 U	0.011 R	0.053 U	0.011 U
Hexachloroethane	67-72-1	620	8	0.02	0.011 U	0.11 U	0.011 U	0.22 U	0.011 U	0.012 U	0.011 U	0.22 U	0.011 U	0.012 U	0.058 U	0.012 U
Indeno[1,2,3-cd]pyrene	193-39-5	29	2.9	2.3	0.00044 U	0.0043 U	0.00044 U	0.0086 U	0.00043 U	0.00046 U	0.00043 U	0.0085 U	0.00044 U	0.00048 U	0.0023 U	0.04
Isophorone	78-59-1	26000	2400	0.47	0.017 U	0.16 U	0.016 U	0.32 U	0.016 U	0.017 U	0.016 U	0.32 U	0.016 U	0.018 U	0.084 U	0.017 U
Naphthalene	91-20-3	180	17	0.0094	0.001 U	0.059 J	0.001 U	0.65	0.001 U	0.0011 U	0.001 U	0.43	0.001 U	0.0011 U	0.024 J	0.0095
Nitrobenzene	98-95-3	240	22	0.0016	0.0028 U	0.027 U	0.0028 U	0.054 U	0.0027 U	0.0029 U	0.0027 U	0.054 U	0.0028 U	0.003 U	0.014 U	0.0029 U
N-Nitrosodi-n-propylamine	621-64-7	3.5	0.33	0.00014	0.008 U	0.078 U	0.0079 U	0.16 U	0.0078 U	0.0083 U	0.0078 U	0.15 U	0.008 U	0.0086 U	0.041 U	0.0082 U
N-Nitrosodiphenylamine	86-30-6	5000	470	1.5	0.027 U	0.26 U	0.026 U	0.52 U	0.026 U	0.028 U	0.026 U	0.51 U	0.027 U	0.029 U	0.14 U	0.027 U
Pentachloropheno	87-86-5	33	4	0.2	0.012 U	0.11 U	0.011 U	0.22 U	0.011 U	0.012 U	0.011 U	0.22 U	0.011 U	0.012 U	0.059 U	0.012 U
Phenanthrene	85-01-8	610000	NS	3200	0.015	0.009 U	0.0085	0.018 U	0.014	0.00096 U	0.0009 U	0.018 U	0.00092 U	0.0061 J	0.029 J	0.031
Phenol	108-95-2	260000	250000	54	0.0093 U	0.09 U	0.0092 U	0.18 U	0.009 U	0.0096 U	0.009 U	0.18 U	0.0092 U	0.0099 U	0.047 U	0.0095 U
Pyrene	129-00-0	58000	23000	320	0.008 J	0.0054 U	0.00055 U	0.011 U	0.00054 U	0.00058 U	0.00055 U	0.011 U	0.00056 U	0.0073 J	0.0029 U	0.049

Notes:
All concentrations reported in milligrams per kilogram (mg/kg
Underlined values exceed the WVDEP 60CSR3 Table 60-3B Migration to Groundwater Soil De Minimis Standa
Bolded values exceed the WVDEP 60CSR3 Table 60-3B Industrial Soil De Minimis Standar

U - Target analyte not detected above listed Method Detection Lim
J - Estimated result. Result is less greater than the Method Detection Limit but less than the labaratory method Reporting Li
B - Method blank contamination. The associated method blank contains the target analyte at a reportable le
K - Analyte is present. Reported value may be biased high. Actual value is expected to be low
L - Analyte is present. Reported value may be biased low. Actual value is expected to be high
R - Data was rejected during the data validation proces

TABLE 2
SUMMARY OF SOIL ANALYTICAL DATA
AOC 2 - FORMER PROCESS SEWERS AND WASTEWATER LINES
FORMER BASF HUNTINGTON WORKS FACILITY
HUNTINGTON, WEST VIRGINIA

				Location	AOC2-28	AOC2-29	AOC2-30	AOC2-31	AOC2-32	AOC2-33	AOC2-33	AOC2-34	AOC2-35	AOC2-35	AOC2-35	AOC2-35
				Sample	AOC2-28-5	AOC2-29-10	AOC2-30-15	AOC2-31-10	AOC2-32-12.5	AOC2-33-12.5	DUP-02	AOC2-34-12.5	AOC2-35-10	AOC2-35-15	AOC2-35-20	AOC2-35-5
				Sample Type	N	N	N	N	N	N	FD	N	N	N	N	N
				Matrix	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
				Sample Date	04 Aug 2016	04 Aug 2016	08 Aug 2016	08 Aug 2016	08 Aug 2016	08 Aug 2016	08 Aug 2016	08 Aug 2016	09 Aug 2016	09 Aug 2016	09 Aug 2016	09 Aug 2016
				Lab Sample ID	240-68094-9	240-68094-11	240-68094-1	240-68094-2	240-68094-3	240-68094-4	240-68094-5	240-68094-8	240-68160-8	240-68160-9	240-68160-10	240-68160-7
				Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
	CAS NO.	WVDEP INDUSTRIAL SOIL DE MINIMIS STANDARD (MG/KG)	EPA INDUSTRIAL SOIL SCREENING LEVEL (MG/KG)	WVDEP MIGRATION TO GROUNDWATER DE MINIMIS STANDARD (MG/KG)												
SW6020A																
Aluminum	7429-90-5	1000000	1100000	470000	6600 K	15000 K	NA	NA	NA	NA	NA	NA	13000 K	15000 K	7200 K	12000 K
Antimony	7440-36-0	820	470	5.7	7.4 L	0.11 L	NA	NA	NA	NA	NA	NA	0.094 L	0.1 L	0.051 L	0.81 L
Arsenic	7440-38-2	27	3	5.8	14 B	3.5 B	NA	NA	NA	NA	NA	NA	2.1	4.4	1.6	9.5
Barium	7440-39-3	360000	220000	1600	2600 J	190 J	NA	NA	NA	NA	NA	NA	220	160	74	360
Beryllium	7440-41-7	3900	2300	63	0.79	1.2	NA	NA	NA	NA	NA	NA	1.5	1.8	0.88	0.67
Cadmium	7440-43-9	800	980	7.5	0.51	0.068 J	NA	NA	NA	NA	NA	NA	0.2 J	0.68	0.11 J	0.084 J
Calcium	7440-70-2	NS	NS	NS	37000 K	1700 K	NA	NA	NA	NA	NA	NA	1600 B	1900 B	480 B	900 B
Chromium	7440-47-3	NS	NS	NS	630 B	17 B	NA	NA	NA	NA	NA	NA	20 B	24 B	13 B	100 B
Cobalt	7440-48-4	600	350	4.2	8.6 B	10 B	NA	NA	NA	NA	NA	NA	4.8 B	13 B	13 B	4.8 B
Copper	7440-50-8	82000	47000	440	780 B	18 B	NA	NA	NA	NA	NA	NA	27 B	33 B	14 B	68 B
Iron	7439-89-6	1000000	820000	5500	31000	14000	NA	NA	NA	NA	NA	NA	7700	20000	12000	19000
Lead	7439-92-1	1000	800	270	**1300 B**	15 B	NA	NA	NA	NA	NA	NA	20 B	19 B	11 B	91 B
Magnesium	7439-95-4	NS	NS	NS	2800 B	1800 B	NA	NA	NA	NA	NA	NA	1000 B	3600 B	2000 B	1400 B
Manganese	7439-96-5	72000	26000	960	770 B	530 B	NA	NA	NA	NA	NA	NA	150 B	190 B	110 B	120 B
Nickel	7440-02-0	38000	22000	410	52 B	17 B	NA	NA	NA	NA	NA	NA	15 B	33 B	19 B	14 B
Potassium	7440-09-7	NS	NS	NS	390 B	1300 B	NA	NA	NA	NA	NA	NA	1500 B	1900 B	960 B	940 B
Selenium	7782-49-2	10000	5800	5.2	1.3	1.7	NA	NA	NA	NA	NA	NA	2.5	2.7	1.5	1.8
Silver	7440-22-4	10000	5800	13	0.19	0.046 J	NA	NA	NA	NA	NA	NA	0.065 J	0.061 J	0.019 J	0.078 J
Sodium	7440-23-5	NS	NS	NS	220 B	170 JB	NA	NA	NA	NA	NA	NA	290 B	1000 B	210 JB	67 JB
Thallium	7440-28-0	20	12	2.8	0.28 J	0.23 J	NA	NA	NA	NA	NA	NA	0.28 J	0.23 J	0.11 J	0.29 J
Vanadium	7440-62-2	140	5800	22	43	22	NA	NA	NA	NA	NA	NA	23	31	18	20
Zinc	7440-66-6	610000	350000	5800	260 B	64 B	NA	NA	NA	NA	NA	NA	69 B	130 B	52 B	74 B
SW7471A																
Mercury	7439-97-6	610	46	2.1	0.31	0.05 J	NA	NA	NA	NA	NA	NA	0.057 J	0.032 U	0.017 U	0.23
SW8082																
Aroclor-1016	12674-11-2	50	27	1.8	NA	NA	NA	NA	NA	NA	NA	NA	0.011 U	0.016 U	0.01 U	0.01 U
Aroclor-1221	11104-28-2	12	0.83	0.0023	NA	NA	NA	NA	NA	NA	NA	NA	0.011 U	0.015 U	0.0097 U	0.0099 U
Aroclor-1232	11141-16-5	12	0.72	0.0023	NA	NA	NA	NA	NA	NA	NA	NA	0.0073 U	0.01 U	0.0067 U	0.0069 U
Aroclor-1242	53469-21-9	10	0.95	0.11	NA	NA	NA	NA	NA	NA	NA	NA	0.0092 U	0.062	0.0084 U	0.0086 U
Aroclor-1248	12672-29-6	10	0.95	0.1	NA	NA	NA	NA	NA	NA	NA	NA	0.0078 U	0.011 U	0.0071 U	0.045
Aroclor-1254	11097-69-1	10	0.97	0.18	NA	NA	NA	NA	NA	NA	NA	NA	0.0064 U	0.0091 U	0.0059 U	0.006 U
Aroclor-1260	11096-82-5	10	0.99	0.47	NA	NA	NA	NA	NA	NA	NA	NA	0.0083 U	0.012 U	0.0076 U	0.0078 U
Aroclor-1262	37324-23-5	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	0.0037 U	0.0052 U	0.0034 U	0.0034 U
Aroclor-1268	11100-14-4	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	0.0092 U	0.013 U	0.0084 U	0.0086 U

TABLE 2
SUMMARY OF SOIL ANALYTICAL DATA
AOC 2 - FORMER PROCESS SEWERS AND WASTEWATER LINES
FORMER BASF HUNTINGTON WORKS FACILITY
HUNTINGTON, WEST VIRGINIA

				Location	AOC2-28	AOC2-29	AOC2-30	AOC2-31	AOC2-32	AOC2-33	AOC2-33	AOC2-34	AOC2-35	AOC2-35	AOC2-35	AOC2-35
				Sample	AOC2-28-5	AOC2-29-10	AOC2-30-15	AOC2-31-10	AOC2-32-12.5	AOC2-33-12.5	DUP-02	AOC2-34-12.5	AOC2-35-10	AOC2-35-15	AOC2-35-20	AOC2-35-5
				Sample Type	N	N	N	N	N	N	FD	N	N	N	N	N
				Matrix	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
				Sample Date	04 Aug 2016	04 Aug 2016	08 Aug 2016	08 Aug 2016	08 Aug 2016	08 Aug 2016	08 Aug 2016	08 Aug 2016	09 Aug 2016	09 Aug 2016	09 Aug 2016	09 Aug 2016
				Lab Sample ID	240-68094-9	240-68094-11	240-68094-1	240-68094-2	240-68094-3	240-68094-4	240-68094-5	240-68094-8	240-68160-8	240-68160-9	240-68160-10	240-68160-7
				Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
	CAS NO.	WVDEP INDUSTRIAL SOIL DE MINIMIS STANDARD (MG/KG)	EPA INDUSTRIAL SOIL SCREENING LEVEL (MG/KG)	WVDEP MIGRATION TO GROUNDWATER DE MINIMIS STANDARD (MG/KG)												
SW8260B																
1,1,1-Trichloroethane	71-55-6	640	36000	1.4	NA	NA	0.037 U	0.037 U	0.00055 U	0.031 U	0.032 U	0.032 U	0.0007 U	0.0011 U	0.00056 U	0.00071 U
1,1,2,2-Tetrachloroethane	79-34-5	31	2.7	0.00053	NA	NA	0.035 U	0.035 U	0.00026 U	0.029 U	0.029 U	0.03 U	0.00033 U	0.00054 U	0.00027 U	0.00034 U
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	910	170000	2800	NA	NA	0.058 U	0.058 U	0.00035 U	0.049 U	0.049 U	0.05 U	0.00045 U	0.00074 U	0.00036 U	0.00046 U
1,1,2-Trichloroethane	79-00-5	57	5	0.032	NA	NA	0.026 U	0.026 U	0.00031 U	0.022 U	0.022 U	0.023 U	0.0004 U	0.00065 U	0.00032 U	0.0004 U
1,1-Dichloroethane	75-34-3	170	16	0.014	NA	NA	0.048 U	0.049 U	0.00029 U	0.04 U	0.041 U	0.042 U	0.00036 U	0.0006 U	0.0003 U	0.00037 U
1,1-Dichloroethene	75-35-4	1100	1000	0.05	NA	NA	0.042 U	0.042 U	0.00067 U	0.035 U	0.035 U	0.036 U	0.00086 U	0.0014 U	0.00069 U	0.00087 U
1,2,4-Trichlorobenzene	120-82-1	280	110	4.1	NA	NA	0.042 U	6.5 K	0.00036 B	0.035 U	0.035 U	0.036 U	0.0053 J	0.00067 U	0.00033 U	0.0091
1,2-Dibromo-3-Chloropropane	96-12-8	71	0.064	0.0017	NA	NA	*0.098 U*	*0.098 U*	0.0023 U	*0.082 U*	*0.083 U*	*0.084 U*	0.0029 U	0.0048 U	0.0024 U	0.0029 U
1,2-Dichlorobenzene	95-50-1	380	9300	12	NA	NA	0.026 U	0.12 K	0.00029 U	0.022 U	0.022 U	0.023 U	0.0011 J	0.0006 U	0.0003 U	0.00037 U
1,2-Dichloroethane	107-06-2	23	2	0.028	NA	NA	0.014 J	0.014 U	0.00039 U	0.012 U	0.012 K	0.012 U	0.00049 U	0.00081 U	0.0004 U	0.0005 U
1,2-Dichloropropane	78-87-5	47	4.4	0.033	NA	NA	0.044 U	0.044 U	0.00012 U	0.037 U	0.038 U	0.038 U	0.00015 U	0.00025 U	0.00012 U	0.00015 U
1,3-Dichlorobenzene	541-73-1	NS	NS	NS	NA	NA	0.042 U	0.34 K	0.00058 U	0.035 U	0.035 U	0.036 U	0.00074 U	0.0012 U	0.0006 U	0.00075 U
1,4-Dichlorobenzene	106-46-7	140	11	1.4	NA	NA	0.057 U	0.93 K	0.00024 U	0.047 U	0.048 U	0.049 U	0.001 J	0.00049 U	0.00024 U	0.0003 U
2-Butanone (MEK)	78-93-3	28000	190000	21	NA	NA	0.1 U	0.1 U	0.0012 J	0.084 U	0.086 U	0.087 U	0.0033 J	0.037 J	0.0071 J	0.0012 U
2-Hexanone	591-78-6	NS	1300	NS	NA	NA	0.12 U	0.12 U	0.00057 U	0.097 U	0.099 U	0.1 U	0.00073 U	0.0012 U	0.00059 U	0.00074 U
4-Methyl-2-pentanone (MIBK	108-10-1	3400	140000	4.7	NA	NA	0.078 U	0.078 U	0.001 U	0.065 U	0.066 U	0.066 U	0.0013 U	0.0021 U	0.0011 U	0.0013 U
Acetone	67-64-1	110000	670000	47	NA	NA	0.31 U	0.31 U	0.012 B	0.26 U	0.27 U	0.27 U	0.022 B	0.13	0.035 JB	0.011 B
Benzene	71-43-2	57	5.1	0.051	NA	NA	0.04 J	0.012 U	0.00076 U	0.047 K	0.034 K	0.024 K	0.0012 J	0.0016 U	0.00078 U	0.00098 U
Bromoform	75-25-2	3100	86	0.045	NA	NA	0.084 U	0.085 U	0.0002 U	0.071 U	0.072 U	0.072 U	0.00026 U	0.00042 U	0.00021 U	0.00026 U
Bromomethane	74-83-9	33	30	0.036	NA	NA	0.071 U	0.071 U	0.00035 U	0.059 U	0.06 U	0.061 U	0.00045 U	0.00074 U	0.00036 U	0.00046 U
Carbon disulfide	75-15-0	740	3500	4.5	NA	NA	0.078 U	0.078 U	0.0005 U	0.065 U	0.066 U	0.066 U	0.00063 U	0.001 U	0.00051 U	0.00064 U
Carbon tetrachloride	56-23-5	32	2.9	0.039	NA	NA	0.025 U	0.025 U	0.00055 U	0.021 U	0.021 U	0.021 U	0.0007 U	0.0011 U	0.00056 U	0.00071 U
Chlorobenzene	108-90-7	760	1300	1.4	NA	NA	0.018 U	0.018 U	0.00045 U	0.015 U	0.015 U	0.015 U	0.00057 U	0.00093 U	0.00046 U	0.00058 U
Chlorodibromomethane	124-48-1	290	39	0.0043	NA	NA	0.028 U	0.028 U	0.00031 U	0.023 U	0.024 U	0.024 U	0.0004 U	0.00065 U	0.00032 U	0.0004 U
Chloroethane	75-00-3	2100	57000	120	NA	NA	0.071 U	0.071 U	0.00037 U	0.059 U	0.06 U	0.061 U	0.00047 U	0.00077 U	0.00038 U	0.00048 U
Chloroform	67-66-3	15	1.4	0.0011	NA	NA	0.05 U	0.05 U	0.0003 U	0.042 U	0.042 U	0.043 U	0.00039 U	0.00063 U	0.00031 U	0.00072 J
Chloromethane	74-87-3	510	460	0.98	NA	NA	0.066 U	0.067 U	0.00067 U	0.056 U	0.056 U	0.057 U	0.00085 U	0.0014 U	0.00069 U	0.00086 U
cis-1,2-Dichloroethene	156-59-2	82	2300	0.41	NA	NA	0.13 J	0.053 U	0.00024 U	0.047 K	0.053 K	0.07 K	0.0015 J	0.016	0.0031 J	0.0003 U
cis-1,3-Dichloropropene	10061-01-5	NS	NS	NS	NA	NA	0.03 U	0.031 U	0.0006 U	0.025 U	0.026 U	0.026 U	0.00076 U	0.0012 U	0.00062 U	0.00077 U
Cyclohexane	110-82-7	120	27000	260	NA	NA	0.042 U	0.042 U	0.0004 U	0.035 U	0.035 U	0.036 U	0.00051 U	0.00084 U	0.00042 U	0.00052 U
Dichlorobromomethane	75-27-4	14	1.3	0.00064	NA	NA	0.053 U	0.053 U	0.00024 U	0.044 U	0.045 U	0.045 U	0.00031 U	0.00051 U	0.00025 U	0.00032 U
Dichlorodifluoromethane	75-71-8	800	370	11	NA	NA	0.084 U	0.085 U	0.00024 U	0.071 U	0.072 U	0.072 U	0.0003 U	0.00049 U	0.00024 U	0.0003 U
Ethylbenzene	100-41-4	290	25	16	NA	NA	0.048 U	0.049 U	0.048 U	0.049 U	0.048 U	0.049 U	0.00034 U	0.00056 U	0.00028 U	0.00035 U
Ethylene Dibromide	106-93-4	1.8	0.16	0.00028	NA	NA	0.044 U	0.044 U	0.00045 U	0.037 U	0.038 U	0.038 U	0.00057 U	0.00093 U	0.00046 U	0.00058 U
Isopropylbenzene	98-82-8	270	9900	18	NA	NA	0.018 U	0.018 U	0.00017 U	0.015 U	0.015 U	0.015 U	0.00021 U	0.00035 U	0.00017 U	0.00022 U
Methyl acetate	79-20-9	29000	1200000	21	NA	NA	0.14 J	0.085 K	0.0017 U	0.078 K	0.072 K	0.1 K	0.0022 U	0.0035 U	0.0017 U	0.0022 U
Methyl tert-butyl ethe	1634-04-4	2300	210	0.056	NA	NA	0.042 U	0.042 U	0.00036 U	0.035 U	0.035 U	0.036 U	0.00046 U	0.00076 U	0.00037 U	0.00047 U
Methylcyclohexane	108-87-2	NS	NS	NS	NA	NA	0.053 U	0.053 U	0.00049 U	0.044 U	0.045 U	0.045 U	0.00062 U	0.001 U	0.0005 U	0.00063 U
Methylene Chloride	75-09-2	3300	1000	0.026	NA	NA	0.12 U	0.12 U	0.00062 U	0.098 U	0.1 U	0.1 U	0.00079 U	0.0013 U	0.00064 U	0.00081 U
Styrene	100-42-5	870	35000	2.2	NA	NA	0.037 U	0.037 U	0.00034 U	0.031 U	0.032 U	0.032 U	0.00043 U	0.0007 U	0.00035 U	0.00044 U
Tetrachloroethene	127-18-4	170	100	0.045	NA	NA	0.037 U	0.037 U	0.00067 U	0.031 U	0.032 U	0.032 U	0.00086 U	0.0014 U	0.00069 U	0.00091 J
Toluene	108-88-3	820	47000	14	NA	NA	0.014 U	0.015 K	0.00023 U	0.012 U	0.012 K	0.012 U	0.00029 U	0.00047 U	0.00023 U	0.00029 U
trans-1,2-Dichloroethene	156-60-5	700	23000	0.59	NA	NA	0.036 U	0.036 U	0.00027 U	0.03 U	0.031 U	0.031 U	0.00034 U	0.0024 J	0.001 J	0.00035 U
trans-1,3-Dichloropropene	10061-02-6	NS	NS	NS	NA	NA	0.036 U	0.036 U	0.00024 U	0.03 U	0.031 U	0.031 U	0.00031 U	0.00051 U	0.00025 U	0.00032 U
Trichloroethene	79-01-6	21	6	0.036	NA	NA	4.8	0.54 K	0.00032 U	1.8 K	1.8 K	2 K	0.0017 J	0.00067 U	0.00033 U	0.00041 U
Trichlorofluoromethane	75-69-4	1200	350000	14	NA	NA	0.048 U	0.049 U	0.00024 U	0.04 U	0.041 U	0.042 U	0.00031 U	0.00051 U	0.00025 U	0.00032 U
Vinyl chloride	75-01-4	21	1.7	0.014	NA	NA	0.024 U	0.024 U	0.00025 U	0.02 U	0.02 U	0.02 U	0.00032 U	0.002 J	0.00026 U	0.00033 U
Xylenes, Tota	1330-20-7	260	2500	200	NA	NA	0.044 U	0.044 U	0.00046 U	0.037 U	0.038 U	0.038 U	0.00058 U	0.00095 U	0.00047 U	0.00059 U

TABLE 2
SUMMARY OF SOIL ANALYTICAL DATA
AOC 2 - FORMER PROCESS SEWERS AND WASTEWATER LINES
FORMER BASF HUNTINGTON WORKS FACILITY
HUNTINGTON, WEST VIRGINIA

				Location	AOC2-28	AOC2-29	AOC2-30	AOC2-31	AOC2-32	AOC2-33	AOC2-33	AOC2-34	AOC2-35	AOC2-35	AOC2-35	AOC2-35
				Sample	AOC2-28-5	AOC2-29-10	AOC2-30-15	AOC2-31-10	AOC2-32-12.5	AOC2-33-12.5	DUP-02	AOC2-34-12.5	AOC2-35-10	AOC2-35-15	AOC2-35-20	AOC2-35-5
				Sample Type	N	N	N	N	N	N	FD	N	N	N	N	N
				Matrix	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
				Sample Date	04 Aug 2016	04 Aug 2016	08 Aug 2016	08 Aug 2016	08 Aug 2016	08 Aug 2016	08 Aug 2016	08 Aug 2016	09 Aug 2016	09 Aug 2016	09 Aug 2016	09 Aug 2016
				Lab Sample ID	240-68094-9	240-68094-11	240-68094-1	240-68094-2	240-68094-3	240-68094-4	240-68094-5	240-68094-8	240-68160-8	240-68160-9	240-68160-10	240-68160-7
				Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
	CAS NO.	WVDEP INDUSTRIAL SOIL DE MINIMIS STANDARD (MG/KG)	EPA INDUSTRIAL SOIL SCREENING LEVEL (MG/KG)	WVDEP MIGRATION TO GROUNDWATER DE MINIMIS STANDARD (MG/KG)												
SW8270D																
1,1-Biphenyl	92-52-4	220	200	0.17	0.22 U	0.0052 U	0.0045 U	0.0046 U	0.0044 U	0.0044 U	0.0044 U	0.0044 U	0.0049 U	0.0068 U	0.0044 U	0.25
1,2-Diphenylhydrazine(as Azobenzene	122-66-7	31	2.9	0.0054	8.6	0.025 U	0.022 U	0.023 U	0.021 U	0.021 U	0.022 U	0.021 U	0.024 U	0.033 U	0.021 U	0.067 J
1,4-Dioxane	123-91-1	250	24	0.0028	1.4 U	0.033 U	0.028 U	0.029 U	0.028 U	0.028 U	0.028 U	0.027 U	0.031 U	0.042 U	0.027 U	0.056 U
2,4,5-Trichloropheno	95-95-4	88000	82000	120	1.6 U	0.037 U	0.032 U	0.033 U	0.031 U	0.032 U	0.032 U	0.031 U	0.035 U	0.048 U	0.031 U	0.064 U
2,4,6-Trichloropheno	88-06-2	880	210	0.46	0.56 U	0.013 U	0.011 U	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U	0.012 U	0.017 U	0.011 U	0.023 U
2,4-Dichloropheno	120-83-2	2600	2500	1.1	1.3 U	0.03 U	0.026 U	0.026 U	0.025 U	0.025 U	0.025 U	0.025 U	0.028 U	0.039 U	0.025 U	0.051 U
2,4-Dimethylpheno	105-67-9	18000	16000	7.4	1.3 U	0.03 U	0.026 U	0.026 U	0.025 U	0.025 U	0.025 U	0.025 U	0.028 U	0.039 U	0.025 U	0.051 U
2,4-Dinitropheno	51-28-5	1800	1600	0.7	1.3 U	0.031 U	0.027 U	0.028 U	0.026 R	0.027 U	0.027 U	0.026 U	0.029 U	0.041 U	0.026 U	0.054 U
2,4-Dinitrotoluene	121-14-2	80	7.4	0.0059	1.1 U	0.025 U	0.022 U	0.023 U	0.021 U	0.021 U	0.022 U	0.021 U	0.024 U	0.033 U	0.021 U	0.044 U
2,6-Dinitrotoluene	606-20-2	890	1.5	0.43	1.3 U	0.031 U	0.027 U	0.028 U	0.026 UL	0.027 U	0.027 U	0.026 U	0.029 U	0.041 U	0.026 U	0.054 U
2-Chloronaphthalene	91-58-7	64000	60000	41	0.029 U	0.00067 U	0.00058 U	0.0006 U	0.00057 UL	0.00057 U	0.00057 U	0.00056 U	0.00063 U	0.00087 U	0.00056 U	0.0012 U
2-Chloropheno	95-57-8	5100	5800	0.41	0.52 U	0.012 U	0.011 U	0.011 U	0.01 U	0.01 U	0.01 U	0.01 U	0.011 U	0.016 U	0.01 U	0.021 U
2-Methylnaphthalene	91-57-6	8200	3000	0.51	0.032 U	0.00074 U	0.00064 U	0.0078 J	0.00063 U	0.00063 U	0.00063 U	0.00062 U	0.0007 U	0.00096 U	0.00062 U	1.5
2-Methylpheno	95-48-7	44000	41000	13	0.7 U	0.016 U	0.014 U	0.015 U	0.014 UF2	0.014 U	0.014 U	0.014 U	0.015 U	0.021 U	0.014 U	0.028 U
2-Nitroaniline	88-74-4	8500	8000	1.3	0.58 U	0.014 U	0.012 U	0.012 U	0.011 U	0.011 U	0.012 U	0.011 U	0.013 U	0.018 U	0.011 U	0.023 U
2-Nitropheno	88-75-5	NS	NS	NS	0.53 U	0.012 U	0.011 U	0.011 U	0.01 UL	0.01 U	0.011 U	0.01 U	0.012 U	0.016 U	0.01 U	0.021 U
2-Toluidine	95-53-4	100	140	0.0024	2.3 U	0.053 U	0.046 U	0.048 U	0.045 U	0.045 U	0.046 U	0.045 U	0.05 U	0.069 U	0.045 U	0.092 U
3 & 4 Methylpheno	MEPH3MEPH4	NS	NS	NS	1.3 U	0.03 U	0.026 U	0.026 U	0.025 U	0.025 U	0.025 U	0.025 U	0.028 U	0.039 U	0.025 U	0.051 U
3,3-Dichlorobenzidine	91-94-1	55	5.1	0.02	1.1 U	0.027 U	0.023 U	0.024 U	0.023 U	0.023 U	0.023 U	0.022 U	0.025 U	0.035 U	0.022 U	0.046 U
3,3-Dimethoxybenzidine	119-90-4	1800	1.4	0.12	*3.2 U*	0.076 U	0.065 U	0.068 U	0.064 U	0.064 U	0.065 U	0.064 U	0.071 U	0.098 U	0.064 U	0.13 U
3,3-Dimethylbenzidine	119-93-7	2.2	0.21	0.0008	***4 U***	0.094 U	0.081 U	0.083 U	0.079 U	0.08 U	0.08 U	0.078 U	0.088 U	0.12 U	0.079 U	0.16 U
3-Nitroaniline	99-09-2	NS	NS	NS	1 U	0.024 U	0.021 U	0.021 U	0.02 U	0.02 U	0.02 U	0.02 U	0.022 U	0.031 U	0.02 U	0.041 U
4,6-Dinitro-2-methylpheno	534-52-1	NS	66	NS	0.58 U	0.014 U	0.012 U	0.012 U	0.012 R	0.012 U	0.012 U	0.011 U	0.013 U	0.018 U	0.011 U	0.024 U
4-Bromophenyl phenyl ethe	101-55-3	NS	NS	NS	0.82 U	0.019 U	0.017 U	0.017 U	0.016 U	0.016 U	0.016 U	0.016 U	0.018 U	0.025 U	0.016 U	0.033 U
4-Chloro-3-methylpheno	59-50-7	NS	82000	NS	1.3 U	0.031 U	0.027 U	0.028 U	0.026 U	0.027 U	0.027 U	0.026 U	0.029 U	0.041 U	0.026 U	0.054 U
4-Chloroaniline	106-47-8	120	11	0.0029	1.1 U	0.025 U	0.022 U	0.023 U	0.021 U	0.021 U	0.022 U	0.021 U	0.024 U	0.033 U	0.021 U	0.044 U
4-Chlorophenyl phenyl ethe	7005-72-3	NS	NS	NS	0.82 U	0.019 U	0.017 U	0.017 U	0.016 UF2	0.016 U	0.016 U	0.016 U	0.018 U	0.025 U	0.016 U	0.033 U
4-Nitroaniline	100-01-6	NS	110	NS	1.6 U	0.039 U	0.033 U	0.034 U	0.033 U	0.033 U	0.033 U	0.032 U	0.036 U	0.05 U	0.032 U	0.067 U
4-Nitropheno	100-02-7	NS	NS	NS	1.1 U	0.025 U	0.022 U	0.023 U	0.021 U	0.021 U	0.022 U	0.021 U	0.024 U	0.033 U	0.021 U	0.044 U
Acenaphthene	83-32-9	66000	45000	61	0.048 U	0.0011 U	0.00097 U	0.0049 J	0.00095 U	0.00096 U	0.00096 U	0.00095 U	0.0011 U	0.0015 U	0.00095 U	0.055
Acenaphthylene	208-96-8	74000		61	0.022 U	0.00052 U	0.00045 U	0.00046 U	0.00044 UF2	0.00044 U	0.00044 U	0.00044 U	0.00049 U	0.00068 U	0.00044 U	0.042
Acetophenone	98-86-2	2500	120000	9.5	0.58 U	0.014 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.011 U	0.013 U	0.018 U	0.011 U	0.23 J
Aniline	62-53-3	4300	400	0.08	38	0.016 U	0.014 U	0.26 J	0.014 U	0.028 J	0.021 J	0.014 U	0.015 U	0.021 U	0.014 U	0.27 J
Anthracene	120-12-7	610000	230000	3100	0.049 U	0.0012 U	0.001 U	0.0096	0.00098 U	0.00098 U	0.00099 U	0.00097 U	0.0011 U	0.0015 U	0.00097 U	0.094
Atrazine	1912-24-9	110	10	0.039	0.58 U	0.014 U	0.012 U	0.012 U	0.011 U	0.011 U	0.012 U	0.011 U	0.013 U	0.018 U	0.011 U	0.023 U
Benzaldehyde	100-52-7	1200	820	2.2	0.76 U	0.018 U	0.015 U	0.016 U	0.015 UF2	0.015 U	0.015 U	0.015 U	0.017 U	0.074 J	0.015 U	0.17 J
Benzidine	92-87-5	0.11	0.01	4.8E-06	**1.8 U**	0.043 U	0.037 U	0.038 U	0.036 U	0.037 U	0.037 U	0.036 U	0.04 U	0.056 U	0.036 U	0.074 U
Benzo[a]anthracene	56-55-3	29	2.9	0.21	0.04 U	0.00094 U	0.00081 U	0.11	0.00079 U	0.0008 U	0.0008 U	0.00078 U	0.00088 U	0.0012 U	0.0085	0.32
Benzo[a]pyrene	50-32-8	2.9	0.29	4.7	0.27 J	0.00095 U	0.00082 U	0.17	0.0008 U	0.00081 U	0.00081 U	0.0008 U	0.00089 U	0.0012 U	0.0008 U	0.31
Benzo[b]fluoranthene	205-99-2	29	2.9	0.71	0.45	0.00088 U	0.00076 U	0.2	0.0094	0.00074 U	0.00075 U	0.00073 U	0.00082 U	0.0011 U	0.01	0.48
Benzo[g,h,i]perylene	191-24-2	23000	NS	37000	0.3 J	0.00052 U	0.00045 U	0.098	0.00044 U	0.00044 U	0.00044 U	0.00044 U	0.00049 U	0.00068 U	0.00044 U	0.21
Benzo[k]fluoranthene	207-08-9	290	29	6.9	0.043 U	0.001 U	0.00087 U	0.093	0.00085 U	0.00086 U	0.00086 U	0.00085 U	0.00095 U	0.0013 U	0.00085 U	0.15
bis (2-chloroisopropyl) ethe	108-60-1	300	47000	0.0024	0.6 U	0.014 U	0.012 U	0.013 U	0.012 U	0.012 U	0.012 U	0.012 U	0.013 U	0.018 U	0.012 U	0.024 U
Bis(2-chloroethoxy)methane	111-91-1	NS	2500	NS	1.4 U	0.033 U	0.028 U	0.029 U	0.028 U	0.028 U	0.028 U	0.027 U	0.031 U	0.042 U	0.027 U	0.056 U
Bis(2-chloroethyl)ethe	111-44-4	13	1	6.3E-05	0.13 U	0.003 U	0.0026 U	0.0026 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0028 U	0.0039 U	0.0025 U	0.0051 U
Bis(2-ethylhexyl) phthalate	117-81-7	1800	160	29	4.8	0.034 J	0.024 U	0.089 J	0.024 U	0.029 J	0.036 J	0.033 J	0.03 J	0.043 J	0.027 J	0.049 U
Butyl benzyl phthalate	85-68-7	13000	1200	10	0.63 U	0.015 U	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	0.012 U	0.014 U	0.019 U	0.012 U	0.026 U
Caprolactam	105-60-2	440000	400000	39	2.3 U	0.055 U	0.047 U	0.049 U	0.046 U	0.047 U	0.047 U	0.046 U	0.051 U	0.071 U	0.052 J	0.095 U
Carbazole	86-74-8	NS	NS	NS	1.7 U	0.04 U	0.035 U	0.036 U	0.034 U	0.034 U	0.034 U	0.034 U	0.038 U	0.052 U	0.034 U	0.072 J
Chrysene	218-01-9	2900	290	21	0.07 U	0.0014 U	0.0014 U	0.12	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0015 U	0.0021 U	0.0014 U	0.42
Dibenz(a,h)anthracene	53-70-3	2.9	0.29	0.23	0.042 U	0.00098 U	0.00085 U	0.00087 U	0.00083 U	0.00083 U	0.00084 U	0.00082 U	0.00092 U	0.0013 U	0.00082 U	0.063
Dibenzofuran	132-64-9	2000	1000	5.8	0.042 U	0.00098 U	0.00085 U	0.00087 U	0.00083 UL	0.00083 U	0.00084 U	0.00082 U	0.00092 U	0.0013 U	0.00082 U	0.39
Diethyl phthalate	84-66-2	700000	660000	100	1 U	0.024 U	0.021 U	0.021 U	0.02 U	0.02 U	0.02 U	0.02 U	0.022 U	0.031 U	0.02 U	0.041 U
Dimethyl phthalate	131-11-3	NS	NS	NS	1.1 U	0.025 U	0.022 U	0.023 U	0.021 U	0.021 U	0.022 U	0.021 U	0.024 U	0.033 U	0.021 U	0.044 U
Di-n-butyl phthalate	84-74-2	88000	82000	79	0.95 U	0.022 U	0.02 J	0.02 U	0.019 U	0.019 J	0.019 U	0.019 U	0.021 U	0.033 J	0.026 J	0.039 U
Di-n-octyl phthalate	117-84-0	NS	8200	NS	0.5 U	0.012 U	0.01 U	0.01 U	0.0099 U	0.01 U	0.01 U	0.0098 U	0.011 U	0.015 U	0.0098 U	0.02 U
Diphenylamine	122-39-4	22000	21000	14	1.3 U	0.031 U	0.027 U	0.028 U	0.026 U	0.027 U	0.027 U	0.026 U	0.029 U	0.041 U	0.026 U	0.054 U
Fluoranthene	206-44-0	30000	30000	1400	0.44	0.00082 U	0.0007 U	0.088	0.0052 J	0.00069 U	0.0007 U	0.00068 U	0.00076 U	0.0011 U	0.00069 U	0.54
Fluorene	86-73-7	57000	30000	74	0.034 U	0.00079 U	0.00068 U	0.0007 U	0.00067 U	0.00067 U	0.00067 U	0.00066 U	0.00074 U	0.001 U	0.00066 U	0.036
Hexachlorobenzene	118-74-1	15	0.96	0.25	0.13 U	0.0031 U	0.0027 U	0.0028 U	0.0026 U	0.0027 U	0.0027 U	0.0026 U	0.0029 U	0.0041 U	0.0026 U	0.0054 U
Hexachlorobutadiene	87-68-3	320	5.3	0.033	0.36 U	0.0083 U	0.0072 U	0.0074 U	0.007 U	0.0071 U	0.0071 U	0.007 U	0.0078 U	0.011 U	0.007 U	0.014 U
Hexachlorocyclopentadiene	77-47-4	5300	7.5	3.1	0.51 U	0.012 U	0.01 U	0.011 U	0.01 R	0.01 U	0.01 U	0.01 U	0.011 U	0.016 U	0.01 U	0.021 U
Hexachloroethane	67-72-1	620	8	0.02	0.57 U	0.013 U	0.012 U	0.012 U	0.011 UF2	0.011 U	0.011 U	0.011 U	0.013 U	0.017 U	0.011 U	0.023 U
Indeno[1,2,3-cd]pyrene	193-39-5	29	2.9	2.3	0.022 U	0.00052 U	0.00045 U	0.089	0.00044 U	0.00044 U	0.00044 U	0.00044 U	0.00049 U	0.00068 U	0.00044 U	0.17
Isophorone	78-59-1	26000	2400	0.47	0.82 U	0.019 U	0.017 U	0.017 U	0.016 U	0.016 U	0.016 U	0.016 U	0.018 U	0.025 U	0.016 U	0.033 U
Naphthalene	91-20-3	180	17	0.0094	0.052 U	0.0012 U	0.0011 U	0.0071 J	0.001 U	0.001 U	0.001 U	0.001 U	0.0011 U	0.0016 U	0.001 U	0.98
Nitrobenzene	98-95-3	240	22	0.0016	0.14 U	0.0033 U	0.0028 U	0.0029 U	0.0028 U	0.0028 U	0.0028 U	0.0027 U	0.0031 U	0.0042 U	0.0027 U	0.0056 U
N-Nitrosodi-n-propylamine	621-64-7	3.5	0.33	0.00014	0.4 U	0.0094 U	0.0081 U	0.0083 U	0.0079 U	0.008 U	0.008 U	0.0078 U	0.0088 U	0.012 U	0.0079 U	0.016 U
N-Nitrosodiphenylamine	86-30-6	5000	470	1.5	1.3 U	0.031 U	0.027 U	0.028 U	0.026 U	0.027 U	0.027 U	0.026 U	0.029 U	0.041 U	0.026 U	0.054 U
Pentachloropheno	87-86-5	33	4	0.2	0.58 U	0.014 U	0.012 U	0.012 U	0.011 U	0.011 U	0.012 U	0.011 U	0.013 U	0.018 U	0.011 U	0.023 U
Phenanthrene	85-01-8	610000	NS	3200	0.23 J	0.0011 U	0.00094 U	0.034	0.0066 J	0.00092 U	0.00093 U	0.00091 U	0.001 U	0.0014 U	0.0074 J	1.4
Phenol	108-95-2	260000	250000	54	0.46 U	0.011 U	0.0094 U	0.0097 U	0.0092 U	0.0092 U	0.0093 U	0.0091 U	0.011 J	0.014 U	0.0091 U	0.019 U
Pyrene	129-00-0	58000	23000	320	0.44	0.00065 U	0.00056 U	0.12	0.00055 U	0.00056 U	0.00056 U	0.00055 U	0.00061 U	0.00085 U	0.00055 U	0.5

Notes:
All concentrations reported in milligrams per kilogram (mg/kg
Underlined values exceed the WVDEP 60CSR3 Table 60-3B Migration to Groundwater Soil De Minimis Standa
Bolded values exceed the WVDEP 60CSR3 Table 60-3B Industrial Soil De Minimis Standar

U - Target analyte not detected above listed Method Detection Lim
J - Estimated result. Result is less greater than the Method Detection Limit but less than the labaratory method Reporting Li
B - Method blank contamination. The associated method blank contains the target analyte at a reportable le
K - Analyte is present. Reported value may be biased high. Actual value is expected to be low
L - Analyte is present. Reported value may be biased low. Actual value is expected to be high
R - Data was rejected during the data validation proces

TABLE 2
SUMMARY OF SOIL ANALYTICAL DATA
AOC 2 - FORMER PROCESS SEWERS AND WASTEWATER LINES
FORMER BASF HUNTINGTON WORKS FACILITY
HUNTINGTON, WEST VIRGINIA

				Location	AOC2-36	AOC2-36	AOC2-36	AOC2-36	AOC2-37	AOC2-37	AOC2-37	AOC2-37	AOC2-38	AOC2-38	AOC2-38	AOC2-39
				Sample	AOC2-36-10	AOC2-36-15	AOC2-36-20	AOC2-36-5	AOC2-37-10	AOC2-37-15	AOC2-37-20	AOC2-37-5	AOC2-38-12.5	AOC2-38-20	AOC2-38-5	AOC2-39-10
				Sample Type	N	N	N	N	N	N	N	N	N	N	N	N
				Matrix	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
				Sample Date	09 Aug 2016	09 Aug 2016	09 Aug 2016	09 Aug 2016	09 Aug 2016	09 Aug 2016	09 Aug 2016	09 Aug 2016	09 Aug 2016	09 Aug 2016	09 Aug 2016	09 Aug 2016
				Lab Sample ID	240-68160-12	240-68160-13	240-68160-14	240-68160-11	240-68160-18	240-68160-19	240-68160-20	240-68160-17	240-68160-22	240-68160-23	240-68160-21	240-68193-1
				Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
	CAS NO.	WVDEP INDUSTRIAL SOIL DE MINIMIS STANDARD (MG/KG)	EPA INDUSTRIAL SOIL SCREENING LEVEL (MG/KG)	WVDEP MIGRATION TO GROUNDWATER DE MINIMIS STANDARD (MG/KG)												
SW6020A																
Aluminum	7429-90-5	1000000	1100000	470000	11000 K	13000 K	11000 K	7800 K	16000 K	8400 K	8200 K	14000 K	14000 K	6700 K	12000 K	2200 K
Antimony	7440-36-0	820	470	5.7	2.7 L	0.21 L	0.085 L	0.89 L	0.1 L	0.056 L	0.053 L	0.1 L	0.16 L	0.088 L	0.36 L	0.12 L
Arsenic	7440-38-2	27	3	5.8	9.2	2.1	1.6	11	1.9	4.1	2.4	2.2	5.4 B	2 B	8.5	1.9
Barium	7440-39-3	360000	220000	1600	2500	150	140	1100	190	94	80	230	250	73	3500	1300 J
Beryllium	7440-41-7	3900	2300	63	1.8	1.2	1.1	0.67	2.2	1	0.92	1.3	1.6	0.83	1.4	0.43 B
Cadmium	7440-43-9	800	980	7.5	0.29	0.14 J	0.12 J	0.097 J	0.062 J	0.076 J	0.14 J	0.25	0.23 J	0.15 J	0.22 J	0.053 JB
Calcium	7440-70-2	NS	NS	NS	1500 B	770 B	610 B	1800 B	1200 B	430 B	520 B	840 B	1300 B	430 B	5400 B	1300 K
Chromium	7440-47-3	NS	NS	NS	36 B	19 B	16 B	71 B	21 B	14 B	14 B	20 B	22 B	12 B	37 B	7.7 B
Cobalt	7440-48-4	600	350	4.2	10 B	14 B	11 B	4.1 B	5.1 B	23 B	8.9 B	16 B	8.2 B	9.3 B	15 B	3.5 B
Copper	7440-50-8	82000	47000	440	120 B	21 B	18 B	80 B	23 B	17 B	16 B	26 B	29 B	13 B	32 B	6.4 B
Iron	7439-89-6	1000000	820000	5500	17000	15000	13000	31000	8800	13000	13000	16000	13000	9400	30000	6600
Lead	7439-92-1	1000	800	270	190 B	20 B	16 B	74 B	22 B	13 B	12 B	20 B	17 B	10 B	43 B	9.2 B
Magnesium	7439-95-4	NS	NS	NS	1500 B	3000 B	2700 B	1000 B	1700 B	2300 B	2200 B	3300 B	2100 B	1800 B	3000 B	610 B
Manganese	7439-96-5	72000	26000	960	140 B	130 B	120 B	110 B	88 B	94 B	160 B	140 B	130 B	84 B	670 B	77 B
Nickel	7440-02-0	38000	22000	410	19 B	31 B	24 B	12 B	18 B	22 B	16 B	35 B	29 B	16 B	24 B	8.9 B
Potassium	7440-09-7	NS	NS	NS	980 B	1700 B	1400 B	650 B	1900 B	1200 B	1200 B	1700 B	1600 B	870 B	1300 B	420 B
Selenium	7782-49-2	10000	5800	5.2	2.5	2.1	1.9	1.6	2.9	1.9	1.6	2.4	2.4	1.3	2.3	0.49 J
Silver	7440-22-4	10000	5800	13	0.082 J	0.029 J	0.024 J	0.089 J	0.06 J	0.025 J	0.022 J	0.032 J	0.059 J	0.022 J	0.031 J	0.0078 J
Sodium	7440-23-5	NS	NS	NS	190 JB	630 B	530 B	88 JB	330 B	480 B	160 JB	680 B	580 B	400 B	79 JB	35 JB
Thallium	7440-28-0	20	12	2.8	0.25 J	0.19 J	0.16 J	0.28 J	0.24 J	0.14 J	0.12 J	0.2 J	0.23 J	0.12 J	0.21 J	0.05 J
Vanadium	7440-62-2	140	5800	22	26	19	16	18	25	19	16	21	29	16	24	5.6
Zinc	7440-66-6	610000	350000	5800	110 B	79 B	70 B	66 B	100 B	60 B	57 B	87 B	74 B	44 B	110 B	34 B
SW7471A																
Mercury	7439-97-6	610	46	2.1	0.28	0.028 J	0.023 J	0.17	0.046 J	0.019 J	0.021 U	0.032 J	0.037 J	0.024 J	0.06 J	0.015 U
SW8082																
Aroclor-1016	12674-11-2	50	27	1.8	0.51 U	0.011 U	0.01 U	0.021 U	0.011 U	0.01 U	0.01 U	0.012 U	0.012 U	0.01 U	0.01 U	0.028 U
Aroclor-1221	11104-28-2	12	0.83	0.0023	0.49 U	0.01 U	0.0097 U	0.02 U	0.011 U	0.0098 U	0.01 U	0.011 U	0.012 U	0.0098 U	0.0098 U	0.027 U
Aroclor-1232	11141-16-5	12	0.72	0.0023	0.34 U	0.0073 U	0.0067 U	0.014 U	0.0075 U	0.0068 U	0.007 U	0.0079 U	0.0081 U	0.0068 U	0.0068 U	0.019 U
Aroclor-1242	53469-21-9	10	0.95	0.11	0.43 U	0.0091 U	0.0084 U	0.017 U	0.0094 U	0.0085 U	0.0087 U	0.0098 U	0.01 U	0.0085 U	0.0086 U	0.024 U
Aroclor-1248	12672-29-6	10	0.95	0.1	**16 K**	0.32	0.0071 U	0.076	0.008 U	0.0072 U	0.0074 U	0.0084 U	0.0086 U	0.0072 U	0.071	0.078
Aroclor-1254	11097-69-1	10	0.97	0.18	0.3 U	0.0064 U	0.0059 U	0.012 U	0.0066 U	0.0059 U	0.0061 U	0.0069 U	0.0071 U	0.006 U	0.006 U	0.017 U
Aroclor-1260	11096-82-5	10	0.99	0.47	0.38 U	0.0082 U	0.0076 U	0.016 U	0.0084 U	0.0076 U	0.0078 U	0.0089 U	0.0091 U	0.0077 U	0.0077 U	0.021 U
Aroclor-1262	37324-23-5	NS	NS	NS	0.17 U	0.0036 U	0.0034 U	0.0069 U	0.0038 U	0.0034 U	0.0035 U	0.0039 U	0.004 U	0.0034 U	0.0034 U	0.0094 U
Aroclor-1268	11100-14-4	NS	NS	NS	0.43 U	0.0091 U	0.0084 U	0.017 U	0.0094 U	0.0085 U	0.0087 U	0.0098 U	0.01 U	0.0085 U	0.0086 U	0.024 U

TABLE 2
SUMMARY OF SOIL ANALYTICAL DATA
AOC 2 - FORMER PROCESS SEWERS AND WASTEWATER LINES
FORMER BASF HUNTINGTON WORKS FACILITY
HUNTINGTON, WEST VIRGINIA

				Location	AOC2-36	AOC2-36	AOC2-36	AOC2-36	AOC2-37	AOC2-37	AOC2-37	AOC2-37	AOC2-38	AOC2-38	AOC2-38	AOC2-39
				Sample	AOC2-36-10	AOC2-36-15	AOC2-36-20	AOC2-36-5	AOC2-37-10	AOC2-37-15	AOC2-37-20	AOC2-37-5	AOC2-38-12.5	AOC2-38-20	AOC2-38-5	AOC2-39-10
				Sample Type	N	N	N	N	N	N	N	N	N	N	N	N
				Matrix	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
				Sample Date	09 Aug 2016	09 Aug 2016	09 Aug 2016	09 Aug 2016	09 Aug 2016	09 Aug 2016	09 Aug 2016	09 Aug 2016	09 Aug 2016	09 Aug 2016	09 Aug 2016	09 Aug 2016
				Lab Sample ID	240-68160-12	240-68160-13	240-68160-14	240-68160-11	240-68160-18	240-68160-19	240-68160-20	240-68160-17	240-68160-22	240-68160-23	240-68160-21	240-68193-1
				Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
	CAS NO.	WVDEP INDUSTRIAL SOIL DE MINIMIS STANDARD (MG/KG)	EPA INDUSTRIAL SOIL SCREENING LEVEL (MG/KG)	WVDEP MIGRATION TO GROUNDWATER DE MINIMIS STANDARD (MG/KG)												
SW8260B																
1,1,1-Trichloroethane	71-55-6	640	36000	1.4	11 U	0.11 U	0.00061 U	0.00049 U	0.068 U	0.031 U	0.00052 U	0.0009 U	0.00086 U	0.0005 U	0.00058 U	0.00063 U
1,1,2,2-Tetrachloroethane	79-34-5	31	2.7	0.00053	11 U	0.1 U	0.00029 U	0.00023 U	0.063 U	0.029 U	0.00025 U	0.00043 U	0.00041 U	0.00024 U	0.00028 U	0.0003 U
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	910	170000	2800	18 U	0.17 U	0.0004 U	0.00031 U	0.11 U	0.049 U	0.00034 U	0.00058 U	0.00056 U	0.00032 U	0.00037 U	0.00041 U
1,1,2-Trichloroethane	79-00-5	57	5	0.032	8.1 U	0.076 U	0.00035 U	0.00028 U	0.048 U	0.022 U	0.0003 U	0.00051 U	0.00049 U	0.00028 U	0.00033 U	0.00036 U
1,1-Dichloroethane	75-34-3	170	16	0.014	15 U	0.14 U	0.00032 U	0.00025 U	0.088 U	0.04 U	0.00027 U	0.00047 U	0.00045 U	0.00026 U	0.0003 U	0.00033 U
1,1-Dichloroethene	75-35-4	1100	1000	0.05	13 U	0.12 U	0.00075 U	0.0006 U	0.075 U	0.035 U	0.00064 U	0.0011 U	0.0011 U	0.00061 U	0.00071 U	0.00078 U
1,2,4-Trichlorobenzene	120-82-1	280	110	4.1	**1900**	22	0.0047	0.00028 U	12	0.035 U	0.0003 U	0.00053 U	0.0005 U	0.00029 U	0.0028 J	0.00051 J
1,2-Dibromo-3-Chloropropane	96-12-8	71	0.064	0.0017	30 U	0.29 U	0.0025 U	0.002 U	0.18 U	0.082 U	0.0022 U	0.0038 U	0.0036 U	0.0021 U	0.0024 U	0.0026 U
1,2-Dichlorobenzene	95-50-1	380	9300	12	10 J	0.076 U	0.00032 U	0.00025 U	0.44 J	0.022 U	0.00027 U	0.00047 U	0.00045 U	0.00026 U	0.0003 U	0.00033 U
1,2-Dichloroethane	107-06-2	23	2	0.028	4.2 U	0.04 U	0.00043 U	0.00034 U	0.025 U	0.012 U	0.00037 U	0.00064 U	0.00061 U	0.00035 U	0.00041 U	0.00045 U
1,2-Dichloropropane	78-87-5	47	4.4	0.033	14 U	0.13 U	0.00013 U	0.0001 U	0.08 U	0.037 U	0.00011 U	0.00019 U	0.00019 U	0.00011 U	0.00012 U	0.00014 U
1,3-Dichlorobenzene	541-73-1	NS	NS	NS	13 U	0.12 J	0.00065 U	0.00052 U	0.075 U	0.035 U	0.00055 U	0.00096 U	0.00092 U	0.00053 U	0.00061 U	0.00067 U
1,4-Dichlorobenzene	106-46-7	140	11	1.4	54 J	0.19 J	0.00026 U	0.00021 U	0.18 J	0.047 U	0.00022 U	0.00039 U	0.00037 U	0.00021 U	0.00025 U	0.00027 U
2-Butanone (MEK)	78-93-3	28000	190000	21	31 U	0.29 U	0.0011 U	0.0035 J	0.18 U	0.084 U	0.0009 U	0.0078 J	0.028 J	0.0059 J	0.001 U	0.0011 U
2-Hexanone	591-78-6	NS	1300	NS	36 U	0.34 U	0.00064 U	0.00051 U	0.21 U	0.097 U	0.00054 U	0.00094 U	0.0009 U	0.00052 U	0.0006 U	0.00066 U
4-Methyl-2-pentanone (MIBK	108-10-1	3400	140000	4.7	24 U	0.22 U	0.0011 U	0.00091 U	0.14 U	0.065 U	0.00098 U	0.0017 U	0.0016 U	0.00093 U	0.0011 U	0.0012 U
Acetone	67-64-1	110000	670000	47	96 U	0.91 U	0.026 B	0.023 B	0.57 U	0.26 U	0.019 B	0.041 B	0.11	0.032 B	0.0088 B	0.021 B
Benzene	71-43-2	57	5.1	0.051	3.8 U	0.036 U	0.00085 U	0.00067 U	0.2 J	0.015 J	0.00072 U	0.0012 U	0.0012 U	0.00069 U	0.0008 U	0.00087 U
Bromoform	75-25-2	3100	86	0.045	26 U	0.25 U	0.00023 U	0.00018 U	0.15 U	0.07 U	0.00019 U	0.00033 U	0.00032 U	0.00018 U	0.00021 U	0.00023 U
Bromomethane	74-83-9	33	30	0.036	22 U	0.2 U	0.0004 U	0.00031 U	0.13 U	0.059 U	0.00034 U	0.00058 U	0.00056 U	0.00032 U	0.00037 U	0.00041 U
Carbon disulfide	75-15-0	740	3500	4.5	24 U	0.22 U	0.00055 U	0.00049 J	0.14 U	0.065 U	0.00047 U	0.00082 U	0.00078 U	0.00045 U	0.00052 U	0.00057 U
Carbon tetrachloride	56-23-5	32	2.9	0.039	7.6 U	0.072 U	0.00061 U	0.00049 U	0.045 U	0.021 U	0.00052 U	0.0009 U	0.00086 U	0.0005 U	0.00058 U	0.00063 U
Chlorobenzene	108-90-7	760	1300	1.4	5.5 U	0.052 U	0.0005 U	0.0004 U	0.033 U	0.015 U	0.00042 U	0.00073 U	0.0007 U	0.00041 U	0.00047 U	0.00052 U
Chlorodibromomethane	124-48-1	290	39	0.0043	8.5 U	0.08 U	0.00035 U	0.00028 U	0.05 U	0.023 U	0.0003 U	0.00051 U	0.00049 U	0.00028 U	0.00033 U	0.00036 U
Chloroethane	75-00-3	2100	57000	120	22 U	0.2 U	0.00041 U	0.00033 U	0.13 U	0.059 U	0.00035 U	0.00061 U	0.00058 U	0.00034 U	0.00039 U	0.00043 U
Chloroform	67-66-3	15	1.4	0.0011	**15 U**	0.14 U	0.00034 U	0.00027 U	0.09 U	0.042 U	0.00029 U	0.0005 U	0.00048 U	0.00028 U	0.00032 U	0.00035 U
Chloromethane	74-87-3	510	460	0.98	20 U	0.19 U	0.00074 U	0.00059 U	0.12 U	0.055 U	0.00063 U	0.0011 U	0.001 U	0.00061 U	0.0007 U	0.00077 U
cis-1,2-Dichloroethene	156-59-2	82	2300	0.41	16 U	1.2	0.044	0.00021 U	1.1	0.86	0.061	0.00039 U	0.00037 U	0.0003 J	0.00025 U	0.00027 U
cis-1,3-Dichloropropene	10061-01-5	NS	NS	NS	9.3 U	0.088 U	0.00067 U	0.00053 U	0.055 U	0.025 U	0.00057 U	0.00098 U	0.00094 U	0.00054 U	0.00063 U	0.00069 U
Cyclohexane	110-82-7	120	27000	260	13 U	0.12 U	0.00045 U	0.00036 U	0.075 U	0.035 U	0.00038 U	0.00066 U	0.00064 U	0.00037 U	0.00043 U	0.00047 U
Dichlorobromomethane	75-27-4	14	1.3	0.00064	**16 U**	0.15 U	0.00027 U	0.00022 U	0.095 U	0.044 U	0.00023 U	0.0004 U	0.00039 U	0.00022 U	0.00026 U	0.00028 U
Dichlorodifluoromethane	75-71-8	800	370	11	26 U	0.25 U	0.00026 U	0.00021 U	0.15 U	0.07 U	0.00022 U	0.00039 U	0.00037 U	0.00021 U	0.00025 U	0.00027 U
Ethylbenzene	100-41-4	290	25	16	15 U	0.14 U	0.0003 U	0.00024 U	0.088 U	0.04 U	0.00026 U	0.00044 U	0.00043 U	0.00025 U	0.00028 U	0.00031 U
Ethylene Dibromide	106-93-4	1.8	0.16	0.00028	**14 U**	0.13 U	0.0005 U	0.0004 U	0.08 U	0.037 U	0.00042 U	0.00073 U	0.0007 U	0.00041 U	0.00047 U	0.00052 U
Isopropylbenzene	98-82-8	270	9900	18	5.5 U	0.052 U	0.00019 U	0.00015 U	0.033 U	0.015 U	0.00016 U	0.00028 U	0.00027 U	0.00015 U	0.00018 U	0.00019 U
Methyl acetate	79-20-9	29000	1200000	21	23 U	0.22 U	0.0019 U	0.0015 U	0.16 J	0.064 U	0.0016 U	0.0028 U	0.0027 U	0.0015 U	0.0018 U	0.002 U
Methyl tert-butyl ethe	1634-04-4	2300	210	0.056	13 U	0.12 U	0.0004 U	0.00032 U	0.075 U	0.035 U	0.00034 U	0.0006 U	0.00057 U	0.00033 U	0.00038 U	0.00042 U
Methylcyclohexane	108-87-2	NS	NS	NS	16 U	0.15 U	0.00055 U	0.00043 U	0.095 U	0.044 U	0.00046 U	0.0008 U	0.00077 U	0.00044 U	0.00052 U	0.00056 U
Methylene Chloride	75-09-2	3300	1000	0.026	36 U	0.34 U	0.0007 U	0.00055 U	0.21 U	0.098 U	0.00059 U	0.001 U	0.00098 U	0.00057 U	0.00066 U	0.00072 U
Styrene	100-42-5	870	35000	2.2	11 U	0.11 U	0.00038 U	0.0003 U	0.068 U	0.031 U	0.00032 U	0.00055 U	0.00053 U	0.00031 U	0.00036 U	0.00039 U
Tetrachloroethene	127-18-4	170	100	0.045	11 U	0.11 U	0.00075 U	0.0006 U	0.086 J	0.031 U	0.00064 U	0.0011 U	0.0011 U	0.00061 U	0.00071 U	0.00078 U
Toluene	108-88-3	820	47000	14	4.2 U	0.04 U	0.00025 U	0.0002 U	0.048 J	0.012 U	0.00022 U	0.00037 U	0.00036 U	0.00021 U	0.00036 J	0.00026 U
trans-1,2-Dichloroethene	156-60-5	700	23000	0.59	11 U	0.23 J	0.0073	0.00024 U	0.23 J	0.17 J	0.0079	0.00044 U	0.00043 U	0.00025 U	0.00028 U	0.00031 U
trans-1,3-Dichloropropene	10061-02-6	NS	NS	NS	11 U	0.1 U	0.00027 U	0.00022 U	0.065 U	0.03 U	0.00023 U	0.0004 U	0.00039 U	0.00022 U	0.00026 U	0.00028 U
Trichloroethene	79-01-6	21	6	0.036	17 U	0.36 J	0.006	0.00028 U	12	3.3	0.0003 U	0.00053 U	0.0005 U	0.00029 U	0.00034 U	0.00037 U
Trichlorofluoromethane	75-69-4	1200	350000	14	15 U	0.14 U	0.00027 U	0.00022 U	0.088 U	0.04 U	0.00023 U	0.0004 U	0.00039 U	0.00022 U	0.00026 U	0.00028 U
Vinyl chloride	75-01-4	21	1.7	0.014	7.2 U	0.068 U	0.00028 U	0.00022 U	0.043 U	0.02 U	0.00024 U	0.00042 U	0.0004 U	0.00023 U	0.00027 U	0.00029 U
Xylenes, Tota	1330-20-7	260	2500	200	14 U	0.13 U	0.00051 U	0.0004 U	0.08 U	0.037 U	0.00043 U	0.00075 U	0.00072 U	0.00041 U	0.00048 U	0.00052 U

TABLE 2
SUMMARY OF SOIL ANALYTICAL DATA
AOC 2 - FORMER PROCESS SEWERS AND WASTEWATER LINES
FORMER BASF HUNTINGTON WORKS FACILITY
HUNTINGTON, WEST VIRGINIA

				Location	AOC2-36	AOC2-36	AOC2-36	AOC2-36	AOC2-37	AOC2-37	AOC2-37	AOC2-37	AOC2-38	AOC2-38	AOC2-38	AOC2-39
				Sample	AOC2-36-10	AOC2-36-15	AOC2-36-20	AOC2-36-5	AOC2-37-10	AOC2-37-15	AOC2-37-20	AOC2-37-5	AOC2-38-12.5	AOC2-38-20	AOC2-38-5	AOC2-39-10
				Sample Type	N	N	N	N	N	N	N	N	N	N	N	N
				Matrix	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
				Sample Date	09 Aug 2016	09 Aug 2016	09 Aug 2016	09 Aug 2016	09 Aug 2016	09 Aug 2016	09 Aug 2016	09 Aug 2016	09 Aug 2016	09 Aug 2016	09 Aug 2016	09 Aug 2016
				Lab Sample ID	240-68160-12	240-68160-13	240-68160-14	240-68160-11	240-68160-18	240-68160-19	240-68160-20	240-68160-17	240-68160-22	240-68160-23	240-68160-21	240-68193-1
				Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
	CAS NO.	WVDEP INDUSTRIAL SOIL DE MINIMIS STANDARD (MG/KG)	EPA INDUSTRIAL SOIL SCREENING LEVEL (MG/KG)	WVDEP MIGRATION TO GROUNDWATER DE MINIMIS STANDARD (MG/KG)												
SW8270D																
1,1-Biphenyl	92-52-4	220	200	0.17	0.091 U	0.0047 U	0.0044 U	0.33	0.0048 U	0.0044 U	0.0047 U	0.019 J	0.0054 UL	0.0045 U	0.015 J	0.012 J
1,2-Diphenylhydrazine(as Azobenzene	122-66-7	31	2.9	0.0054	7.7	0.023 U	0.021 U	0.11 J	0.023 U	0.021 U	0.023 U	0.025 U	0.026 UL	0.022 U	0.024 J	0.021 U
1,4-Dioxane	123-91-1	250	24	0.0028	0.57 U	0.03 U	0.028 U	0.057 U	0.03 U	0.028 U	0.029 U	0.033 U	0.034 UL	0.029 U	0.028 U	0.027 U
2,4,5-Trichloropheno	95-95-4	88000	82000	120	0.65 U	0.034 U	0.031 U	0.065 U	0.035 U	0.032 U	0.033 U	0.037 U	0.038 U	0.032 U	0.032 U	0.03 U
2,4,6-Trichloropheno	88-06-2	880	210	0.46	0.23 U	0.012 U	0.011 U	0.023 U	0.012 U	0.011 U	0.012 U	0.013 U	0.014 U	0.012 U	0.011 U	0.011 U
2,4-Dichloropheno	120-83-2	2600	2500	1.1	0.52 U	0.027 U	0.025 U	0.052 U	0.028 U	0.025 U	0.027 U	0.03 U	0.031 U	0.026 U	0.026 U	0.024 U
2,4-Dimethylpheno	105-67-9	18000	16000	7.4	0.52 U	0.027 U	0.025 U	0.052 U	0.028 U	0.025 U	0.027 U	0.03 U	0.031 U	0.026 U	0.026 U	0.024 U
2,4-Dinitropheno	51-28-5	1800	1600	0.7	0.55 U	0.028 U	0.026 U	0.054 U	0.029 U	0.027 U	0.028 U	0.031 U	0.032 U	0.027 U	0.027 U	0.025 U
2,4-Dinitrotoluene	121-14-2	80	7.4	0.0059	0.44 U	0.023 U	0.021 U	0.044 U	0.023 U	0.021 U	0.023 U	0.025 U	0.026 UL	0.022 U	0.022 U	0.021 U
2,6-Dinitrotoluene	606-20-2	890	1.5	0.43	0.55 U	0.028 U	0.026 U	0.054 U	0.029 U	0.027 U	0.028 U	0.031 U	0.032 UL	0.027 U	0.027 U	0.025 U
2-Chloronaphthalene	91-58-7	64000	60000	41	0.012 U	0.00061 U	0.00057 U	0.0012 U	0.00062 U	0.00057 U	0.0006 U	0.00067 U	0.00069 UL	0.00058 U	0.00057 U	0.00054 U
2-Chloropheno	95-57-8	5100	5800	0.41	0.21 U	0.011 U	0.01 U	0.021 U	0.011 U	0.01 U	0.011 U	0.012 U	0.013 U	0.011 U	0.01 U	0.0099 U
2-Methylnaphthalene	91-57-6	8200	3000	0.51	0.4	0.00068 U	0.01	1.8	0.00069 U	0.0063 J	0.00067 U	0.11	0.00077 UL	0.0076 J	0.12	0.047
2-Methylpheno	95-48-7	44000	41000	13	0.29 U	0.015 U	0.014 U	0.028 U	0.015 U	0.014 U	0.015 U	0.016 U	0.017 U	0.014 U	0.014 U	0.013 U
2-Nitroaniline	88-74-4	8500	8000	1.3	0.24 U	0.012 U	0.011 U	0.024 U	0.013 U	0.011 U	0.012 U	0.014 U	0.014 UL	0.012 U	0.012 U	0.011 U
2-Nitropheno	88-75-5	NS	NS	NS	0.22 U	0.011 U	0.01 U	0.022 U	0.011 U	0.01 U	0.011 U	0.012 U	0.013 U	0.011 U	0.011 U	0.01 U
2-Toluidine	95-53-4	100	140	0.0024	0.94 U	0.049 U	0.045 U	0.093 U	0.05 U	0.045 U	0.048 U	0.054 U	0.055 UL	0.047 U	0.046 U	0.044 U
3 & 4 Methylpheno	MEPH3MEPH4	NS	NS	NS	0.52 U	0.027 U	0.025 U	0.052 U	0.028 U	0.025 U	0.027 U	0.03 U	0.031 U	0.026 U	0.026 U	0.024 U
3,3-Dichlorobenzidine	91-94-1	55	5.1	0.02	0.47 U	0.024 U	0.023 U	0.047 U	0.025 U	0.023 U	0.024 U	0.027 U	0.028 UL	0.023 UF2	0.023 U	0.022 U
3,3-Dimethoxybenzidine	119-90-4	1800	1.4	0.12	1.3 U	0.069 U	0.064 U	0.13 U	0.07 U	0.064 U	0.068 U	0.076 U	0.078 UL	0.066 U	0.065 U	0.062 U
3,3-Dimethylbenzidine	119-93-7	2.2	0.21	0.0008	1.6 U	0.085 U	0.079 U	0.16 U	0.087 U	0.08 U	0.084 U	0.094 U	0.096 UL	0.082 U	0.08 U	0.076 U
3-Nitroaniline	99-09-2	NS	NS	NS	0.42 U	0.022 U	0.02 U	0.041 U	0.022 U	0.02 U	0.021 U	0.024 U	0.024 UL	0.021 U	0.02 U	0.019 U
4,6-Dinitro-2-methylpheno	534-52-1	NS	66	NS	0.24 U	0.012 U	0.012 U	0.024 U	0.013 U	0.012 U	0.012 U	0.014 U	0.014 U	0.012 U	0.012 U	0.011 U
4-Bromophenyl phenyl ethe	101-55-3	NS	NS	NS	0.34 U	0.018 U	0.016 U	0.034 U	0.018 U	0.016 U	0.017 U	0.019 U	0.02 UL	0.017 U	0.017 U	0.016 U
4-Chloro-3-methylpheno	59-50-7	NS	82000	NS	0.55 U	0.028 U	0.026 U	0.054 U	0.029 U	0.027 U	0.028 U	0.031 U	0.032 U	0.027 U	0.027 U	0.025 U
4-Chloroaniline	106-47-8	120	11	0.0029	0.44 U	0.023 U	0.021 U	0.044 U	0.023 U	0.021 U	0.023 U	0.025 U	0.026 UL	0.022 U	0.022 U	0.021 U
4-Chlorophenyl phenyl ethe	7005-72-3	NS	NS	NS	0.34 U	0.018 U	0.016 U	0.034 U	0.018 U	0.016 U	0.017 U	0.019 U	0.02 UL	0.017 U	0.017 U	0.016 U
4-Nitroaniline	100-01-6	NS	110	NS	0.68 U	0.035 U	0.033 U	0.067 U	0.036 U	0.033 U	0.035 U	0.039 U	0.04 UL	0.034 U	0.033 U	0.031 U
4-Nitropheno	100-02-7	NS	NS	NS	0.44 U	0.023 U	0.021 U	0.044 U	0.023 U	0.021 U	0.023 U	0.025 U	0.026 U	0.022 U	0.022 U	0.021 U
Acenaphthene	83-32-9	66000	45000	61	0.02 U	0.001 U	0.00096 U	0.11	0.001 U	0.00096 U	0.001 U	0.0011 U	0.0012 UL	0.00098 U	0.01	0.00092 U
Acenaphthylene	208-96-8	74000		61	0.0091 U	0.00047 U	0.00044 U	0.047	0.00048 U	0.00044 U	0.00047 U	0.00052 U	0.00054 UL	0.00045 U	0.01	0.00042 U
Acetophenone	98-86-2	2500	120000	9.5	0.24 U	0.012 U	0.012 U	0.27	0.013 U	0.012 U	0.012 U	0.014 U	0.014 UL	0.012 U	0.012 U	0.011 U
Aniline	62-53-3	4300	400	0.08	21	0.055 J	0.014 U	0.53 J	2.4	0.45	0.015 U	0.016 U	0.017 UL	0.014 U	0.24 J	0.12 J
Anthracene	120-12-7	610000	230000	3100	0.02 U	0.0011 U	0.00098 U	0.28	0.0011 U	0.00098 U	0.001 U	0.0087 J	0.0012 UL	0.001 U	0.018	0.00094 U
Atrazine	1912-24-9	110	10	0.039	0.24 U	0.012 U	0.011 U	0.024 U	0.013 U	0.011 U	0.012 U	0.014 U	0.014 UL	0.012 U	0.012 U	0.011 U
Benzaldehyde	100-52-7	1200	820	2.2	0.31 U	0.016 U	0.015 U	0.16 J	0.017 U	0.015 U	0.016 U	0.02 J	0.018 UL	0.016 U	0.016 J	0.015 U
Benzidine	92-87-5	0.11	0.01	4.8E-06	3.6 J	0.039 U	0.037 U	0.075 U	0.04 U	0.037 U	0.039 U	0.043 U	0.044 UL	0.038 UF1	0.037 U	0.035 U
Benzo[a]anthracene	56-55-3	29	2.9	0.21	0.016 U	0.00085 U	0.00079 U	0.9	0.00087 U	0.0087	0.00084 U	0.02	0.00096 UL	0.00082 U	0.1	0.01
Benzo[a]pyrene	50-32-8	2.9	0.29	4.7	0.017 U	0.0087 U	0.0061 J	0.96	0.0088 U	0.0081 U	0.00885 U	0.02	0.00098 UL	0.00083 U	0.13	0.0007 U
Benzo[b]fluoranthene	205-99-2	29	2.9	0.71	0.015 U	0.0008 U	0.027	1.3	0.00081 U	0.028	0.00078 U	0.034	0.0009 UL	0.026	0.19	0.017
Benzo[g,h,i]perylene	191-24-2	23000	NS	37000	0.0091 U	0.00047 U	0.0095	0.6	0.00048 U	0.00044 U	0.00047 U	0.031	0.00054 UL	0.00045 U	0.12	0.00042 U
Benzo[k]fluoranthene	207-08-9	290	29	6.9	0.018 U	0.00092 U	0.00086 U	0.45	0.00094 U	0.0083 J	0.0009 U	0.018	0.001 UL	0.00088 U	0.075	0.00082 U
bis (2-chloroisopropyl) ethe	108-60-1	300	47000	0.0024	0.25 U	0.013 U	0.012 U	0.025 U	0.013 U	0.012 U	0.013 U	0.014 U	0.015 UL	0.012 U	0.012 U	0.011 U
Bis(2-chloroethoxy)methane	111-91-1	NS	2500	NS	0.57 U	0.03 U	0.028 U	0.057 U	0.03 U	0.028 U	0.029 U	0.033 U	0.034 UL	0.029 U	0.028 U	0.027 U
Bis(2-chloroethyl)ethe	111-44-4	13	1	6.3E-05	0.052 U	0.0027 U	0.0025 U	0.0052 U	0.0028 U	0.0025 U	0.0027 U	0.003 U	0.0031 UL	0.0026 U	0.0026 U	0.0024 U
Bis(2-ethylhexyl) phthalate	117-81-7	1800	160	29	1.4 J	0.036 J	0.028 J	0.049 U	0.03 J	0.033 J	0.038 J	0.034 J	0.029 UL	0.036 J	0.028 J	0.071 B
Butyl benzyl phthalate	85-68-7	13000	1200	10	0.26 U	0.014 U	0.013 U	0.026 U	0.014 U	0.013 U	0.013 U	0.015 U	0.015 UL	0.013 U	0.013 U	0.012 U
Caprolactam	105-60-2	440000	400000	39	0.97 U	0.05 U	0.047 U	0.096 U	0.051 U	0.047 U	0.049 U	0.055 U	0.057 UL	0.071 J	0.047 U	0.045 U
Carbazole	86-74-8	NS	NS	NS	0.71 U	0.037 U	0.034 U	0.19	0.037 U	0.034 U	0.036 U	0.04 U	0.041 UL	0.035 U	0.034 U	0.033 U
Chrysene	218-01-9	2900	290	21	0.029 U	0.0015 U	0.0014 U	1.1	0.0015 U	0.0014 U	0.0015 U	0.035	0.0017 UL	0.0014 U	0.14	0.019
Dibenz(a,h)anthracene	53-70-3	2.9	0.29	0.23	0.017 U	0.00089 U	0.00083 U	0.17	0.00091 U	0.00083 U	0.00088 U	0.00099 U	0.001 UL	0.00086 U	0.031	0.0008 U
Dibenzofuran	132-64-9	2000	1000	5.8	0.017 U	0.00089 U	0.00083 U	0.56	0.00091 U	0.00083 U	0.00088 U	0.031 J	0.001 UL	0.00086 U	0.035 J	0.013 J
Diethyl phthalate	84-66-2	700000	660000	100	0.42 U	0.022 U	0.02 U	0.041 U	0.022 U	0.02 U	0.021 U	0.024 U	0.024 UL	0.021 U	0.02 U	0.019 U
Dimethyl phthalate	131-11-3	NS	NS	NS	0.44 U	0.023 U	0.021 U	0.044 U	0.023 U	0.021 U	0.023 U	0.025 U	0.026 UL	0.022 U	0.022 U	0.021 U
Di-n-butyl phthalate	84-74-2	88000	82000	79	0.39 U	0.02 U	0.019 U	0.039 U	0.022 J	0.019 U	0.02 U	0.024 J	0.023 UL	0.032 J	0.02 J	0.018 U
Di-n-octyl phthalate	117-84-0	NS	8200	NS	0.21 U	0.011 U	0.0099 U	0.02 U	0.011 U	0.01 U	0.011 U	0.012 U	0.012 UL	0.01 U	0.01 U	0.0095 U
Diphenylamine	122-39-4	22000	21000	14	3.2	0.028 U	0.026 U	0.054 U	0.029 U	0.027 U	0.028 U	0.031 U	0.032 UL	0.027 U	0.027 U	0.025 U
Fluoranthene	206-44-0	30000	30000	1400	0.19	0.00075 U	0.00069 U	1.8	0.00076 U	0.00069 U	0.00073 U	0.048	0.00084 UL	0.00071 U	0.15	0.016
Fluorene	86-73-7	57000	30000	74	0.014 U	0.00072 U	0.00067 U	0.088	0.00073 U	0.00067 U	0.00071 U	0.0077 J	0.00081 UL	0.00069 U	0.0079 J	0.00064 U
Hexachlorobenzene	118-74-1	15	0.96	0.25	0.055 U	0.0028 U	0.0026 U	0.0054 U	0.0029 U	0.0027 U	0.0028 U	0.0031 U	0.0032 UL	0.0027 U	0.0027 U	0.0025 U
Hexachlorobutadiene	87-68-3	320	5.3	0.033	0.15 U	0.0076 U	0.0071 U	0.015 U	0.0077 U	0.0071 U	0.0074 U	0.0084 U	0.0086 UL	0.0073 U	0.0071 U	0.0068 U
Hexachlorocyclopentadiene	77-47-4	5300	7.5	3.1	0.21 U	0.011 U	0.01 U	0.021 U	0.011 U	0.01 U	0.011 U	0.012 U	0.012 UL	0.01 R	0.01 U	0.0098 U
Hexachloroethane	67-72-1	620	8	0.02	0.24 U	0.012 U	0.011 U	0.023 U	0.012 U	0.011 U	0.012 U	0.013 U	0.014 UL	0.012 U	0.011 U	0.011 U
Indeno[1,2,3-cd]pyrene	193-39-5	29	2.9	2.3	0.0091 U	0.00047 U	0.00044 U	0.49	0.00048 U	0.00044 U	0.00047 U	0.016	0.00054 UL	0.00045 U	0.092	0.00042 U
Isophorone	78-59-1	26000	2400	0.47	0.34 U	0.018 U	0.016 U	0.034 U	0.018 U	0.016 U	0.017 U	0.019 U	0.02 UL	0.017 U	0.017 U	0.016 U
Naphthalene	91-20-3	180	17	0.0094	0.83	0.0011 U	0.001 U	1.1	0.0011 U	0.001 U	0.0011 U	0.082	0.0013 UL	0.0011 U	0.089	0.022
Nitrobenzene	98-95-3	240	22	0.0016	0.057 U	0.003 U	0.0028 U	0.0057 U	0.003 U	0.0028 U	0.0029 U	0.0033 U	0.0034 UL	0.0029 U	0.0028 U	0.0027 U
N-Nitrosodi-n-propylamine	621-64-7	3.5	0.33	0.00014	0.16 U	0.0085 U	0.0079 U	0.016 U	0.0087 U	0.008 U	0.0084 U	0.0094 U	0.0096 UL	0.0082 U	0.008 U	0.0076 U
N-Nitrosodiphenylamine	86-30-6	5000	470	1.5	3.8	0.028 U	0.026 U	0.054 U	0.029 U	0.027 U	0.028 U	0.031 U	0.032 UL	0.027 U	0.027 U	0.025 U
Pentachloropheno	87-86-5	33	4	0.2	0.24 U	0.012 U	0.011 U	0.024 U	0.013 U	0.011 U	0.012 U	0.014 U	0.014 U	0.012 U	0.012 U	0.011 U
Phenanthrene	85-01-8	610000	NS	3200	0.19	0.0049 J	0.019	2.7	0.001 U	0.02	0.01	0.11	0.0011 UL	0.018	0.16	0.047
Phenol	108-95-2	260000	250000	54	0.19 U	0.0099 U	0.0092 U	0.038 J	0.01 U	0.0092 U	0.0097 U	0.011 U	0.011 U	0.0095 U	0.0093 U	0.0088 U
Pyrene	129-00-0	58000	23000	320	0.16 J	0.0006 U	0.0074 J	1.7	0.00061 U	0.015	0.00059 U	0.038	0.00067 UL	0.0066 J	0.14	0.016

Notes:
All concentrations reported in milligrams per kilogram (mg/kg
Underlined values exceed the WVDEP 60CSR3 Table 60-3B Migration to Groundwater Soil De Minimis Standa
Bolded values exceed the WVDEP 60CSR3 Table 60-3B Industrial Soil De Minimis Standar

U - Target analyte not detected above listed Method Detection Lim
J - Estimated result. Result is less greater than the Method Detection Limit but less than the labaratory method Reporting Li
B - Method blank contamination. The associated method blank contains the target analyte at a reportable le
K - Analyte is present. Reported value may be biased high. Actual value is expected to be low
L - Analyte is present. Reported value may be biased low. Actual value is expected to be high
R - Data was rejected during the data validation proces

TABLE 2
SUMMARY OF SOIL ANALYTICAL DATA
AOC 2 - FORMER PROCESS SEWERS AND WASTEWATER LINES
FORMER BASF HUNTINGTON WORKS FACILITY
HUNTINGTON, WEST VIRGINIA

				Location	AOC2-39	AOC2-40	AOC2-40	AOC2-41	AOC2-41
				Sample	AOC2-39-15	AOC2-40-10	AOC2-40-17.5	AOC2-41-12.5	AOC2-41-20
				Sample Type	N	N	N	N	N
				Matrix	SO	SO	SO	SO	SO
				Sample Date	09 Aug 2016	22 Aug 2016	22 Aug 2016	22 Aug 2016	22 Aug 2016
				Lab Sample ID	240-68193-2	240-68618-6	240-68618-7	240-68618-8	240-68618-9
				Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
	CAS NO.	WVDEP INDUSTRIAL SOIL DE MINIMIS STANDARD (MG/KG)	EPA INDUSTRIAL SOIL SCREENING LEVEL (MG/KG)	WVDEP MIGRATION TO GROUNDWATER DE MINIMIS STANDARD (MG/KG)					
SW6020A									
Aluminum	7429-90-5	1000000	1100000	470000	9200 K	12000 B	10000 B	7900 B	8300 B
Antimony	7440-36-0	820	470	5.7	2.8 L	0.06 L	0.072 L	0.055 L	0.069 L
Arsenic	7440-38-2	27	3	5.8	5.3	2.6	2.6	3.5	3.3
Barium	7440-39-3	360000	220000	1600	8300 J	160 K	100 K	86 K	84 K
Beryllium	7440-41-7	3900	2300	63	2.1 B	1.5 B	1.2 B	1 B	1.2 B
Cadmium	7440-43-9	800	980	7.5	0.16 JB	0.029 JB	0.16 JB	0.02 JB	0.2 B
Calcium	7440-70-2	NS	NS	NS	33000 K	2900	870	1000	630
Chromium	7440-47-3	NS	NS	NS	14 B	19 B	16 B	13 B	15 B
Cobalt	7440-48-4	600	350	4.2	5.7 B	2.8 B	15 B	4.7 B	18 B
Copper	7440-50-8	82000	47000	440	40 B	17 B	22 B	17 B	19 B
Iron	7439-89-6	1000000	820000	5500	17000	12000	13000	11000	14000
Lead	7439-92-1	1000	800	270	140 B	19	18	13	14
Magnesium	7439-95-4	NS	NS	NS	6200 B	1000 B	2400 B	1600 B	2300 B
Manganese	7439-96-5	72000	26000	960	900 B	52 B	98 B	52 B	240 B
Nickel	7440-02-0	38000	22000	410	21 B	11 B	23 B	12 B	23 B
Potassium	7440-09-7	NS	NS	NS	730 B	1000	1100	860	930
Selenium	7782-49-2	10000	5800	5.2	2	2.1	2.2	1.8	1.8
Silver	7440-22-4	10000	5800	13	0.047 J	0.056 J	0.04 J	0.039 J	0.03 J
Sodium	7440-23-5	NS	NS	NS	220 B	1500	1300	990	1400
Thallium	7440-28-0	20	12	2.8	0.13 J	0.21 J	0.15 J	0.13 J	0.13 J
Vanadium	7440-62-2	140	5800	22	18	21	22	16	19
Zinc	7440-66-6	610000	350000	5800	73 B	34 B	56 B	36 B	61 B
SW7471A									
Mercury	7439-97-6	610	46	2.1	0.068 J	0.032 J	0.025 J	0.043 J	0.031 J
SW8082									
Aroclor-1016	12674-11-2	50	27	1.8	0.03 U	NA	NA	NA	NA
Aroclor-1221	11104-28-2	12	0.83	0.0023	0.029 U	NA	NA	NA	NA
Aroclor-1232	11141-16-5	12	0.72	0.0023	0.02 U	NA	NA	NA	NA
Aroclor-1242	53469-21-9	10	0.95	0.11	0.025 U	NA	NA	NA	NA
Aroclor-1248	12672-29-6	10	0.95	0.1	0.21	NA	NA	NA	NA
Aroclor-1254	11097-69-1	10	0.97	0.18	0.018 U	NA	NA	NA	NA
Aroclor-1260	11096-82-5	10	0.99	0.47	0.023 U	NA	NA	NA	NA
Aroclor-1262	37324-23-5	NS	NS	NS	0.01 U	NA	NA	NA	NA
Aroclor-1268	11100-14-4	NS	NS	NS	0.025 U	NA	NA	NA	NA

TABLE 2
SUMMARY OF SOIL ANALYTICAL DATA
AOC 2 - FORMER PROCESS SEWERS AND WASTEWATER LINES
FORMER BASF HUNTINGTON WORKS FACILITY
HUNTINGTON, WEST VIRGINIA

				Location	AOC2-39	AOC2-40	AOC2-40	AOC2-41	AOC2-41
				Sample	AOC2-39-15	AOC2-40-10	AOC2-40-17.5	AOC2-41-12.5	AOC2-41-20
				Sample Type	N	N	N	N	N
				Matrix	SO	SO	SO	SO	SO
				Sample Date	09 Aug 2016	22 Aug 2016	22 Aug 2016	22 Aug 2016	22 Aug 2016
				Lab Sample ID	240-68193-2	240-68618-6	240-68618-7	240-68618-8	240-68618-9
				Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
	CAS NO.	WVDEP INDUSTRIAL SOIL DE MINIMIS STANDARD (MG/KG)	EPA INDUSTRIAL SOIL SCREENING LEVEL (MG/KG)	WVDEP MIGRATION TO GROUNDWATER DE MINIMIS STANDARD (MG/KG)					
SW8260B									
1,1,1-Trichloroethane	71-55-6	640	36000	1.4	0.0006 U	0.37 U	76 U	0.29 U	13 U
1,1,2,2-Tetrachloroethan	79-34-5	31	2.7	0.00053	0.00029 U	0.34 U	**70 U**	0.27 U	12 U
1,1,2-Trichloro-1,2,2-trifluoroethan	76-13-1	910	170000	2800	0.00039 U	0.57 U	120 U	0.45 U	20 U
1,1,2-Trichloroethane	79-00-5	57	5	0.032	0.00034 U	0.26 U	53 U	0.21 U	8.9 U
1,1-Dichloroethane	75-34-3	170	16	0.014	0.00031 U	0.48 U	98 U	0.38 U	16 U
1,1-Dichloroethene	75-35-4	1100	1000	0.05	0.00074 U	0.41 U	84 U	0.32 U	14 U
1,2,4-Trichlorobenzene	120-82-1	280	110	4.1	0.00054 J	50 K	**17000**	56	**3700**
1,2-Dibromo-3-Chloropropane	96-12-8	71	0.064	0.0017	0.0025 U	0.97 U	**200 U**	0.77 U	33 U
1,2-Dichlorobenzene	95-50-1	380	9300	12	0.00031 U	0.39 K	53 U	0.21 U	8.9 U
1,2-Dichloroethane	107-06-2	23	2	0.028	0.00042 U	0.14 U	**28 U**	0.11 U	4.7 U
1,2-Dichloropropane	78-87-5	47	4.4	0.033	0.00013 U	0.44 U	**90 U**	0.35 U	15 U
1,3-Dichlorobenzene	541-73-1	NS	NS	NS	0.00064 U	5.6 K	84 U	0.32 U	14 U
1,4-Dichlorobenzene	106-46-7	140	11	1.4	0.00026 U	45 K	110 U	1.8 J	19 U
2-Butanone (MEK)	78-93-3	28000	190000	21	0.0024 J	1 U	200 U	0.79 U	34 U
2-Hexanone	591-78-6	NS	1300	NS	0.00063 U	1.1 U	240 U	0.91 U	39 U
4-Methyl-2-pentanone (MIBK	108-10-1	3400	140000	4.7	0.0011 U	0.76 U	160 U	0.61 U	26 U
Acetone	67-64-1	110000	670000	47	0.022 B	3.1 U	630 U	2.4 U	110 U
Benzene	71-43-2	57	5.1	0.051	0.00083 U	0.12 U	25 U	0.097 U	4.2 U
Bromoform	75-25-2	3100	86	0.045	0.00022 U	0.83 U	170 U	0.66 U	28 U
Bromomethane	74-83-9	33	30	0.036	0.00039 U	0.7 U	**140 U**	0.55 U	24 U
Carbon disulfide	75-15-0	740	3500	4.5	0.00075 J	0.76 U	160 U	0.61 U	26 U
Carbon tetrachloride	56-23-5	32	2.9	0.039	0.0006 U	0.25 U	**50 U**	0.19 U	8.4 U
Chlorobenzene	108-90-7	760	1300	1.4	0.00049 U	0.58 K	36 U	0.14 U	6.1 U
Chlorodibromomethane	124-48-1	290	39	0.0043	0.00034 U	0.27 U	56 U	0.22 U	9.3 U
Chloroethane	75-00-3	2100	57000	120	0.00041 U	0.7 U	140 U	0.55 U	24 U
Chloroform	67-66-3	15	1.4	0.0011	0.00033 U	0.49 U	**100 U**	0.39 U	**17 U**
Chloromethane	74-87-3	510	460	0.98	0.00073 U	0.65 U	130 U	0.52 U	22 U
cis-1,2-Dichloroethene	156-59-2	82	2300	0.41	0.00026 U	0.52 U	**110 U**	0.41 U	18 U
cis-1,3-Dichloropropene	10061-01-5	NS	NS	NS	0.00065 U	0.3 U	62 U	0.24 U	10 U
Cyclohexane	110-82-7	120	27000	260	0.00044 U	0.41 U	84 U	0.32 U	14 U
Dichlorobromomethane	75-27-4	14	1.3	0.00064	0.00027 U	0.52 U	**110 U**	0.41 U	**18 U**
Dichlorodifluoromethane	75-71-8	800	370	11	0.00026 U	0.83 U	170 U	0.66 U	28 U
Ethylbenzene	100-41-4	290	25	16	0.00029 U	0.48 U	98 U	0.38 U	16 U
Ethylene Dibromide	106-93-4	1.8	0.16	0.00028	0.00049 U	0.44 U	**90 U**	0.35 U	**15 U**
Isopropylbenzene	98-82-8	270	9900	18	0.00018 U	0.18 U	36 U	0.14 U	6.1 U
Methyl acetate	79-20-9	29000	1200000	21	0.0019 U	0.75 U	150 U	0.59 U	26 U
Methyl tert-butyl ethe	1634-04-4	2300	210	0.056	0.0004 U	0.41 U	84 U	0.32 U	14 U
Methylcyclohexane	108-87-2	NS	NS	NS	0.00053 U	0.52 U	110 U	0.41 U	18 U
Methylene Chloride	75-09-2	3300	1000	0.026	0.00068 U	1.2 U	240 U	0.92 U	40 U
Styrene	100-42-5	870	35000	2.2	0.00037 U	0.37 U	76 U	0.29 U	13 U
Tetrachloroethene	127-18-4	170	100	0.045	0.00074 U	0.37 U	76 U	0.29 U	13 U
Toluene	108-88-3	820	47000	14	0.00025 U	0.14 U	28 U	0.11 U	4.7 U
trans-1,2-Dichloroethene	156-60-5	700	23000	0.59	0.00029 U	0.35 U	73 U	0.28 U	12 U
trans-1,3-Dichloropropene	10061-02-6	NS	NS	NS	0.00027 U	0.35 U	73 U	0.28 U	12 U
Trichloroethene	79-01-6	21	6	0.036	0.00035 U	0.53 U	**110 U**	0.42 U	18 U
Trichlorofluoromethane	75-69-4	1200	350000	14	0.00027 U	0.48 U	98 U	0.38 U	16 U
Vinyl chloride	75-01-4	21	1.7	0.014	0.00028 U	0.23 U	**48 U**	0.18 U	7.9 U
Xylenes, Tota	1330-20-7	260	2500	200	0.0005 U	0.44 U	90 U	0.35 U	15 U

TABLE 2
SUMMARY OF SOIL ANALYTICAL DATA
AOC 2 - FORMER PROCESS SEWERS AND WASTEWATER LINES
FORMER BASF HUNTINGTON WORKS FACILITY
HUNTINGTON, WEST VIRGINIA

				Location	AOC2-39	AOC2-40	AOC2-40	AOC2-41	AOC2-41
				Sample	AOC2-39-15	AOC2-40-10	AOC2-40-17.5	AOC2-41-12.5	AOC2-41-20
				Sample Type	N	N	N	N	N
				Matrix	SO	SO	SO	SO	SO
				Sample Date	09 Aug 2016	22 Aug 2016	22 Aug 2016	22 Aug 2016	22 Aug 2016
				Lab Sample ID	240-68193-2	240-68618-6	240-68618-7	240-68618-8	240-68618-9
				Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
	CAS NO.	WVDEP INDUSTRIAL SOIL DE MINIMIS STANDARD (MG/KG)	EPA INDUSTRIAL SOIL SCREENING LEVEL (MG/KG)	WVDEP MIGRATION TO GROUNDWATER DE MINIMIS STANDARD (MG/KG)					
SW8270D									
1,1-Bipheny	92-52-4	220	200	0.17	0.014 J	0.0047 U	0.044 U	0.017 U	0.046 U
1,2-Diphenylhydrazine(as Azobenzene	122-66-7	31	2.9	0.0054	0.022 U	0.023 U	0.21 U	0.082 U	0.23 U
1,4-Dioxane	123-91-1	250	24	0.0028	0.028 U	0.029 U	0.28 U	0.11 U	0.29 U
2,4,5-Trichloropheno	95-95-4	88000	82000	120	0.032 U	0.033 U	0.31 U	0.12 U	0.33 U
2,4,6-Trichloropheno	88-06-2	880	210	0.46	0.011 U	0.012 U	0.11 U	0.043 U	0.12 U
2,4-Dichloropheno	120-83-2	2600	2500	1.1	0.026 U	0.034 J	0.25 U	0.096 U	0.26 U
2,4-Dimethylpheno	105-67-9	18000	16000	7.4	0.026 U	0.027 U	0.25 U	0.096 U	0.26 U
2,4-Dinitropheno	51-28-5	1800	1600	0.7	0.027 U	0.028 U	0.26 U	0.1 U	0.28 U
2,4-Dinitrotoluene	121-14-2	80	7.4	0.0059	0.022 U	0.023 U	0.21 U	0.082 U	0.23 U
2,6-Dinitrotoluene	606-20-2	890	1.5	0.43	0.027 U	0.028 U	0.26 U	0.1 U	0.28 U
2-Chloronaphthalene	91-58-7	64000	60000	41	0.00057 U	0.0006 U	0.0056 U	0.0022 U	0.006 U
2-Chloropheno	95-57-8	5100	5800	0.41	0.01 U	0.011 U	0.1 U	0.039 U	0.11 U
2-Methylnaphthalene	91-57-6	8200	3000	0.51	0.068	0.00067 U	0.0063 U	0.0024 U	0.0066 U
2-Methylpheno	95-48-7	44000	41000	13	0.014 U	0.015 U	0.14 U	0.053 U	0.15 U
2-Nitroaniline	88-74-4	8500	8000	1.3	0.012 U	0.012 U	0.11 U	0.044 U	0.12 U
2-Nitropheno	88-75-5	NS	NS	NS	0.011 U	0.011 U	0.1 U	0.04 U	0.11 U
2-Toluidine	95-53-4	100	140	0.0024	0.046 U	0.048 U	0.45 U	0.17 U	0.48 U
3 & 4 Methylpheno	MEPH3MEPH4	NS	NS	NS	0.026 U	0.027 U	0.25 U	0.096 U	0.26 U
3,3-Dichlorobenzidine	91-94-1	55	5.1	0.02	0.023 U	0.024 U	0.23 U	0.087 U	0.24 U
3,3-Dimethoxybenzidine	119-90-4	1800	1.4	0.12	0.065 U	0.068 U	0.64 U	0.25 U	0.68 U
3,3-Dimethylbenzidine	119-93-7	2.2	0.21	0.0008	0.08 U	0.084 U	*0.79 U*	*0.3 U*	*0.83 U*
3-Nitroaniline	99-09-2	NS	NS	NS	0.02 U	0.021 U	0.2 U	0.077 U	0.21 U
4,6-Dinitro-2-methylpheno	534-52-1	NS	66	NS	0.012 U	0.012 U	0.12 U	0.044 U	0.12 U
4-Bromophenyl phenyl ethe	101-55-3	NS	NS	NS	0.017 U	0.017 U	0.16 U	0.063 U	0.17 U
4-Chloro-3-methylpheno	59-50-7	NS	82000	NS	0.027 U	0.028 U	0.26 U	0.1 U	0.28 U
4-Chloroaniline	106-47-8	120	11	0.0029	0.022 U	0.023 U	0.21 U	0.082 U	0.23 U
4-Chlorophenyl phenyl ethe	7005-72-3	NS	NS	NS	0.017 U	0.017 U	0.16 U	0.063 U	0.17 U
4-Nitroaniline	100-01-6	NS	110	NS	0.033 U	0.035 U	0.33 U	0.13 U	0.34 U
4-Nitropheno	100-02-7	NS	NS	NS	0.022 U	0.023 U	0.21 U	0.082 U	0.23 U
Acenaphthene	83-32-9	66000	45000	61	0.012	0.001 U	0.0095 U	0.0037 U	0.01 U
Acenaphthylene	208-96-8	74000		61	0.00045 U	0.00047 U	0.0044 U	0.0017 U	0.0046 U
Acetophenone	98-86-2	2500	120000	9.5	0.012 U	0.012 U	0.12 U	0.044 U	0.12 U
Aniline	62-53-3	4300	400	0.08	0.14 J	0.023 J	0.14 U	0.053 U	0.15 U
Anthracene	120-12-7	610000	230000	3100	0.013	0.001 U	0.0098 U	0.0038 U	0.01 U
Atrazine	1912-24-9	110	10	0.039	0.012 U	0.012 U	0.11 U	0.044 U	0.12 U
Benzaldehyde	100-52-7	1200	820	2.2	0.015 U	0.016 U	0.15 U	0.058 U	0.16 U
Benzidine	92-87-5	0.11	0.01	4.8E-06	0.037 U	0.039 U	**0.36 U**	**0.14 U**	**0.38 U**
Benzo[a]anthracene	56-55-3	29	2.9	0.21	0.046	0.00084 U	0.0079 U	0.003 U	0.0083 U
Benzo[a]pyrene	50-32-8	2.9	0.29	4.7	0.05	0.00085 U	0.008 U	0.0031 U	0.0085 U
Benzo[b]fluoranthene	205-99-2	29	2.9	0.71	0.088	0.00079 U	0.0074 U	0.0028 U	0.0078 U
Benzo[g,h,i]perylene	191-24-2	23000	NS	37000	0.047	0.00047 U	0.0044 U	0.0017 U	0.0046 U
Benzo[k]fluoranthene	207-08-9	290	29	6.9	0.029	0.00091 U	0.0085 U	0.0033 U	0.009 U
bis (2-chloroisopropyl) ethe	108-60-1	300	47000	0.0024	0.012 U	0.013 U	0.12 U	0.046 U	0.13 U
Bis(2-chloroethoxy)methane	111-91-1	NS	2500	NS	0.028 U	0.029 U	0.28 U	0.11 U	0.29 U
Bis(2-chloroethyl)ethe	111-44-4	13	1	6.3E-05	0.0026 U	0.0027 U	0.025 U	0.0096 U	0.026 U
Bis(2-ethylhexyl) phthalate	117-81-7	1800	160	29	0.1 B	0.027 J	0.24 U	0.091 U	0.25 U
Butyl benzyl phthalate	85-68-7	13000	1200	10	0.013 U	0.013 U	0.13 U	0.048 U	0.13 U
Caprolactam	105-60-2	440000	400000	39	0.047 U	0.049 U	0.46 U	0.18 U	0.49 U
Carbazole	86-74-8	NS	NS	NS	0.034 U	0.036 U	0.34 U	0.13 U	0.36 U
Chrysene	218-01-9	2900	290	21	0.067	0.0015 U	0.014 U	0.0053 U	0.015 U
Dibenz(a,h)anthracene	53-70-3	2.9	0.29	0.23	0.00084 U	0.00088 U	0.0083 U	0.0032 U	0.0087 U
Dibenzofuran	132-64-9	2000	1000	5.8	0.026 J	0.00088 U	0.0083 U	0.0032 U	0.0087 U
Diethyl phthalate	84-66-2	700000	660000	100	0.02 U	0.021 U	0.2 U	0.077 U	0.21 U
Dimethyl phthalate	131-11-3	NS	NS	NS	0.022 U	0.023 U	0.21 U	0.082 U	0.23 U
Di-n-butyl phthalate	84-74-2	88000	82000	79	0.024 JB	0.02 U	0.19 U	0.072 U	0.2 U
Di-n-octyl phthalate	117-84-0	NS	8200	NS	0.01 U	0.011 U	0.099 U	0.038 U	0.1 U
Diphenylamine	122-39-4	22000	21000	14	0.027 U	0.15	0.26 U	0.1 U	0.28 U
Fluoranthene	206-44-0	30000	30000	1400	0.078	0.00073 U	0.0069 U	0.0026 U	0.0073 U
Fluorene	86-73-7	57000	30000	74	0.0099	0.00071 U	0.0066 U	0.0026 U	0.007 U
Hexachlorobenzene	118-74-1	15	0.96	0.25	0.0027 U	0.0028 U	0.026 U	0.01 U	0.028 U
Hexachlorobutadiene	87-68-3	320	5.3	0.033	0.0071 U	0.0075 U	0.07 U	0.027 U	0.074 U
Hexachlorocyclopentadiene	77-47-4	5300	7.5	3.1	0.01 U	0.011 U	0.1 U	0.039 U	0.11 U
Hexachloroethane	67-72-1	620	8	0.02	0.011 U	0.012 U	0.11 U	0.043 U	0.12 U
Indeno[1,2,3-cd]pyrene	193-39-5	29	2.9	2.3	0.032	0.00047 U	0.0044 U	0.0017 U	0.0046 U
Isophorone	78-59-1	26000	2400	0.47	0.017 U	0.017 U	0.16 U	0.063 U	0.17 U
Naphthalene	91-20-3	180	17	0.0094	0.036	0.0011 U	0.01 U	0.0039 U	0.011 U
Nitrobenzene	98-95-3	240	22	0.0016	0.0028 U	0.0029 U	0.028 U	0.011 U	0.029 U
N-Nitrosodi-n-propylamine	621-64-7	3.5	0.33	0.00014	0.008 U	0.0084 U	0.079 U	0.03 U	0.083 U
N-Nitrosodiphenylamine	86-30-6	5000	470	1.5	0.027 U	0.18	0.26 U	0.1 U	0.28 U
Pentachloropheno	87-86-5	33	4	0.2	0.012 U	0.012 U	0.11 U	0.044 U	0.12 U
Phenanthrene	85-01-8	610000	NS	3200	0.094	0.00097 U	0.0091 U	0.0035 U	0.0097 U
Phenol	108-95-2	260000	250000	54	0.0093 U	0.0097 U	0.091 U	0.035 U	0.097 U
Pyrene	129-00-0	58000	23000	320	0.074	0.00059 U	0.0055 U	0.0021 U	0.0058 U

Notes:
All concentrations reported in milligrams per kilogram (mg/kg
Underlined values exceed the WVDEP 60CSR3 Table 60-3B Migration to Groundwater Soil De Minimis Standa
Bolded values exceed the WVDEP 60CSR3 Table 60-3B Industrial Soil De Minimis Standar

U - Target analyte not detected above listed Method Detection Lim
J - Estimated result. Result is less greater than the Method Detection Limit but less than the labaratory method Reporting Li
B - Method blank contamination. The associated method blank contains the target analyte at a reportable le
K - Analyte is present. Reported value may be biased high. Actual value is expected to be low
L - Analyte is present. Reported value may be biased low. Actual value is expected to be high
R - Data was rejected during the data validation proces

TABLE 2
SUMMARY OF SOIL ANALYTICAL DATA
AOC 6 - AST AREAS
FORMER BASF HUNTINGTON WORKS FACILITY
HUNTINGTON, WEST VIRGINIA

				Location	AOC6-07	AOC6-07	AOC6-07	AOC6-08	AOC6-08	AOC6-08	AOC6-09	AOC6-09	AOC6-09	AOC6-10	AOC6-10	AOC6-10	AOC6-10	AOC6-17B
				Sample	AOC6-07-2.5	AOC6-07-20	AOC6-07-7.5	AOC6-08-15	AOC6-08-20	AOC6-08-5	AOC6-09-10	AOC6-09-15	AOC6-09-20	AOC6-10-10	AOC6-10-15	AOC6-10-20	AOC6-10-5	AOC6-17-10
				Sample Type	N	N	N	N	N	N	N	N	N	N	N	N	N	N
				Matrix	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
				Sample Date	16 Aug 2016	16 Aug 2016	16 Aug 2016	19 Aug 2016	19 Aug 2016	19 Aug 2016	17 Aug 2016	17 Aug 2016	17 Aug 2016	17 Aug 2016	17 Aug 2016	17 Aug 2016	17 Aug 2016	16 Aug 2016
				Lab Sample ID	240-68451-1	240-68451-3	240-68451-2	240-68573-4	240-68573-5	240-68573-3	240-68448-12	240-68448-13	240-68448-14	240-68448-10	240-68448-11	240-68448-9	240-68448-8	240-68448-1
				Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
	CAS NO.	WVDEP INDUSTRIAL SOIL DE MINIMIS STANDARD (MG/KG)	EPA INDUSTRIAL SOIL SCREENING LEVEL (MG/KG)	WVDEP MIGRATION TO GROUNDWATER DE MINIMIS STANDARD (MG/KG)														
M8015D																		
Diesel Range Organics [C10 - C28]	PHCC10C28	8300		170	3500	11 J	350	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	150
M8015V																		
Gasoline Range Organics [C6 - C10]	PHCC6C10	**6600**		83	1100	70 L	990 L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1000 L
SW6020A																		
Lead	7439-92-1	1000	800	270	790 B	5.2 B	35 B	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.1 B
SW8260B																		
1,1,1-Trichloroethane	71-55-6	640	36000	1.4	0.21 UL	0.54 U	19 U	0.8 U	0.035 U	0.037 U	0.00056 U	NA	NA	NA	NA	0.00081 U	0.81 UL	32 U
1,1,2,2-Tetrachloroethane	79-34-5	31	2.7	0.00053	0.2 UL	0.5 U	18 U	0.74 U	0.032 U	0.034 U	0.00027 U	NA	NA	NA	NA	0.00039 U	0.75 UL	29 U
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	910	170000	2800	0.33 UL	0.84 U	30 U	1.2 U	0.054 U	0.058 U	0.00036 U	NA	NA	NA	NA	0.00053 U	1.3 UL	49 U
1,1,2-Trichloroethane	79-00-5	57	5	0.032	0.15 UL	0.38 U	14 U	0.56 U	0.024 U	0.026 U	0.00032 U	NA	NA	NA	NA	0.00046 U	0.57 UL	22 U
1,1-Dichloroethane	75-34-3	170	16	0.014	0.28 UL	0.7 U	25 U	1 U	0.045 U	0.048 U	0.00029 U	NA	NA	NA	NA	0.00043 U	1 UL	41 U
1,1-Dichloroethene	75-35-4	1100	1000	0.05	0.24 UL	0.6 U	22 U	0.89 U	0.039 U	0.041 U	0.00069 U	NA	NA	NA	NA	0.001 U	0.9 UL	35 U
1,2,4-Trichlorobenzene	120-82-1	280	110	4.1	0.24 UL	0.6 U	22 U	150 K	0.8	0.17 J	0.00033 U	NA	NA	NA	NA	0.00048 U	0.9 UL	35 U
1,2-Dibromo-3-Chloropropane	96-12-8	71	0.064	0.0017	0.56 UL	1.4 U	51 U	2.1 U	0.091 U	0.098 U	0.0023 U	NA	NA	NA	NA	0.0034 U	2.1 UL	**83 U**
1,2-Dichlorobenzene	95-50-1	380	9300	12	0.15 UL	0.38 U	14 U	0.87 K	0.024 U	0.32 J	0.00029 U	NA	NA	NA	NA	0.00043 U	2 L	22 U
1,2-Dichloroethane	107-06-2	23	2	0.028	0.079 UL	0.2 U	7.2 U	0.3 U	0.013 U	0.014 U	0.0004 U	NA	NA	NA	NA	0.00058 U	0.3 UL	12 U
1,2-Dichloropropane	78-87-5	47	4.4	0.033	0.25 UL	0.64 U	23 U	0.95 U	0.041 U	0.044 U	0.00012 U	NA	NA	NA	NA	0.00018 U	0.96 UL	38 U
1,3-Dichlorobenzene	541-73-1	NS	NS	NS	0.24 UL	0.6 U	22 U	1.9 K	0.039 U	0.19 J	0.00059 U	NA	NA	NA	NA	0.00086 U	0.9 UL	35 U
1,4-Dichlorobenzene	106-46-7	140	11	1.4	0.32 UL	0.82 U	29 U	1.2 U	0.053 U	1.4	0.00024 U	NA	NA	NA	NA	0.00035 U	1.2 UL	48 U
2-Butanone (MEK)	78-93-3	28000	190000	21	0.57 UL	1.5 U	52 U	2.2 U	0.094 U	0.1 U	0.0047 J	NA	NA	NA	NA	0.014 J	2.2 UL	86 U
2-Hexanone	591-78-6	NS	1300	NS	0.66 UL	1.7 U	60 U	2.5 U	0.11 U	0.12 U	0.00059 U	NA	NA	NA	NA	0.00085 U	2.5 UL	99 U
4-Methyl-2-pentanone (MIBK)	108-10-1	3400	140000	4.7	0.44 UL	1.1 U	40 U	1.7 U	0.072 U	0.077 U	0.0011 U	NA	NA	NA	NA	0.0015 U	1.7 UL	66 U
Acetone	67-64-1	110000	670000	47	1.8 UL	4.5 U	160 U	6.7 U	0.29 U	0.31 U	0.028 JB	NA	NA	NA	NA	0.059	6.8 UL	270 U
Benzene	71-43-2	57	5.1	0.051	0.44 L	0.18 U	6.5 U	0.27 U	0.11 J	0.081 J	0.014	NA	NA	NA	NA	0.0011 U	0.27 UL	11 U
Bromoform	75-25-2	3100	86	0.045	0.48 UL	1.2 U	44 U	1.8 U	0.078 U	0.084 U	0.00021 U	NA	NA	NA	NA	0.0003 U	1.8 UL	72 U
Bromomethane	74-83-9	33	30	0.036	0.4 UL	1 U	**37 U**	1.5 U	0.066 U	0.07 U	0.00036 U	NA	NA	NA	NA	0.00053 U	1.5 UL	**60 U**
Carbon disulfide	75-15-0	740	3500	4.5	0.44 UL	1.1 U	40 U	1.7 U	0.072 U	0.077 U	0.00051 U	NA	NA	NA	NA	0.00074 U	1.7 UL	66 U
Carbon tetrachloride	56-23-5	32	2.9	0.039	0.14 UL	0.36 U	13 U	0.53 U	0.023 U	0.025 U	0.00056 U	NA	NA	NA	NA	0.00081 U	0.54 UL	21 U
Chlorobenzene	108-90-7	760	1300	1.4	0.1 UL	0.26 U	9.3 U	0.38 U	0.017 U	0.37	0.00046 U	NA	NA	NA	NA	0.00066 U	0.39 UL	15 U
Chlorodibromomethane	124-48-1	290	39	0.0043	0.16 UL	0.4 U	14 U	0.59 U	0.026 U	0.028 U	0.00032 U	NA	NA	NA	NA	0.00046 U	0.6 UL	23 U
Chloroethane	75-00-3	2100	57000	120	0.4 UL	1 U	37 U	1.5 U	0.066 U	0.07 U	0.00038 U	NA	NA	NA	NA	0.00055 U	1.5 UL	60 U
Chloroform	67-66-3	15	1.4	0.0011	0.28 UL	0.72 U	**26 U**	1.1 U	0.046 U	0.05 U	0.00031 U	NA	NA	NA	NA	0.00045 U	1.1 UL	**42 U**
Chloromethane	74-87-3	510	460	0.98	0.38 UL	0.95 UL	34 UL	1.4 UL	0.062 UL	0.066 UL	0.00068 U	NA	NA	NA	NA	0.00099 U	1.4 UL	56 UL
cis-1,2-Dichloroethene	156-59-2	82	2300	0.41	0.3 UL	0.76 U	27 U	1.1 U	0.049 U	0.052 U	0.00024 U	NA	NA	NA	NA	0.00035 U	1.1 UL	45 U
cis-1,3-Dichloropropene	10061-01-5	NS	NS	NS	0.17 UL	0.44 U	16 U	0.65 U	0.028 U	0.03 U	0.00061 U	NA	NA	NA	NA	0.00089 U	0.66 UL	26 U
Cyclohexane	110-82-7	120	27000	260	0.24 UL	0.6 U	22 U	0.89 U	0.039 U	0.041 U	0.00041 U	NA	NA	NA	NA	0.0006 U	0.9 UL	35 U
Dichlorobromomethane	75-27-4	14	1.3	0.00064	0.3 UL	0.76 U	**27 U**	1.1 U	0.049 U	0.052 U	0.00025 U	NA	NA	NA	NA	0.00036 U	1.1 UL	**45 U**
Dichlorodifluoromethane	75-71-8	800	370	11	0.48 UL	1.2 U	44 U	1.8 U	0.078 U	0.084 U	0.00024 U	NA	NA	NA	NA	0.00035 U	1.8 UL	72 U
Ethylbenzene	100-41-4	290	25	16	45 L	57 K	**990**	1 U	0.046 J	5.5	0.00083 B	NA	NA	NA	NA	0.0004 U	5.7 L	**1500**
Ethylene Dibromide	106-93-4	1.8	0.16	0.00028	0.25 UL	0.64 U	**23 U**	0.95 U	0.041 U	0.044 U	0.00046 U	NA	NA	NA	NA	0.00066 U	0.96 UL	**38 U**
Isopropylbenzene	98-82-8	270	9900	18	21 L	2.4 K	26 J	0.38 U	0.017 U	1.2	0.00017 U	NA	NA	NA	NA	0.00025 U	0.39 UL	64 J
Methyl acetate	79-20-9	29000	1200000	21	0.43 UL	1.1 U	39 U	1.6 U	0.14 J	0.12 J	0.0017 U	NA	NA	NA	NA	0.0025 U	1.6 UL	65 U
Methyl tert-butyl ether	1634-04-4	2300	210	0.056	0.24 UL	0.6 U	22 U	0.89 U	0.039 U	0.041 U	0.00037 U	NA	NA	NA	NA	0.00054 U	0.9 UL	35 U
Methylcyclohexane	108-87-2	NS	NS	NS	0.3 UL	0.76 U	27 U	1.1 U	0.049 U	0.052 U	0.0005 U	NA	NA	NA	NA	0.00073 U	1.1 UL	45 U
Methylene Chloride	75-09-2	3300	1000	0.026	0.67 UL	1.7 U	61 U	2.5 U	0.11 U	0.12 U	0.00064 U	NA	NA	NA	NA	0.00093 U	2.5 UL	100 U
Styrene	100-42-5	870	35000	2.2	0.21 UL	0.54 U	19 U	0.8 U	0.035 U	0.037 U	0.00034 U	NA	NA	NA	NA	0.0005 U	0.81 UL	32 U
Tetrachloroethene	127-18-4	170	100	0.045	0.21 UL	0.54 U	19 U	0.8 U	0.035 U	0.037 U	0.00069 U	NA	NA	NA	NA	0.001 U	0.81 UL	32 U
Toluene	108-88-3	820	47000	14	6.5 L	12 K	**1100 B**	4.5 K	1.9 B	2.3 B	0.0024 J	NA	NA	NA	NA	0.00034 U	0.59 LB	**1300 B**
trans-1,2-Dichloroethene	156-60-5	700	23000	0.59	0.2 UL	0.52 U	19 U	0.77 U	0.033 U	0.036 U	0.00028 U	NA	NA	NA	NA	0.0004 U	0.78 UL	31 U
trans-1,3-Dichloropropene	10061-02-6	NS	NS	NS	0.2 UL	0.52 U	19 U	0.77 U	0.033 U	0.036 U	0.00025 U	NA	NA	NA	NA	0.00036 U	0.78 UL	31 U
Trichloroethene	79-01-6	21	6	0.036	0.31 UL	0.78 U	**28 U**	1.2 U	0.05 U	0.054 U	0.00033 U	NA	NA	NA	NA	0.00048 U	1.2 UL	**46 U**
Trichlorofluoromethane	75-69-4	1200	350000	14	0.28 UL	0.7 U	25 U	1 U	0.045 U	0.048 U	0.00025 U	NA	NA	NA	NA	0.00036 U	1 UL	41 U
Vinyl chloride	75-01-4	21	1.7	0.014	0.13 UL	0.34 U	12 U	0.5 U	0.022 U	0.023 U	0.00026 U	NA	NA	NA	NA	0.00038 U	0.51 UL	20 U
Xylenes, Tota	1330-20-7	260	2500	200	45 L	230 K	**4500**	1 K	0.092 J	11	0.0056 J	NA	NA	NA	NA	0.00068 U	130 L	**6800**

TABLE 2
SUMMARY OF SOIL ANALYTICAL DATA
AOC 6 - AST AREAS
FORMER BASF HUNTINGTON WORKS FACILITY
HUNTINGTON, WEST VIRGINIA

					Location	AOC6-07	AOC6-07	AOC6-07	AOC6-08	AOC6-08	AOC6-08	AOC6-09	AOC6-09	AOC6-09	AOC6-10	AOC6-10	AOC6-10	AOC6-10	AOC6-17B
					Sample	AOC6-07-2.5	AOC6-07-20	AOC6-07-7.5	AOC6-08-15	AOC6-08-20	AOC6-08-5	AOC6-09-10	AOC6-09-15	AOC6-09-20	AOC6-10-10	AOC6-10-15	AOC6-10-20	AOC6-10-5	AOC6-17-10
					Sample Type	N	N	N	N	N	N	N	N	N	N	N	N	N	N
					Matrix	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
					Sample Date	16 Aug 2016	16 Aug 2016	16 Aug 2016	19 Aug 2016	19 Aug 2016	19 Aug 2016	17 Aug 2016	17 Aug 2016	17 Aug 2016	17 Aug 2016	17 Aug 2016	17 Aug 2016	17 Aug 2016	16 Aug 2016
					Lab Sample ID	240-68451-1	240-68451-3	240-68451-2	240-68573-4	240-68573-5	240-68573-3	240-68448-12	240-68448-13	240-68448-14	240-68448-10	240-68448-11	240-68448-9	240-68448-8	240-68448-1
					Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
SW8270D																			
1,1-Biphenyl	92-52-4	220	200	0.17		0.16 U	0.041 U	3.9 U	0.09 UL	0.091 U	0.1 UL	1.2 U	0.0051 U	0.0048 U	0.49 U	0.0069 U	0.0057 U	1.3 U	0.22 U
1,2-Diphenylhydrazine(as Azobenzene)	122-66-7	31	2.9	0.0054		0.76 U	0.2 U	19 U	0.44 UL	0.44 U	0.49 UL	6 U	0.025 U	0.023 U	2.4 U	0.034 U	0.028 U	*6.4 U*	1 U
1,4-Dioxane	123-91-1	250	24	0.0028		0.99 U	0.26 U	24 U	0.57 UL	0.57 U	0.64 UL	7.7 U	0.032 U	0.03 U	3.1 U	0.044 U	0.036 U	8.3 U	1.4 U
2,4,5-Trichlorophenol	95-95-4	88000	82000	120		1.1 U	0.3 U	28 U	0.64 U	0.65 U	0.72 UL	8.8 U	0.037 U	0.034 U	3.5 U	0.049 U	0.04 U	9.4 U	1.5 U
2,4,6-Trichlorophenol	88-06-2	880	210	0.46		0.4 U	0.11 U	9.9 U	0.23 U	0.23 U	0.26 UL	3.1 U	0.013 U	0.012 U	1.2 U	0.018 U	0.014 U	3.4 U	0.55 U
2,4-Dichlorophenol	120-83-2	2600	2500	1.1		0.9 U	0.24 U	22 U	0.51 U	0.52 U	0.58 UL	7 U	0.029 U	0.027 U	2.8 U	0.04 U	0.032 U	7.6 U	1.2 U
2,4-Dimethylphenol	105-67-9	18000	16000	7.4		1.1 J	0.24 U	22 U	0.51 U	0.52 U	0.58 UL	7 U	0.029 U	0.027 U	2.8 U	0.04 U	0.032 U	7.6 U	1.8 J
2,4-Dinitrophenol	51-28-5	1800	1600	0.7		0.94 U	0.25 U	23 U	0.54 U	0.55 U	0.61 UL	7.4 U	0.031 U	0.029 U	2.9 U	0.042 U	0.034 U	7.9 U	1.3 U
2,4-Dinitrotoluene	121-14-2	80	7.4	0.0059		0.76 U	0.2 U	19 U	0.44 UL	0.44 U	0.49 UL	6 U	0.025 U	0.023 U	2.4 U	0.034 U	0.15 J	6.4 U	1 U
2,6-Dinitrotoluene	606-20-2	890	1.5	0.43		0.94 U	0.25 U	23 U	0.54 UL	0.55 U	0.61 UL	7.4 U	0.031 U	0.029 U	2.9 U	0.042 U	0.034 U	7.9 U	1.3 U
2-Chloronaphthalene	91-58-7	64000	60000	41		0.02 U	0.0053 U	0.5 U	0.012 UL	0.012 U	0.013 UL	0.16 U	0.00066 U	0.00061 U	0.063 U	0.00089 U	0.00073 U	0.17 U	0.028 U
2-Chlorophenol	95-57-8	5100	5800	0.41		0.37 U	0.097 U	9.1 U	0.21 U	0.21 U	0.24 UL	2.9 U	0.012 U	0.011 U	1.1 U	0.016 U	0.013 U	3.1 U	0.51 U
2-Methylnaphthalene	91-57-6	8200	3000	0.51		0.022 U	0.0059 U	0.56 U	0.013 UL	0.013 U	0.014 UL	0.18 U	0.00074 U	0.0094	0.07 U	0.00099 U	0.0023 J	0.19 U	0.031 U
2-Methylphenol	95-48-7	44000	41000	13		0.49 U	0.13 U	12 U	0.28 U	0.29 U	0.32 UL	3.9 U	0.016 U	0.015 U	1.5 U	0.022 U	0.018 U	4.2 U	0.76 J
2-Nitroaniline	88-74-4	8500	8000	1.3		0.41 U	0.11 U	10 U	0.23 UL	0.24 U	0.26 UL	3.2 U	0.013 U	0.012 U	1.3 U	0.018 U	0.015 U	3.4 U	0.56 U
2-Nitrophenol	88-75-5	NS	NS	NS		0.37 U	0.098 U	9.2 U	0.21 U	0.22 U	0.24 UL	2.9 U	0.012 U	0.011 U	1.2 U	0.016 U	0.013 U	3.1 U	0.51 U
2-Toluidine	95-53-4	100	140	0.0024		1.6 U	0.43 U	40 U	0.93 UL	0.94 U	1 UL	13 U	0.053 U	0.049 U	5 U	0.071 U	0.058 U	14 U	2.2 U
3 & 4 Methylphenol	MEPH3MEPH4	NS	NS	NS		0.9 U	0.24 U	22 U	0.51 U	0.52 U	0.58 UL	7 U	0.029 U	0.027 U	2.8 U	0.04 U	0.032 U	7.6 U	1.2 U
3,3-Dichlorobenzidine	91-94-1	55	5.1	0.02		0.81 U	0.21 U	20 U	0.46 UL	0.47 U	0.52 UL	6.3 U	0.026 U	0.025 U	2.5 U	0.036 U	0.029 U	6.8 U	1.1 U
3,3-Dimethoxybenzidine	119-90-4	1800	1.4	0.12		2.3 U	0.6 U	57 U	1.3 UL	1.3 U	1.5 UL	18 U	0.075 U	0.07 U	7.1 U	0.1 U	0.083 U	19 U	3.1 U
3,3-Dimethylbenzidine	119-93-7	2.2	0.21	0.0008		**2.8 U**	0.74 U	**70 U**	1.6 UL	1.6 U	1.8 UL	**22 U**	0.093 U	0.086 U	**8.8 U**	0.12 U	0.1 U	**24 U**	**3.9 U**
3-Nitroaniline	99-09-2	NS	NS	NS		0.72 U	0.19 U	18 U	0.41 UL	0.42 U	0.46 UL	5.6 U	0.024 U	0.022 U	2.2 U	0.032 U	0.026 U	6 U	0.99 U
4,6-Dinitro-2-methylphenol	534-52-1	NS	66	NS		0.41 U	0.11 U	10 U	0.24 U	0.24 U	0.27 UL	3.2 U	0.014 U	0.013 U	1.3 U	0.018 U	0.015 U	3.5 U	0.57 U
4-Bromophenyl phenyl ether	101-55-3	NS	NS	NS		0.58 U	0.15 U	14 U	0.33 UL	0.34 U	0.38 UL	4.6 U	0.019 U	0.018 U	1.8 U	0.026 U	0.021 U	4.9 U	0.8 U
4-Chloro-3-methylphenol	59-50-7	NS	82000	NS		0.94 U	0.25 U	23 U	0.54 U	0.55 U	0.61 UL	7.4 U	0.031 U	0.029 U	2.9 U	0.042 U	0.034 U	7.9 U	1.3 U
4-Chloroaniline	106-47-8	120	11	0.0029		0.76 U	0.2 U	19 U	0.44 UL	0.44 U	0.49 UL	6 U	0.025 U	0.023 U	2.4 U	0.034 U	0.028 U	6.4 U	1 U
4-Chlorophenyl phenyl ether	7005-72-3	NS	NS	NS		0.58 U	0.15 U	14 U	0.33 UL	0.34 U	0.38 UL	4.6 U	0.019 U	0.018 U	1.8 U	0.026 U	0.021 U	4.9 U	0.8 U
4-Nitroaniline	100-01-6	NS	110	NS		1.2 U	0.31 U	29 U	0.67 UL	0.68 U	0.75 UL	9.1 U	0.038 U	0.035 U	3.6 U	0.051 U	0.042 U	9.8 U	1.6 U
4-Nitrophenol	100-02-7	NS	NS	NS		0.76 U	0.2 U	19 U	0.44 U	0.44 U	0.49 UL	6 U	0.025 U	0.023 U	2.4 U	0.034 U	0.028 U	6.4 U	1 U
Acenaphthene	83-32-9	66000	45000	61		0.034 U	0.009 U	0.84 U	0.02 UL	0.02 U	0.022 UL	0.27 U	0.0011 U	0.001 U	0.11 U	0.0015 U	0.0012 U	0.29 U	0.047 U
Acenaphthylene	208-96-8	74000		61		0.016 U	0.0041 U	0.39 U	0.009 UL	0.0091 U	0.01 UL	0.12 U	0.00051 U	0.00048 U	0.049 U	0.00069 U	0.00057 U	0.13 U	0.022 U
Acetophenone	98-86-2	2500	120000	9.5		0.41 U	0.11 U	10 U	0.24 UL	0.24 U	0.27 UL	3.2 U	0.014 U	0.013 U	1.3 U	0.018 U	0.015 U	3.5 U	0.57 U
Aniline	62-53-3	4300	400	0.08		49 B	12 B	1100 B	21 L	170	20 L	1100 B	3.5 B	0.025 B	120 B	0.59 JB	0.15 B	*590 B*	6 J
Anthracene	120-12-7	610000	230000	3100		0.035 U	0.0092 U	0.87 U	0.02 UL	0.02 U	0.023 UL	0.27 U	0.0011 U	0.0011 U	0.11 U	0.0015 U	0.0013 U	0.29 U	0.048 U
Atrazine	1912-24-9	110	10	0.039		0.41 U	0.11 U	10 U	0.23 UL	0.24 U	0.26 UL	3.2 U	0.013 U	0.012 U	1.3 U	0.018 U	0.015 U	3.4 U	0.56 U
Benzaldehyde	100-52-7	1200	820	2.2		0.54 U	0.14 U	13 U	0.31 UL	0.31 U	0.35 UL	4.2 U	0.018 U	0.016 U	1.7 U	0.053 J	0.019 U	4.5 U	0.74 U
Benzidine	92-87-5	0.11	0.01	4.8E-06		**1.3 U**	**0.34 U**	**32 U**	**0.75 UL**	**0.75 U**	**0.84 UL**	**10 U**	0.043 U	0.04 U	**4.1 U**	0.057 U	0.047 U	**11 U**	**1.8 U**
Benzo[a]anthracene	56-55-3	29	2.9	0.21		0.028 U	0.0074 U	0.7 U	0.016 UL	0.016 U	0.17 L	0.22 U	0.00093 U	0.00086 U	0.088 U	0.0012 U	0.001 U	0.24 U	0.039 U
Benzo[a]pyrene	50-32-8	2.9	0.29	4.7		0.029 U	0.0076 U	0.71 U	0.016 UL	0.017 U	0.35 L	0.22 U	0.00094 U	0.00087 U	0.09 U	0.0013 U	0.001 U	0.24 U	0.04 U
Benzo[b]fluoranthene	205-99-2	29	2.9	0.71		0.026 U	0.007 U	0.66 U	0.015 UL	0.015 U	0.42 L	0.21 U	0.016	0.029	0.083 U	0.0012 U	0.00095 U	0.22 U	0.036 U
Benzo[g,h,i]perylene	191-24-2	23000		37000		0.016 U	0.0041 U	0.39 U	0.009 UL	0.0091 U	0.29 L	0.12 U	0.00051 U	0.00048 U	0.049 U	0.00069 U	0.00057 U	0.13 U	0.022 U
Benzo[k]fluoranthene	207-08-9	290	29	6.9		0.03 U	0.008 U	0.76 U	0.017 UL	0.018 U	0.15 L	0.24 U	0.001 U	0.00093 U	0.095 U	0.0013 U	0.0011 U	0.26 U	0.042 U
bis (2-chloroisopropyl) ether	108-60-1	300	47000	0.0024		0.43 U	0.11 U	11 U	0.24 UL	0.25 U	0.27 UL	3.3 U	0.014 U	0.013 U	1.3 U	0.019 U	0.015 U	3.6 U	0.59 U
Bis(2-chloroethoxy)methane	111-91-1	NS	2500	NS		0.99 U	0.26 U	24 U	0.57 UL	0.57 U	0.64 UL	7.7 U	0.032 U	0.03 U	3.1 U	0.044 U	0.036 U	8.3 U	1.4 U
Bis(2-chloroethyl)ether	111-44-4	13	1	6.3E-05		0.09 U	0.024 U	2.2 U	0.051 UL	0.052 U	0.058 UL	0.7 U	0.0029 U	0.0027 U	0.28 U	0.004 U	0.0032 U	0.76 U	0.12 U
Bis(2-ethylhexyl) phthalate	117-81-7	1800	160	29		0.85 U	0.22 U	21 U	0.49 UL	0.49 U	0.55 UL	6.7 U	0.028 J	0.027 J	2.7 U	0.043 J	0.031 U	7.2 U	1.2 U
Butyl benzyl phthalate	85-68-7	13000	1200	10		0.45 U	0.12 U	11 U	0.26 UL	0.26 U	0.29 UL	3.5 U	0.015 U	0.014 U	1.4 U	0.02 U	0.016 U	3.8 U	0.62 U
Caprolactam	105-60-2	440000	400000	39		1.7 U	0.44 U	41 U	0.95 UL	0.96 U	1.1 UL	13 U	0.054 U	0.051 U	5.2 U	0.073 U	0.06 U	14 U	2.3 U
Carbazole	86-74-8	NS	NS	NS		1.2 U	0.32 U	30 U	0.69 UL	0.7 U	0.78 UL	9.5 U	0.04 U	0.037 U	3.8 U	0.053 U	0.044 U	10 U	1.7 U
Chrysene	218-01-9	2900	290	21		0.049 U	0.013 U	1.2 U	0.028 UL	0.029 U	0.2 L	0.39 U	0.0016 U	0.022	0.15 U	0.0022 U	0.0018 U	0.42 U	0.068 U
Dibenz(a,h)anthracene	53-70-3	2.9	0.29	0.23		0.03 U	0.0078 U	0.73 U	0.017 UL	0.017 U	0.019 UL	0.23 U	0.00097 U	0.0009 U	0.093 U	0.0013 U	0.0011 U	0.25 U	0.041 U
Dibenzofuran	132-64-9	2000	1000	5.8		0.03 U	0.0078 U	0.73 U	0.017 UL	0.017 U	0.019 UL	0.23 U	0.00097 U	0.0009 U	0.093 U	0.0013 U	0.0011 U	0.25 U	0.041 U
Diethyl phthalate	84-66-2	700000	660000	100		0.72 U	0.19 U	18 U	0.41 UL	0.42 U	0.46 UL	5.6 U	0.024 U	0.022 U	2.2 U	0.032 U	0.026 U	6 U	0.99 U
Dimethyl phthalate	131-11-3	NS	NS	NS		0.76 U	0.2 U	19 U	0.44 UL	0.44 U	0.49 UL	6 U	0.025 U	0.023 U	2.4 U	0.034 U	0.028 U	6.4 U	1 U
Di-n-butyl phthalate	84-74-2	88000	82000	79		0.67 U	0.18 U	17 U	0.39 UL	0.39 U	0.43 UL	5.3 U	0.022 U	0.02 U	2.1 U	0.03 U	0.024 U	5.7 U	0.93 U
Di-n-octyl phthalate	117-84-0	NS	8200	NS		0.35 U	0.093 U	8.8 U	0.2 UL	0.21 U	0.23 UL	2.8 U	0.012 U	0.011 U	1.1 U	0.016 U	0.013 U	3 U	0.49 U
Diphenylamine	122-39-4	22000	21000	14		49	0.25 U	23 U	1.3 L	0.55 U	3.8 L	7.4 U	0.031 U	0.029 U	2.9 J	0.042 U	0.034 U	8.1 J	2.2 J
Fluoranthene	206-44-0	30000	30000	1400		0.025 U	0.0065 U	0.61 U	0.014 UL	0.014 U	0.18 L	0.19 U	0.00081 U	0.00075 U	0.077 U	0.0011 U	0.00089 U	0.21 U	0.034 U
Fluorene	86-73-7	57000	30000	74		0.024 U	0.0063 U	0.59 U	0.014 UL	0.014 U	0.015 UL	0.19 U	0.00078 U	0.00072 U	0.074 U	0.001 U	0.00086 U	0.2 U	0.033 U
Hexachlorobenzene	118-74-1	15	0.96	0.25		0.094 U	0.025 U	2.3 U	0.11 L	0.055 U	0.061 UL	0.74 U	0.0031 U	0.0029 U	0.29 U	0.0042 U	0.0034 U	0.79 U	0.13 U
Hexachlorobutadiene	87-68-3	320	5.3	0.033		0.25 U	0.066 U	6.2 U	0.14 UL	0.15 U	0.16 UL	2 U	0.0082 U	0.0076 U	0.78 U	0.011 U	0.0091 U	2.1 U	0.35 U
Hexachlorocyclopentadiene	77-47-4	5300	7.5	3.1		0.36 U	0.096 U	9 U	0.21 UL	0.21 U	0.23 UL	2.8 U	0.012 U	0.011 U	1.1 U	0.016 U	0.013 U	3.1 U	0.5 U
Hexachloroethane	67-72-1	620	8	0.02		0.4 U	0.11 U	10 U	0.23 UL	0.23 U	0.26 UL	3.2 U	0.013 U	0.012 U	1.3 U	0.018 U	0.015 U	3.4 U	0.56 U
Indeno[1,2,3-cd]pyrene	193-39-5	29	2.9	2.3		0.016 U	0.0041 U	0.39 U	0.009 UL	0.0091 U	0.26 L	0.12 U	0.00051 U	0.00048 U	0.049 U	0.00069 U	0.00057 U	0.13 U	0.022 U
Isophorone	78-59-1	26000	2400	0.47		0.58 U	0.15 U	14 U	0.33 UL	0.34 U	0.38 UL	4.6 U	0.019 U	0.018 U	1.8 U	0.026 U	0.021 U	4.9 U	0.8 U
Naphthalene	91-20-3	180	17	0.0094		2.5	0.0097 U	0.91 U	0.11 L	0.021 U	0.024 UL	0.29 U	0.0012 U	0.0011 U	0.11 U	0.0016 U	0.0013 U	0.31 U	0.051 U
Nitrobenzene	98-95-3	240	22	0.0016		0.099 U	0.026 U	2.4 U	0.057 UL	0.057 U	0.064 UL	0.77 U	0.0032 U	0.003 U	0.31 U	0.0044 U	0.0036 U	0.83 U	0.14 U
N-Nitrosodi-n-propylamine	621-64-7	3.5	0.33	0.00014		0.28 U	0.074 U	**7 U**	0.16 UL	0.16 U	0.18 UL	2.2 U	0.0093 U	0.0086 U	*0.88 U*	0.012 U	0.01 U	2.4 U	0.39 U
N-Nitrosodiphenylamine	86-30-6	5000	470	1.5		58	0.25 U	23 U	1.6 L	0.55 U	4.5 L	7.4 U	0.031 U	0.029 U	3.4 J	0.042 U	0.034 U	9.5 J	2.6 J
Pentachlorophenol	87-86-5	33	4	0.2		0.41 U	0.11 U	10 U	0.23 U	0.24 U	0.26 UL	3.2 U	0.013 U	0.012 U	1.3 U	0.018 U	0.015 U	3.4 U	0.56 U
Phenanthrene	85-01-8	610000		3200		0.22 J	0.0086 U	0.81 U	0.019 UL	0.019 U	0.021 UL	0.26 U	0.0011 U	0.019	0.1 U	0.0014 U	0.0012 U	1.9 J	0.045 U
Phenol	108-95-2	260000	250000	54		0.33 U	0.086 U	8.1 U	0.19 U	0.19 U	0.21 UL	2.6 U	0.011 U	0.01 U	1 U	0.014 U	0.012 U	2.8 U	0.45 U
Pyrene	129-00-0	68000	23000	320		0.02 U	0.0052 U	0.49 U	0.011 UL	0.011 U	0.16 L	0.15 U	0.011	0.01	0.062 U	0.00087 U	0.0059 J	2.8	0.027 U

Notes:
All concentrations reported in milligrams per kilogram (mg/kg
Underlined values exceed the WVDEP 60CSR3 Table 60-3B Migration to Groundwater Soil De Minimis Stand
Bolded values exceed the WVDEP 60CSR3 Table 60-3B Industrial Soil De Minimis Standa

U - Target analyte not detected above listed Method Detection Lir
J - Estimated result. Result is less greater than the Method Detection Limit but less than the labaratory method Reporting
B - Method blank contamination. The associated method blank contains the target analyte at a reportable l
K - Analyte is present. Reported value may be biased high. Actual value is expected to be lov
L - Analyte is present. Reported value may be biased low. Actual value is expected to be higl
R - Data was rejected during the data validation proces

TABLE 2
SUMMARY OF SOIL ANALYTICAL DATA
AOC 6 - AST AREAS
FORMER BASF HUNTINGTON WORKS FACILITY
HUNTINGTON, WEST VIRGINIA

				AOC6-17B	AOC6-17B	AOC6-18B	AOC6-18B	AOC6-19	AOC6-19	AOC6-19	AOC6-20B	AOC6-20B	AOC6-21	AOC6-21	AOC6-22	AOC6-22	AOC6-22	AOC6-23
				AOC6-17-20	DUP-3	AOC6-18-10	AOC6-18-20	AOC6-19-12.5	AOC6-19-20	AOC6-19-5	AOC6-20-15	AOC6-20-20	AOC6-21-10	AOC6-21-20	AOC6-22-10	AOC6-22-20	DUP-4	AOC6-23-20
				N	FD	N	N	N	N	N	N	N	N	N	N	N	FD	N
				SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
				16 Aug 2016	16 Aug 2016	16 Aug 2016	16 Aug 2016	17 Aug 2016	17 Aug 2016	17 Aug 2016	18 Aug 2016	18 Aug 2016	18 Aug 2016	18 Aug 2016	19 Aug 2016	19 Aug 2016	19 Aug 2016	19 Aug 2016
				240-68448-2	240-68448-3	240-68448-5	240-68448-6	240-68503-2	240-68503-3	240-68503-1	240-68503-4	240-68503-5	240-68503-6	240-68503-7	240-68573-6	240-68573-7	240-68573-8	240-68573-10
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
	CAS NO.	WVDEP INDUSTRIAL SOIL DE MINIMIS STANDARD (MG/KG)	EPA INDUSTRIAL SOIL SCREENING LEVEL (MG/KG)															
M8015D																		
Diesel Range Organics [C10 - C28]	PHCC10C28	8300		8.5 J	150	12 J	7.2 U	9.1 J	6.9 U	22	7.1 U	6.9 U	7.4 U	6.9 U	1900 U	11 J	2600 J	7.1 J
M8015V																		
Gasoline Range Organics [C6 - C10]	PHCC6C10	**6600**		22	**6600 L**	10	18	830 L	200 J	2.6 U	370	12	2.7 U	2.4 U	**8700**	6.4 J	**13000**	2.2 U
SW6020A																		
Lead	7439-92-1	1000	800	4.8 B	7.5 B	4.8 B	3.9 B	4 B	4.6 B	6.1 B	3.6 B	3.2 B	5.7 B	4 B	95 B	11 B	120 B	3.2 B
SW8260B																		
1,1,1-Trichloroethane	71-55-6	640	36000	0.51 U	34 U	0.0006 U	0.73 U	0.61 U	4.4 U	0.00061 U	2.3 U	0.082 U	0.0006 U	0.00042 U	5 U	0.025 U	16 U	0.022 U
1,1,2,2-Tetrachloroethane	79-34-5	31	2.7	0.48 U	**31 U**	0.00029 U	0.68 U	0.56 U	4.1 U	0.00029 U	2.1 U	0.076 U	0.00028 U	0.0002 U	4.6 U	0.024 U	15 U	0.02 U
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	910	170000	0.8 U	52 U	0.00039 U	1.1 U	0.95 U	6.9 U	0.00039 U	3.5 U	0.13 U	0.00038 U	0.00027 U	7.8 U	0.04 U	25 U	0.033 U
1,1,2-Trichloroethane	79-00-5	57	5	0.36 U	24 U	0.00034 U	0.51 U	0.43 U	3.1 U	0.00035 U	1.6 U	0.058 U	0.00034 U	0.00024 U	3.5 U	0.018 U	11 U	0.015 U
1,1-Dichloroethane	75-34-3	170	16	0.67 U	44 U	0.00031 U	0.95 U	0.79 U	5.7 U	0.00032 U	2.9 U	0.11 U	0.00031 U	0.00022 U	6.5 U	0.033 U	21 U	0.028 U
1,1-Dichloroethene	75-35-4	1100	1000	0.57 U	37 U	0.00074 U	0.81 U	0.68 U	4.9 U	0.00075 U	2.5 U	0.091 U	0.00073 U	0.00052 U	5.5 U	0.028 U	18 U	0.024 U
1,2,4-Trichlorobenzene	120-82-1	280	110	0.57 U	37 U	0.00035 U	0.81 U	0.68 U	4.9 U	0.00035 U	2.5 U	0.091 U	0.00035 U	0.00025 U	5.5 U	0.028 U	35 J	0.024 U
1,2-Dibromo-3-Chloropropane	96-12-8	71	0.064	1.4 U	**89 U**	0.0025 U	1.9 U	1.6 U	12 U	0.0025 U	6 U	0.22 U	0.0025 U	0.0017 U	13 U	0.067 U	43 U	0.057 U
1,2-Dichlorobenzene	95-50-1	380	9300	0.36 U	24 U	0.00031 U	0.51 U	0.43 U	3.1 U	0.00032 U	1.6 U	0.058 U	0.00031 U	0.00022 U	3.5 U	0.018 U	11 U	0.015 U
1,2-Dichloroethane	107-06-2	23	2	0.19 U	12 U	0.00042 U	0.27 U	0.23 U	1.6 U	0.00043 U	0.84 U	0.03 U	0.00042 U	0.0003 U	1.8 U	0.0094 U	6 U	0.008 U
1,2-Dichloropropane	78-87-5	47	4.4	0.61 U	40 U	0.00013 U	0.86 U	0.72 U	5.2 U	0.00013 U	2.7 U	0.097 U	0.00013 U	9E-05 U	5.9 U	0.03 U	19 U	0.026 U
1,3-Dichlorobenzene	541-73-1	NS	NS	0.57 U	37 U	0.00064 U	0.81 U	0.68 U	4.9 U	0.00064 U	2.5 U	0.091 U	0.00063 U	0.00045 U	5.5 U	0.028 U	18 U	0.024 U
1,4-Dichlorobenzene	106-46-7	140	11	0.78 U	51 U	0.00026 U	1.1 U	0.92 U	6.7 U	0.00026 U	3.4 U	0.12 U	0.00026 U	0.00018 U	7.6 U	0.039 U	25 U	0.057 J
2-Butanone (MEK)	78-93-3	28000	190000	1.4 U	91 U	0.004 J	2 U	1.6 U	12 U	0.001 U	6.1 U	0.22 U	0.001 U	0.0033 J	13 U	0.069 U	44 U	0.058 U
2-Hexanone	591-78-6	NS	1300	1.6 U	100 U	0.00063 U	2.3 U	1.9 U	14 U	0.00064 U	7.1 U	0.25 U	0.00062 U	0.00044 U	16 U	0.079 U	50 U	0.067 U
4-Methyl-2-pentanone (MIBK)	108-10-1	3400	140000	1.1 U	70 U	0.0011 U	1.5 U	1.3 U	9.2 U	0.0011 U	4.7 U	0.17 U	0.0011 U	0.00079 U	10 U	0.053 U	34 U	0.045 U
Acetone	67-64-1	110000	670000	4.3 U	280 U	0.032 B	6.1 U	5.1 U	37 U	0.011 B	19 U	0.68 U	0.0083 B	0.024 B	42 U	0.21 U	140 U	0.18 U
Benzene	71-43-2	57	5.1	0.17 U	11 U	0.00083 U	0.24 U	0.2 U	1.5 U	0.00084 U	0.76 U	0.027 U	0.00082 U	0.00058 U	7.8 J	0.0093 J	13 J	0.0088 J
Bromoform	75-25-2	3100	86	1.2 U	76 U	0.00022 U	1.6 U	1.4 U	10 U	0.00022 U	5.1 U	0.18 U	0.00022 U	0.00015 U	11 U	0.057 U	37 U	0.049 U
Bromomethane	74-83-9	33	30	0.97 U	**64 U**	0.00039 U	1.4 U	1.1 U	8.3 U	0.00039 U	4.3 U	0.15 U	0.00038 U	0.00027 U	9.4 U	0.048 U	31 U	0.041 U
Carbon disulfide	75-15-0	740	3500	1.1 U	70 U	0.00054 U	1.5 U	1.3 U	9.2 U	0.00055 U	4.7 U	0.17 U	0.00054 U	0.0019 J	10 U	0.053 U	34 U	0.045 U
Carbon tetrachloride	56-23-5	32	2.9	0.34 U	22 U	0.0006 U	0.49 U	0.41 U	2.9 U	0.00061 U	1.5 U	0.055 U	0.0006 U	0.00042 U	3.3 U	0.017 U	11 U	0.014 U
Chlorobenzene	108-90-7	760	1300	0.25 U	16 U	0.00049 U	0.35 U	0.29 U	2.1 U	0.00049 U	1.1 U	0.039 U	0.00049 U	0.00034 U	2.4 U	0.012 U	7.8 U	0.01 U
Chlorodibromomethane	124-48-1	290	39	0.38 U	25 U	0.00034 U	0.54 U	0.45 U	3.3 U	0.00035 U	1.7 U	0.061 U	0.00034 U	0.00024 U	3.7 U	0.019 U	12 U	0.016 U
Chloroethane	75-00-3	2100	57000	0.97 U	64 U	0.00041 U	1.4 U	1.1 U	8.3 U	0.00041 U	4.3 U	0.15 U	0.0004 U	0.00028 U	9.4 U	0.048 U	31 U	0.041 U
Chloroform	67-66-3	15	1.4	0.69 U	**45 U**	0.00033 U	0.97 U	0.81 U	5.9 U	0.00034 U	*3 U*	0.11 U	0.00033 U	0.00023 L	6.7 U	0.034 U	**22 U**	0.029 U
Chloromethane	74-87-3	510	460	0.92 UL	60 UL	0.00073 U	1.3 UL	1.1 U	7.9 UL	0.00074 U	4 UL	0.15 UL	0.00072 U	0.00051 U	8.9 UL	0.045 UL	29 UL	0.038 UL
cis-1,2-Dichloroethene	156-59-2	82	2300	0.72 U	47 U	0.00026 U	1 U	0.86 U	6.2 U	0.00026 U	3.2 U	0.12 U	0.00026 U	0.00018 U	7 U	0.036 U	23 U	0.03 U
cis-1,3-Dichloropropene	10061-01-5	NS	NS	0.42 U	27 U	0.00065 U	0.59 U	0.5 U	3.6 U	0.00066 U	1.8 U	0.067 U	0.00065 U	0.00046 U	4.1 U	0.021 U	13 U	0.018 U
Cyclohexane	110-82-7	120	27000	0.57 U	37 U	0.00044 U	0.81 U	0.68 U	4.9 U	0.00045 U	2.5 U	0.091 U	0.00044 U	0.00031 U	5.5 U	0.028 U	18 U	0.024 U
Dichlorobromomethane	75-27-4	14	1.3	0.72 U	**47 U**	0.00027 U	1 U	0.86 U	6.2 U	0.00027 U	3.2 U	0.12 U	0.00027 U	0.00019 U	7 U	0.036 U	**23 U**	0.03 U
Dichlorodifluoromethane	75-71-8	800	370	1.2 U	76 U	0.00026 U	1.6 U	1.4 U	10 U	0.00026 U	5.1 U	0.18 U	0.00026 U	0.00018 U	11 U	0.057 U	37 U	0.049 U
Ethylbenzene	100-41-4	290	25	17	**1300**	0.0018 B	25 K	43 K	**340**	0.032	74	3	0.00029 U	0.0045	110 J	3.5	**610 J**	0.14 J
Ethylene Dibromide	106-93-4	1.8	0.16	0.61 U	**40 U**	0.00049 U	0.86 U	0.72 U	**5.2 U**	0.00049 U	**2.7 U**	0.097 U	0.00049 U	0.00034 U	**5.9 U**	0.03 U	**19 U**	0.026 U
Isopropylbenzene	98-82-8	270	9900	0.43 K	51 J	0.00045 J	0.71 K	5.9 K	28 J	0.0012 J	5.1 J	0.68 J	0.00018 U	0.00061 J	2.4 U	0.042 J	8.2 J	0.19 J
Methyl acetate	79-20-9	29000	1200000	1 U	69 U	0.0019 U	1.5 U	1.2 U	9 U	0.0019 U	4.6 U	0.17 U	0.0018 U	0.0013 U	10 U	0.052 U	33 U	0.044 U
Methyl tert-butyl ether	1634-04-4	2300	210	0.57 U	37 U	0.0004 U	0.81 U	0.68 U	4.9 U	0.0004 U	2.5 U	0.091 U	0.00039 U	0.00028 U	5.5 U	0.028 U	18 U	0.024 U
Methylcyclohexane	108-87-2	NS	NS	0.72 U	47 U	0.00053 UF2	1 U	0.86 U	6.2 U	0.00054 U	3.2 U	0.12 U	0.00053 U	0.00037 U	7 U	0.036 U	23 U	0.03 U
Methylene Chloride	75-09-2	3300	1000	1.6 U	110 U	0.0015 B	2.3 U	1.9 U	14 U	0.00069 U	7.1 U	0.26 U	0.0022 J	0.00051 J	16 U	0.08 U	51 U	0.068 U
Styrene	100-42-5	870	35000	0.51 U	34 U	0.00037 U	0.73 U	0.61 U	4.4 U	0.00037 U	2.3 U	0.082 U	0.00037 U	0.00026 U	5 U	0.025 U	16 U	0.022 U
Tetrachloroethene	127-18-4	170	100	0.51 U	34 U	0.00074 U	0.73 U	0.61 U	4.4 U	0.00075 U	2.3 U	0.082 U	0.00073 U	0.00052 U	5 U	0.025 U	16 U	0.022 U
Toluene	108-88-3	820	47000	7.4 K	**990 B**	0.0009 B	2.2 KB	0.23 U	3.3 B	0.0012 J	0.84 U	0.03 U	0.0005 J	0.00031 J	710 J	0.051 B	**3700 J**	0.02 B
trans-1,2-Dichloroethene	156-60-5	700	23000	0.5 U	32 U	0.00029 U	0.7 U	0.59 U	4.3 U	0.0003 U	2.2 U	0.079 U	0.00029 U	0.00021 U	4.8 U	0.024 U	16 U	0.021 U
trans-1,3-Dichloropropene	10061-02-6	NS	NS	0.5 U	32 U	0.00027 U	0.7 U	0.59 U	4.3 U	0.00027 U	2.2 U	0.079 U	0.00027 U	0.00019 U	4.8 U	0.024 U	16 U	0.021 U
Trichloroethene	79-01-6	21	6	0.74 U	**49 U**	0.00035 U	1.1 U	0.88 U	6.4 U	0.00035 U	3.3 U	0.12 U	0.00035 U	0.00025 U	7.2 U	0.037 U	**23 U**	0.031 U
Trichlorofluoromethane	75-69-4	1200	350000	0.67 U	44 U	0.00027 UF2	0.95 U	0.79 U	5.7 U	0.00027 U	2.9 U	0.11 U	0.00027 U	0.00019 U	6.5 U	0.033 U	21 U	0.028 U
Vinyl chloride	75-01-4	21	1.7	0.32 U	**21 U**	0.00028 U	0.46 U	0.38 U	2.8 U	0.00028 U	1.4 U	0.052 U	0.00027 U	0.00019 U	3.1 U	0.016 U	10 U	0.014 U
Xylenes, Tota	1330-20-7	260	2500	74 K	**5700**	0.0067 J	99 K	160 K	**1500**	0.14	**300**	13	0.00058 J	0.0099	**380 J**	2.5	**2600 J**	0.65

TABLE 2
SUMMARY OF SOIL ANALYTICAL DATA
AOC 6 - AST AREAS
FORMER BASF HUNTINGTON WORKS FACILITY
HUNTINGTON, WEST VIRGINIA

				AOC6-17B	AOC6-17B	AOC6-18B	AOC6-18B	AOC6-19	AOC6-19	AOC6-19	AOC6-20B	AOC6-20B	AOC6-21	AOC6-21	AOC6-22	AOC6-22	AOC6-22	AOC6-23
				AOC6-17-20	DUP-3	AOC6-18-10	AOC6-18-20	AOC6-19-12.5	AOC6-19-20	AOC6-19-5	AOC6-20-15	AOC6-20-20	AOC6-21-10	AOC6-21-20	AOC6-22-10	AOC6-22-20	DUP-4	AOC6-23-20
				N	FD	N	N	N	N	N	N	N	N	N	N	N	FD	N
				SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
				16 Aug 2016	16 Aug 2016	16 Aug 2016	16 Aug 2016	17 Aug 2016	17 Aug 2016	17 Aug 2016	18 Aug 2016	18 Aug 2016	18 Aug 2016	18 Aug 2016	19 Aug 2016	19 Aug 2016	19 Aug 2016	19 Aug 2016
				240-68448-2	240-68448-3	240-68448-5	240-68448-6	240-68503-2	240-68503-3	240-68503-1	240-68503-4	240-68503-5	240-68503-6	240-68503-7	240-68573-6	240-68573-7	240-68573-8	240-68573-10
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
SW8270D																		
1,1-Biphenyl	92-52-4	220	200	0.004 U	0.11 U	0.0043 U	0.004 U	0.0039 U	0.0038 U	0.0039 U	0.0038 U	0.008 J	0.004 U	0.0039 U	1.1 U	0.085 U	2.8 U	0.0074 U
1,2-Diphenylhydrazine(as Azobenzene)	122-66-7	31	2.9	0.019 U	0.53 U	0.021 U	0.019 U	0.019 U	0.018 U	0.019 U	0.019 U	0.018 U	0.019 U	0.019 U	5.2 U	0.41 U	14 U	0.036 U
1,4-Dioxane	123-91-1	250	24	0.025 U	0.68 U	0.027 U	0.025 U	0.025 U	0.024 U	0.024 U	0.024 U	0.024 U	0.025 U	0.024 U	6.7 U	0.53 U	18 U	0.047 U
2,4,5-Trichlorophenol	95-95-4	88000	82000	0.028 U	0.77 U	0.03 U	0.029 U	0.028 U	0.027 U	0.028 U	0.027 U	0.027 U	0.029 U	0.028 U	7.6 U	0.61 U	20 U	0.053 U
2,4,6-Trichlorophenol	88-06-2	880	210	0.01 U	0.28 U	0.011 U	0.01 U	0.0099 U	0.0096 U	0.0099 U	0.0097 U	0.0096 U	0.01 U	0.0098 U	2.7 U	0.22 U	7.2 U	0.019 U
2,4-Dichlorophenol	120-83-2	2600	2500	0.023 U	0.62 U	0.024 U	0.023 U	0.022 U	0.022 U	0.022 U	0.022 U	0.022 U	0.023 U	0.022 U	6.1 U	0.49 U	16 U	0.042 U
2,4-Dimethylphenol	105-67-9	18000	16000	0.023 U	0.76 J	0.024 U	0.023 U	0.38	0.022 U	0.022 U	0.57	0.022 J	0.023 U	0.022 U	6.1 U	0.49 U	16 U	0.042 U
2,4-Dinitrophenol	51-28-5	1800	1600	0.024 U	0.65 U	0.026 UF2	0.024 U	0.023 U	0.023 U	0.023 U	0.023 U	0.023 U	0.024 U	0.023 U	6.4 U	0.51 U	17 U	0.044 U
2,4-Dinitrotoluene	121-14-2	80	7.4	0.019 U	0.53 U	0.021 U	0.019 U	0.019 U	0.018 U	0.019 U	0.019 U	0.018 U	0.019 U	0.019 U	5.2 U	0.41 U	14 U	0.036 U
2,6-Dinitrotoluene	606-20-2	890	1.5	0.024 U	0.65 U	0.026 U	0.024 U	0.023 U	0.023 U	0.023 U	0.023 U	0.023 U	0.024 U	0.023 U	6.4 U	0.51 U	17 U	0.044 U
2-Chloronaphthalene	91-58-7	64000	60000	0.00051 U	0.014 U	0.00055 U	0.00051 U	0.0005 U	0.00049 U	0.0005 U	0.00049 U	0.00048 U	0.00051 U	0.0005 U	0.14 U	0.011 U	0.36 U	0.00095 U
2-Chlorophenol	95-57-8	5100	5800	0.0093 U	0.25 U	0.01 U	0.0094 U	0.0092 U	0.0088 U	0.0091 U	0.0089 U	0.0088 U	0.0094 U	0.009 U	2.5 U	0.2 U	6.6 U	0.017 U
2-Methylnaphthalene	91-57-6	8200	3000	0.0096	0.015 U	0.00061 U	0.0065 J	0.00056 U	0.013	0.00055 U	0.0098	0.00054 U	0.00057 U	0.00055 U	0.15 U	0.012 U	0.4 U	0.0011 U
2-Methylphenol	95-48-7	44000	41000	0.013 U	0.44 J	0.013 U	0.013 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.013 U	0.012 U	3.3 U	0.27 U	8.9 U	0.023 U
2-Nitroaniline	88-74-4	8500	8000	0.01 U	0.28 U	0.011 U	0.01 U	0.01 U	0.0098 U	0.01 U	0.0099 U	0.0098 U	0.01 U	0.01 U	2.8 U	0.22 U	7.3 U	0.019 U
2-Nitrophenol	88-75-5	NS	NS	0.0094 U	0.26 U	0.01 U	0.0095 U	0.0093 U	0.009 U	0.0092 U	0.0091 U	0.0089 U	0.0095 U	0.0091 U	2.5 U	0.2 U	6.7 U	0.018 U
2-Toluidine	95-53-4	100	140	0.041 U	1.1 U	0.044 U	0.041 U	0.04 U	0.039 U	0.04 U	0.039 U	0.039 U	0.041 U	0.04 U	11 U	0.88 U	29 U	0.076 U
3 & 4 Methylphenol	MEPH3MEPH4	NS	NS	0.023 U	0.62 U	0.024 U	0.023 U	0.022 U	0.022 U	0.022 U	0.022 U	0.022 U	0.023 U	0.022 U	6.1 U	0.49 U	16 U	0.042 U
3,3-Dichlorobenzidine	91-94-1	55	5.1	0.02 U	0.56 U	0.022 U	0.021 U	0.02 U	0.019 U	0.02 U	0.02 U	0.019 U	0.021 U	0.02 U	5.5 U	0.44 U	14 U	0.038 U
3,3-Dimethoxybenzidine	119-90-4	1800	1.4	0.058 U	1.6 U	0.062 U	0.058 U	0.057 U	0.055 U	0.057 U	0.056 U	0.055 U	0.058 U	0.056 U	16 U	1.2 U	41 U	0.11 U
3,3-Dimethylbenzidine	119-93-7	2.2	0.21	0.072 U	1.9 U	0.077 U	0.072 U	0.07 U	0.068 U	0.07 U	0.069 U	0.068 U	0.072 U	0.069 U	**19 U**	1.5 U	**51 U**	0.13 U
3-Nitroaniline	99-09-2	NS	NS	0.018 U	0.49 U	0.019 U	0.018 U	0.018 U	0.017 U	0.018 U	0.017 U	0.017 U	0.018 U	0.018 U	4.9 U	0.39 U	13 U	0.034 U
4,6-Dinitro-2-methylphenol	534-52-1	NS	66	0.01 U	0.28 U	0.011 U	0.011 U	0.01 U	0.0099 U	0.01 U	0.01 U	0.0099 U	0.01 U	0.01 U	2.8 U	0.22 U	7.4 U	0.019 U
4-Bromophenyl phenyl ether	101-55-3	NS	NS	0.015 U	0.4 U	0.016 U	0.015 U	0.015 U	0.014 U	0.014 U	0.014 U	0.014 U	0.015 U	0.014 U	4 U	0.32 U	10 U	0.028 U
4-Chloro-3-methylphenol	59-50-7	NS	82000	0.024 U	0.65 U	0.026 U	0.024 U	0.023 U	0.023 U	0.023 U	0.023 U	0.023 U	0.024 U	0.023 U	6.4 U	0.51 U	17 U	0.044 U
4-Chloroaniline	106-47-8	120	11	0.019 U	0.53 U	0.021 U	0.019 U	0.019 U	0.018 U	0.019 U	0.019 U	0.018 U	0.019 U	0.019 U	5.2 U	0.41 U	14 U	0.036 U
4-Chlorophenyl phenyl ether	7005-72-3	NS	NS	0.015 U	0.4 U	0.016 U	0.015 U	0.015 U	0.014 U	0.014 U	0.014 U	0.014 U	0.015 U	0.014 U	4 U	0.32 U	10 U	0.028 U
4-Nitroaniline	100-01-6	NS	110	0.03 U	0.8 U	0.032 U	0.03 U	0.029 U	0.028 U	0.029 U	0.028 U	0.028 U	0.03 U	0.029 U	7.9 U	0.63 U	21 U	0.055 U
4-Nitrophenol	100-02-7	NS	NS	0.019 U	0.53 U	0.021 U	0.019 U	0.019 U	0.018 U	0.019 U	0.019 U	0.018 U	0.019 U	0.019 U	5.2 U	0.41 U	14 U	0.036 U
Acenaphthene	83-32-9	66000	45000	0.00086 U	0.023 U	0.00092 U	0.00087 U	0.00085 U	0.00082 U	0.00084 U	0.012	0.00082 U	0.00087 U	0.00084 U	0.23 U	0.018 U	0.61 U	0.0016 U
Acenaphthylene	208-96-8	74000		0.0004 U	0.011 U	0.00043 U	0.0004 U	0.00039 U	0.00038 U	0.00039 U	0.00038 U	0.00038 U	0.0004 U	0.00039 U	0.11 U	0.0085 U	0.28 U	0.00074 U
Acetophenone	98-86-2	2500	120000	0.01 U	0.28 U	0.011 U	0.011 U	0.029 J	0.0099 U	0.01 U	0.039 J	0.0099 U	0.01 U	0.01 U	2.8 U	0.22 U	7.4 U	0.019 U
Aniline	62-53-3	4300	400	1.9 B	34 J	0.22 JB	0.3 B	0.089 B	0.047 B	0.012 U	0.012 U	0.012 U	0.013 U	0.012 U	430 J	30	910 J	0.58 J
Anthracene	120-12-7	610000	230000	0.00089 U	0.024 U	0.00095 U	0.00089 U	0.00087 U	0.00084 U	0.00086 U	0.031	0.00084 U	0.00089 U	0.00086 U	0.24 U	0.019 U	0.63 U	0.0017 U
Atrazine	1912-24-9	110	10	0.01 U	0.28 U	0.011 U	0.01 U	0.01 U	0.0098 U	0.01 U	0.0099 U	0.0098 U	0.01 U	0.01 U	2.8 U	0.22 U	7.3 U	0.019 U
Benzaldehyde	100-52-7	1200	820	0.014 U	0.37 U	0.015 U	0.014 U	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	0.014 U	0.013 U	3.6 U	0.29 U	9.7 U	0.025 U
Benzidine	92-87-5	0.11	0.01	0.033 U	**0.9 U**	0.035 UF1	0.033 U	0.032 U	0.031 U	0.032 U	0.032 U	0.031 U	0.033 U	0.032 U	**8.8 U**	**0.7 U**	**23 U**	0.061 U
Benzo[a]anthracene	56-55-3	29	2.9	0.00072 U	0.019 U	0.00077 U	0.00072 U	0.0007 U	0.00068 U	0.0007 U	0.14	0.00068 U	0.00072 U	0.00069 U	0.19 U	0.015 U	0.51 U	0.0013 U
Benzo[a]pyrene	50-32-8	2.9	0.29	0.00073 U	0.02 U	0.00078 U	0.00073 U	0.00072 U	0.00069 U	0.00071 U	0.15	0.00069 U	0.00073 U	0.00071 U	0.19 U	0.016 U	0.52 U	0.0014 U
Benzo[b]fluoranthene	205-99-2	29	2.9	0.00067 U	0.018 U	0.00072 U	0.00067 U	0.00066 U	0.00064 U	0.00065 U	0.21	0.00064 U	0.00067 U	0.00065 U	0.18 U	0.014 U	0.48 U	0.0012 U
Benzo[g,h,i]perylene	191-24-2	23000		0.0004 U	0.011 U	0.00043 U	0.0004 U	0.00039 U	0.00038 U	0.00039 U	0.074	0.00038 U	0.0004 U	0.00039 U	0.11 U	0.0085 U	0.28 U	0.00074 U
Benzo[k]fluoranthene	207-08-9	290	29	0.00077 U	0.021 U	0.00083 U	0.00078 U	0.00076 U	0.00073 U	0.00075 U	0.086	0.00073 U	0.00078 U	0.00075 U	0.21 U	0.017 U	0.55 U	0.0014 U
bis (2-chloroisopropyl) ether	108-60-1	300	47000	0.011 U	0.29 U	0.012 U	0.011 U	0.011 U	0.01 U	0.011 U	0.01 U	0.01 U	0.011 U	0.01 U	2.9 U	0.23 U	7.7 U	0.02 U
Bis(2-chloroethoxy)methane	111-91-1	NS	2500	0.025 U	0.68 U	0.027 U	0.025 U	0.025 U	0.024 U	0.024 U	0.024 U	0.024 U	0.025 U	0.024 U	6.7 U	0.53 U	18 U	0.047 U
Bis(2-chloroethyl)ether	111-44-4	13	1	0.0023 U	0.062 U	0.0024 U	0.0023 U	0.0022 U	0.0022 U	0.0022 U	0.0022 U	0.0022 U	0.0023 U	0.0022 U	0.61 U	0.049 U	1.6 U	0.0042 U
Bis(2-ethylhexyl) phthalate	117-81-7	1800	160	0.033 J	0.59 U	0.044 J	0.022 U	0.05 J	0.028 J	0.023 J	0.028 B	0.02 B	0.21 B	0.021 U	5.8 U	0.46 U	15 U	0.04 U
Butyl benzyl phthalate	85-68-7	13000	1200	0.011 U	0.31 U	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	3 U	0.24 U	8.1 U	0.021 U
Caprolactam	105-60-2	440000	400000	0.042 U	1.1 U	0.045 U	0.042 U	0.041 U	0.04 U	0.041 U	0.04 U	0.04 U	0.042 U	0.041 U	11 U	0.9 U	30 U	0.078 U
Carbazole	86-74-8	NS	NS	0.031 U	0.83 U	0.033 U	0.031 U	0.03 U	0.029 U	0.03 U	0.029 U	0.029 U	0.031 U	0.03 U	8.2 U	0.66 U	22 U	0.057 U
Chrysene	218-01-9	2900	290	0.0013 U	0.034 U	0.0013 U	0.0013 U	0.0012 U	0.0012 U	0.0012 U	0.15	0.0012 U	0.0013 U	0.0012 U	0.33 U	0.027 U	0.89 U	0.0023 U
Dibenz(a,h)anthracene	53-70-3	2.9	0.29	0.00075 U	0.02 U	0.0008 U	0.00075 U	0.00074 U	0.00071 U	0.00073 U	0.018	0.00071 U	0.00075 U	0.00073 U	0.2 U	0.016 U	0.53 U	0.0014 U
Dibenzofuran	132-64-9	2000	1000	0.00075 U	0.02 U	0.0008 U	0.00075 U	0.00074 U	0.00071 U	0.00073 U	0.0083 J	0.00071 U	0.00075 U	0.00073 U	0.2 U	0.016 U	0.53 U	0.0014 U
Diethyl phthalate	84-66-2	700000	660000	0.018 U	0.49 U	0.019 U	0.018 U	0.018 U	0.017 U	0.018 U	0.017 U	0.017 U	0.018 U	0.018 U	4.9 U	0.39 U	13 U	0.034 U
Dimethyl phthalate	131-11-3	NS	NS	0.019 U	0.53 U	0.021 U	0.019 U	0.019 U	0.018 U	0.019 U	0.019 U	0.018 U	0.019 U	0.019 U	5.2 U	0.41 U	14 U	0.036 U
Di-n-butyl phthalate	84-74-2	88000	82000	0.017 U	0.46 U	0.018 U	0.017 U	0.017 U	0.016 U	0.017 U	0.016 U	0.016 U	0.017 U	0.017 U	4.6 U	0.36 U	12 U	0.032 U
Di-n-octyl phthalate	117-84-0	NS	8200	0.009 U	0.24 U	0.0096 U	0.009 U	0.0088 U	0.0085 U	0.0088 U	0.0086 U	0.0085 U	0.009 U	0.0087 U	2.4 U	0.19 U	6.4 U	0.017 U
Diphenylamine	122-39-4	22000	21000	0.057 J	0.91 J	0.026 J	0.033 J	0.21	0.023 U	0.023 U	0.16	0.026 J	0.024 U	0.023 U	330 J	0.51 U	680 J	0.7
Fluoranthene	206-44-0	30000	30000	0.00063 U	0.017 U	0.00067 U	0.00063 U	0.00061 U	0.00059 U	0.00061 U	0.26	0.00059 U	0.00063 U	0.00061 U	0.17 U	0.013 U	0.44 U	0.0012 U
Fluorene	86-73-7	57000	30000	0.0006 U	0.016 U	0.00064 U	0.00061 U	0.00059 U	0.00057 U	0.00059 U	0.012	0.00057 U	0.0006 U	0.00058 U	0.16 U	0.013 U	0.43 U	0.0011 U
Hexachlorobenzene	118-74-1	15	0.96	0.0024 U	0.065 U	0.0026 U	0.0024 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0024 U	0.0023 U	0.64 U	0.051 U	1.7 U	0.0044 U
Hexachlorobutadiene	87-68-3	320	5.3	0.0064 U	0.17 U	0.0068 U	0.0064 U	0.0063 U	0.006 U	0.0062 U	0.0061 U	0.006 U	0.0064 U	0.0062 U	1.7 U	0.14 U	4.5 U	0.012 U
Hexachlorocyclopentadiene	77-47-4	5300	7.5	0.0092 U	0.25 U	0.0098 R	0.0093 U	0.0091 U	0.0087 U	0.009 U	0.0088 U	0.0087 U	0.0092 U	0.0089 U	2.5 U	0.2 U	6.5 U	0.017 U
Hexachloroethane	67-72-1	620	8	0.01 U	0.28 U	0.011 U	0.01 U	0.01 U	0.0097 U	0.01 U	0.0098 U	0.0097 U	0.01 U	0.0099 U	2.7 U	0.22 U	7.2 U	0.019 U
Indeno[1,2,3-cd]pyrene	193-39-5	29	2.9	0.0004 U	0.011 U	0.00043 U	0.0004 U	0.00039 U	0.00038 U	0.00039 U	0.067	0.00038 U	0.0004 U	0.00039 U	0.11 U	0.0085 U	0.28 U	0.00074 U
Isophorone	78-59-1	26000	2400	0.015 U	0.4 U	0.016 U	0.015 U	0.015 U	0.014 U	0.014 U	0.014 U	0.014 U	0.015 U	0.014 U	4 U	0.32 U	10 U	0.028 U
Naphthalene	91-20-3	180	17	0.0088	0.025 U	0.001 U	0.0086	0.00092 U	0.014	0.00091 U	0.011	0.00088 U	0.00094 U	0.0009 U	0.25 U	0.02 U	0.66 U	0.0017 U
Nitrobenzene	98-95-3	240	22	0.0025 U	0.068 U	0.0027 U	0.0025 U	0.0025 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0025 U	0.0024 U	0.67 U	0.053 U	1.8 U	0.0047 U
N-Nitrosodi-n-propylamine	621-64-7	3.5	0.33	0.0072 U	0.19 U	0.0077 U	0.0072 U	0.007 U	0.0068 U	0.007 U	0.0069 U	0.0068 U	0.0072 U	0.0069 U	1.9 U	0.15 U	**5.1 U**	0.013 U
N-Nitrosodiphenylamine	86-30-6	5000	470	0.067	1.1 J	0.03 J	0.039 J	0.25	0.023 U	0.023 U	0.19	0.031 J	0.024 U	0.023 U	390 J	0.51 U	780 J	0.83
Pentachlorophenol	87-86-5	33	4	0.01 U	0.28 U	0.011 U	0.01 U	0.01 U	0.0098 U	0.01 U	0.0099 U	0.0098 U	0.01 U	0.01 U	2.8 U	0.22 U	7.3 U	0.019 U
Phenanthrene	85-01-8	610000		0.00083 U	0.023 U	0.00089 U	0.00083 U	0.0055 J	0.00079 U	0.0044 J	0.12	0.00079 U	0.0063 J	0.0044 J	0.22 U	0.018 U	0.59 U	0.0015 U
Phenol	108-95-2	260000	250000	0.0083 U	0.23 U	0.0089 U	0.0083 U	0.0082 U	0.0079 U	0.0081 U	0.008 U	0.0079 U	0.0083 U	0.008 U	2.2 U	0.18 U	5.9 U	0.015 U
Pyrene	129-00-0	68000	23000	0.0005 U	0.014 U	0.0046 J	0.0005 U	0.00049 U	0.00047 U	0.00049 U	0.24	0.00047 U	0.0005 U	0.00048 U	0.13 U	0.011 U	0.35 U	0.00093 U

Notes:
All concentrations reported in milligrams per kilogram (mg/kg
Underlined values exceed the WVDEP 60CSR3 Table 60-3B Migration to Groundwater Soil De Min
Bolded values exceed the WVDEP 60CSR3 Table 60-3B Industrial Soil De Minimis Standa

U - Target analyte not detected above listed Method Detection Lir
J - Estimated result. Result is less greater than the Method Detection Limit but less than the labarat
B - Method blank contamination. The associated method blank contains the target analyte at a repo
K - Analyte is present. Reported value may be biased high. Actual value is expected to be lov
L - Analyte is present. Reported value may be biased low. Actual value is expected to be higl
R - Data was rejected during the data validation proces

TABLE 2
SUMMARY OF SOIL ANALYTICAL DATA
AOC 6 - AST AREAS
FORMER BASF HUNTINGTON WORKS FACILITY
HUNTINGTON, WEST VIRGINIA

				AOC6-23
				AOC6-23-7.5
				N
				SO
				19 Aug 2016
				240-68573-9
				mg/kg
	CAS NO.	WVDEP INDUSTRIAL SOIL DE MINIMIS STANDARD (MG/KG)	EPA INDUSTRIAL SOIL SCREENING LEVEL (MG/KG)	
M8015D				
Diesel Range Organics [C10 - C28]	PHCC10C28	8300		580
M8015V				
Gasoline Range Organics [C6 - C10]	PHCC6C10	**6600**		77 K
SW6020A				
Lead	7439-92-1	1000	800	70 B
SW8260B				
1,1,1-Trichloroethane	71-55-6	640	36000	0.038 U
1,1,2,2-Tetrachloroethane	79-34-5	31	2.7	0.035 U
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	910	170000	0.059 U
1,1,2-Trichloroethane	79-00-5	57	5	0.027 U
1,1-Dichloroethane	75-34-3	170	16	0.05 U
1,1-Dichloroethene	75-35-4	1100	1000	0.042 U
1,2,4-Trichlorobenzene	120-82-1	280	110	0.042 U
1,2-Dibromo-3-Chloropropane	96-12-8	71	0.064	*0.1 U*
1,2-Dichlorobenzene	95-50-1	380	9300	0.027 U
1,2-Dichloroethane	107-06-2	23	2	0.014 U
1,2-Dichloropropane	78-87-5	47	4.4	0.045 U
1,3-Dichlorobenzene	541-73-1	NS	NS	0.042 U
1,4-Dichlorobenzene	106-46-7	140	11	0.073 J
2-Butanone (MEK)	78-93-3	28000	190000	0.1 U
2-Hexanone	591-78-6	NS	1300	0.12 U
4-Methyl-2-pentanone (MIBK)	108-10-1	3400	140000	0.079 U
Acetone	67-64-1	110000	670000	0.32 U
Benzene	71-43-2	57	5.1	0.14 J
Bromoform	75-25-2	3100	86	0.086 U
Bromomethane	74-83-9	33	30	0.072 U
Carbon disulfide	75-15-0	740	3500	0.079 U
Carbon tetrachloride	56-23-5	32	2.9	0.025 U
Chlorobenzene	108-90-7	760	1300	0.03 J
Chlorodibromomethane	124-48-1	290	39	0.028 U
Chloroethane	75-00-3	2100	57000	0.072 U
Chloroform	67-66-3	15	1.4	0.051 U
Chloromethane	74-87-3	510	460	0.068 UL
cis-1,2-Dichloroethene	156-59-2	82	2300	0.054 U
cis-1,3-Dichloropropene	10061-01-5	NS	NS	0.031 U
Cyclohexane	110-82-7	120	27000	0.042 U
Dichlorobromomethane	75-27-4	14	1.3	0.054 U
Dichlorodifluoromethane	75-71-8	800	370	0.086 U
Ethylbenzene	100-41-4	290	25	3.9
Ethylene Dibromide	106-93-4	1.8	0.16	0.045 U
Isopropylbenzene	98-82-8	270	9900	7.4
Methyl acetate	79-20-9	29000	1200000	0.34 J
Methyl tert-butyl ether	1634-04-4	2300	210	0.042 U
Methylcyclohexane	108-87-2	NS	NS	0.054 U
Methylene Chloride	75-09-2	3300	1000	0.12 U
Styrene	100-42-5	870	35000	0.038 U
Tetrachloroethene	127-18-4	170	100	0.038 U
Toluene	108-88-3	820	47000	0.12 B
trans-1,2-Dichloroethene	156-60-5	700	23000	0.037 U
trans-1,3-Dichloropropene	10061-02-6	NS	NS	0.037 U
Trichloroethene	79-01-6	21	6	0.055 U
Trichlorofluoromethane	75-69-4	1200	350000	0.05 U
Vinyl chloride	75-01-4	21	1.7	0.024 U
Xylenes, Tota	1330-20-7	260	2500	8.1

TABLE 2
SUMMARY OF SOIL ANALYTICAL DATA
AOC 6 - AST AREAS
FORMER BASF HUNTINGTON WORKS FACILITY
HUNTINGTON, WEST VIRGINIA

				AOC6-23
				AOC6-23-7.5
				N
				SO
				19 Aug 2016
				240-68573-9
				mg/kg
SW8270D				
1,1-Biphenyl	92-52-4	220	200	0.019 U
1,2-Diphenylhydrazine(as Azobenzene)	122-66-7	31	2.9	0.094 U
1,4-Dioxane	123-91-1	250	24	0.12 U
2,4,5-Trichlorophenol	95-95-4	88000	82000	0.14 U
2,4,6-Trichlorophenol	88-06-2	880	210	0.049 U
2,4-Dichlorophenol	120-83-2	2600	2500	0.11 U
2,4-Dimethylphenol	105-67-9	18000	16000	0.11 U
2,4-Dinitrophenol	51-28-5	1800	1600	0.12 U
2,4-Dinitrotoluene	121-14-2	80	7.4	0.094 U
2,6-Dinitrotoluene	606-20-2	890	1.5	0.12 U
2-Chloronaphthalene	91-58-7	64000	60000	0.0025 U
2-Chlorophenol	95-57-8	5100	5800	0.045 U
2-Methylnaphthalene	91-57-6	8200	3000	0.021 J
2-Methylphenol	95-48-7	44000	41000	0.061 U
2-Nitroaniline	88-74-4	8500	8000	0.05 U
2-Nitrophenol	88-75-5	NS	NS	0.046 U
2-Toluidine	95-53-4	100	140	0.2 U
3 & 4 Methylphenol	MEPH3MEPH4	NS	NS	0.11 U
3,3-Dichlorobenzidine	91-94-1	55	5.1	0.1 U
3,3-Dimethoxybenzidine	119-90-4	1800	1.4	0.28 U
3,3-Dimethylbenzidine	119-93-7	2.2	0.21	*0.35 U*
3-Nitroaniline	99-09-2	NS	NS	0.089 U
4,6-Dinitro-2-methylphenol	534-52-1	NS	66	0.051 U
4-Bromophenyl phenyl ether	101-55-3	NS	NS	0.072 U
4-Chloro-3-methylphenol	59-50-7	NS	82000	0.12 U
4-Chloroaniline	106-47-8	120	11	0.094 U
4-Chlorophenyl phenyl ether	7005-72-3	NS	NS	0.072 U
4-Nitroaniline	100-01-6	NS	110	0.14 U
4-Nitrophenol	100-02-7	NS	NS	0.094 U
Acenaphthene	83-32-9	66000	45000	0.0042 U
Acenaphthylene	208-96-8	74000		0.0019 U
Acetophenone	98-86-2	2500	120000	0.051 U
Aniline	62-53-3	4300	400	2
Anthracene	120-12-7	610000	230000	0.0043 U
Atrazine	1912-24-9	110	10	0.05 U
Benzaldehyde	100-52-7	1200	820	0.067 U
Benzidine	92-87-5	0.11	0.01	**0.16 U**
Benzo[a]anthracene	56-55-3	29	2.9	0.072
Benzo[a]pyrene	50-32-8	2.9	0.29	0.062
Benzo[b]fluoranthene	205-99-2	29	2.9	0.089
Benzo[g,h,i]perylene	191-24-2	23000		0.046
Benzo[k]fluoranthene	207-08-9	290	29	0.034 J
bis (2-chloroisopropyl) ether	108-60-1	300	47000	0.053 U
Bis(2-chloroethoxy)methane	111-91-1	NS	2500	0.12 U
Bis(2-chloroethyl)ether	111-44-4	13	1	0.011 U
Bis(2-ethylhexyl) phthalate	117-81-7	1800	160	0.11 U
Butyl benzyl phthalate	85-68-7	13000	1200	0.055 U
Caprolactam	105-60-2	440000	400000	0.21 U
Carbazole	86-74-8	NS	NS	0.15 U
Chrysene	218-01-9	2900	290	0.083
Dibenz(a,h)anthracene	53-70-3	2.9	0.29	0.0037 U
Dibenzofuran	132-64-9	2000	1000	0.0037 U
Diethyl phthalate	84-66-2	700000	660000	0.089 U
Dimethyl phthalate	131-11-3	NS	NS	0.094 U
Di-n-butyl phthalate	84-74-2	88000	82000	0.083 U
Di-n-octyl phthalate	117-84-0	NS	8200	0.044 U
Diphenylamine	122-39-4	22000	21000	2.9
Fluoranthene	206-44-0	30000	30000	0.11
Fluorene	86-73-7	57000	30000	0.0029 U
Hexachlorobenzene	118-74-1	15	0.96	0.012 U
Hexachlorobutadiene	87-68-3	320	5.3	0.031 U
Hexachlorocyclopentadiene	77-47-4	5300	7.5	0.045 U
Hexachloroethane	67-72-1	620	8	0.05 U
Indeno[1,2,3-cd]pyrene	193-39-5	29	2.9	0.038
Isophorone	78-59-1	26000	2400	0.072 U
Naphthalene	91-20-3	180	17	0.0045 U
Nitrobenzene	98-95-3	240	22	0.012 U
N-Nitrosodi-n-propylamine	621-64-7	3.5	0.33	0.035 U
N-Nitrosodiphenylamine	86-30-6	5000	470	3.4
Pentachlorophenol	87-86-5	33	4	0.05 U
Phenanthrene	85-01-8	610000		0.094
Phenol	108-95-2	260000	250000	0.04 U
Pyrene	129-00-0	58000	23000	0.11

Notes:
All concentrations reported in milligrams per kilogram (mg/kg
Underline values exceed the WVDEP 60CSR3 Table 60-3B Migration to Groundwater Soil De Min
Bolded values exceed the WVDEP 60CSR3 Table 60-3B Industrial Soil De Minimis Standa

U - Target analyte not detected above listed Method Detection Lir
J - Estimated result. Result is less greater than the Method Detection Limit but less than the labarat
B - Method blank contamination. The associated method blank contains the target analyte at a repo
K - Analyte is present. Reported value may be biased high. Actual value is expected to be lov
L - Analyte is present. Reported value may be biased low. Actual value is expected to be higl
R - Data was rejected during the data validation proces

TABLE 2
SUMMARY OF SOIL ANALYTICAL DATA
AOC 11 - SHIPPING AND WAREHOUSE AREA
FORMER BASF HUNTINGTON WORKS FACILITY
HUNTINGTON, WEST VIRGINIA

				Location	AOC11-01	AOC11-02	AOC11-03
				Sample	AOC11-01-12.5	AOC11-02-15	AOC11-03-20
				Sample Type	N	N	N
				Location	AOC11-01	AOC11-02	AOC11-03
				Sample	AOC11-01-12.5	AOC11-02-15	AOC11-03-20
				Sample Type	N	N	N
				Matrix	SO	SO	SO
				Sample Date	01 Aug 2016	01 Aug 2016	02 Aug 2016
				Lab Sample ID	240-67885-1	240-67885-3	240-67885-4
				Unit	mg/kg	mg/kg	mg/kg
	CAS NO.	WVDEP INDUSTRIAL SOIL DE MINIMIS STANDARD (MG/KG)	EPA INDUSTRIAL SOIL SCREENING LEVEL (MG/KG)	WVDEP MIGRATION TO GROUNDWATER DE MINIMIS STANDARD			
SW8260B							
1,1,1-Trichloroethane	71-55-6	640	36000	1.4	0.00058 U	0.00058 U	0.00068 U
1,1,2,2-Tetrachloroethane	79-34-5	31	2.7	0.00053	0.00028 U	0.00028 U	0.00032 U
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	910	170000	2800	0.00038 U	0.00037 U	0.00044 U
1,1,2-Trichloroethane	79-00-5	57	5	0.032	0.00033 U	0.00033 U	0.00038 U
1,1-Dichloroethane	75-34-3	170	16	0.014	0.00031 U	0.0003 U	0.00035 U
1,1-Dichloroethene	75-35-4	1100	1000	0.05	0.00072 U	0.00071 U	0.00083 U
1,2,4-Trichlorobenzene	120-82-1	280	110	4.1	0.00034 U	0.00034 U	0.00039 U
1,2-Dibromo-3-Chloropropane	96-12-8	71	0.064	0.0017	0.0024 U	0.0024 U	0.0028 U
1,2-Dichlorobenzene	95-50-1	380	9300	12	0.00031 U	0.0003 U	0.00035 U
1,2-Dichloroethane	107-06-2	23	2	0.028	0.00041 U	0.00041 U	0.00048 U
1,2-Dichloropropane	78-87-5	47	4.4	0.033	0.00013 U	0.00012 U	0.00015 U
1,3-Dichlorobenzene	541-73-1	NS	NS	NS	0.00062 U	0.00061 U	0.00072 U
1,4-Dichlorobenzene	106-46-7	140	11	1.4	0.00025 U	0.00025 U	0.00029 U
2-Butanone (MEK)	78-93-3	28000	190000	21	0.001 U	0.001 U	0.0068 J
2-Hexanone	591-78-6	NS	1300	NS	0.00061 U	0.00061 U	0.00071 U
4-Methyl-2-pentanone (MIBK)	108-10-1	3400	140000	4.7	0.0011 U	0.0011 U	0.0013 U
Acetone	67-64-1	110000	670000	47	0.0082 B	0.0051 U	0.039 B
Benzene	71-43-2	57	5.1	0.051	0.00081 U	0.0008 U	0.00093 U
Bromoform	75-25-2	3100	86	0.045	0.00022 U	0.00021 U	0.00025 U
Bromomethane	74-83-9	33	30	0.036	0.00038 U	0.00037 U	0.00044 U
Carbon disulfide	75-15-0	740	3500	4.5	0.00053 U	0.00053 U	0.00061 U
Carbon tetrachloride	56-23-5	32	2.9	0.039	0.00058 U	0.00058 U	0.00068 U
Chlorobenzene	108-90-7	760	1300	1.4	0.00048 U	0.00047 U	0.00055 U
Chlorodibromomethane	124-48-1	290	39	0.0043	0.00033 U	0.00033 U	0.00038 U
Chloroethane	75-00-3	2100	57000	120	0.00039 U	0.00039 U	0.00046 U
Chloroform	67-66-3	15	1.4	0.0011	0.00032 U	0.00032 U	0.00037 U
Chloromethane	74-87-3	510	460	0.98	0.00071 U	0.0007 U	0.00082 U
cis-1,2-Dichloroethene	156-59-2	82	2300	0.41	0.00025 U	0.00025 U	0.00029 U
cis-1,3-Dichloropropene	10061-01-5	NS	NS	NS	0.00064 U	0.00063 U	0.00074 U
Cyclohexane	110-82-7	120	27000	260	0.00043 U	0.00043 U	0.0005 U
Dichlorobromomethane	75-27-4	14	1.3	0.00064	0.00026 U	0.00026 U	0.0003 U
Dichlorodifluoromethane	75-71-8	800	370	11	0.00025 U	0.00025 U	0.00029 U
Ethylbenzene	100-41-4	290	25	16	0.00029 U	0.00029 U	0.00033 U
Ethylene Dibromide	106-93-4	1.8	0.16	0.00028	0.00048 U	0.00047 U	0.00055 U
Isopropylbenzene	98-82-8	270	9900	18	0.00018 U	0.00018 U	0.00021 U
Methyl acetate	79-20-9	29000	1200000	21	0.0018 U	0.0018 U	0.0021 U
Methyl tert-butyl ether	1634-04-4	2300	210	0.056	0.00039 U	0.00038 U	0.00045 U
Methylcyclohexane	108-87-2	NS	NS	NS	0.00052 U	0.00052 U	0.0006 U
Methylene Chloride	75-09-2	3300	1000	0.026	0.00066 U	0.00066 U	0.00077 U
Styrene	100-42-5	870	35000	2.2	0.00036 U	0.00036 U	0.00042 U
Tetrachloroethene	127-18-4	170	100	0.045	0.00072 U	0.00071 U	0.00083 U
Toluene	108-88-3	820	47000	14	0.00024 U	0.00024 U	0.00028 U
trans-1,2-Dichloroethene	156-60-5	700	23000	0.59	0.00029 U	0.00029 U	0.00033 U
trans-1,3-Dichloropropene	10061-02-6	NS	NS	NS	0.00026 U	0.00026 U	0.0003 U
Trichloroethene	79-01-6	21	6	0.036	0.00034 U	0.00034 U	0.00039 U
Trichlorofluoromethane	75-69-4	1200	350000	14	0.00026 U	0.00026 U	0.0003 U
Vinyl chloride	75-01-4	21	1.7	0.014	0.00027 U	0.00027 U	0.00031 U
Xylenes, Total	1330-20-7	260	2500	200	0.00048 U	0.00048 U	0.00056 U

TABLE 2
SUMMARY OF SOIL ANALYTICAL DATA
AOC 11 - SHIPPING AND WAREHOUSE AREA
FORMER BASF HUNTINGTON WORKS FACILITY
HUNTINGTON, WEST VIRGINIA

SW8270D							
1,1-Biphenyl	92-52-4	220	200	0.17	0.0044 U	0.0046 U	0.0048 UL
1,2-Diphenylhydrazine(as Azobenzene	122-66-7	31	2.9	0.0054	0.021 U	0.022 U	0.024 UL
1,4-Dioxane	123-91-1	250	24	0.0028	0.028 U	0.029 U	0.03 UL
2,4,5-Trichloropheno	95-95-4	88000	82000	120	0.032 U	0.033 U	0.035 UL
2,4,6-Trichloropheno	88-06-2	880	210	0.46	0.011 U	0.012 U	0.012 UL
2,4-Dichloropheno	120-83-2	2600	2500	1.1	0.025 U	0.026 U	0.028 UL
2,4-Dimethylpheno	105-67-9	18000	16000	7.4	0.025 U	0.026 U	0.028 UL
2,4-Dinitropheno	51-28-5	1800	1600	0.7	0.027 U	0.028 U	0.029 UL
2,4-Dinitrotoluene	121-14-2	80	7.4	0.0059	0.021 U	0.022 U	0.024 UL
2,6-Dinitrotoluene	606-20-2	890	1.5	0.43	0.027 U	0.028 U	0.029 UL
2-Chloronaphthalene	91-58-7	64000	60000	41	0.00057 U	0.00059 U	0.00062 UL
2-Chlorophenol	95-57-8	5100	5800	0.41	0.01 U	0.011 U	0.011 UL
2-Methylnaphthalene	91-57-6	8200	3000	0.51	0.00063 U	0.00066 U	0.0079 L
2-Methylpheno	95-48-7	44000	41000	13	0.014 U	0.015 U	0.015 UL
2-Nitroaniline	88-74-4	8500	8000	1.3	0.012 U	0.012 U	0.013 UL
2-Nitrophenol	88-75-5	NS	NS	NS	0.01 U	0.011 U	0.012 UL
2-Toluidine	95-53-4	100	140	0.0024	0.046 U	0.048 U	0.05 UL
3 & 4 Methylpheno	MEPH3MEPH4	NS	NS	NS	0.025 U	0.026 U	0.028 UL
3,3-Dichlorobenzidine	91-94-1	55	5.1	0.02	0.023 U	0.024 U	0.025 UL
3,3-Dimethoxybenzidine	119-90-4	1800	1.4	0.12	0.064 U	0.067 U	0.071 UL
3,3-Dimethylbenzidine	119-93-7	2.2	0.21	0.0008	0.08 U	0.083 U	0.087 UL
3-Nitroaniline	99-09-2	NS	NS	NS	0.02 U	0.021 U	0.022 UL
4,6-Dinitro-2-methylpheno	534-52-1	NS	66	NS	0.012 U	0.012 U	0.013 UL
4-Bromophenyl phenyl ether	101-55-3	NS	NS	NS	0.016 U	0.017 U	0.018 UL
4-Chloro-3-methylpheno	59-50-7	NS	82000	NS	0.027 U	0.028 U	0.029 UL
4-Chloroaniline	106-47-8	120	11	0.0029	0.021 U	0.022 U	0.024 UL
4-Chlorophenyl phenyl ethe	7005-72-3	NS	NS	NS	0.016 U	0.017 U	0.018 UL
4-Nitroaniline	100-01-6	NS	110	NS	0.033 U	0.034 U	0.036 UL
4-Nitrophenol	100-02-7	NS	NS	NS	0.021 U	0.022 U	0.024 UL
Acenaphthene	83-32-9	66000	45000	61	0.00096 U	0.001 U	0.0011 UL
Acenaphthylene	208-96-8	74000		61	0.00044 U	0.00046 U	0.00048 UL
Acetophenone	98-86-2	2500	120000	9.5	0.012 U	0.012 U	0.013 UL
Aniline	62-53-3	4300	400	0.08	0.014 U	0.015 U	0.015 UL
Anthracene	120-12-7	610000	230000	3100	0.00099 U	0.001 U	0.0011 UL
Atrazine	1912-24-9	110	10	0.039	0.012 U	0.012 U	0.013 UL
Benzaldehyde	100-52-7	1200	820	2.2	0.015 U	0.016 U	0.017 UL
Benzidine	92-87-5	0.11	0.01	4.8E-06	0.037 U	0.038 U	0.04 UL
Benzo[a]anthracene	56-55-3	29	2.9	0.21	0.0008 U	0.00083 U	0.00087 UL
Benzo[a]pyrene	50-32-8	2.9	0.29	4.7	0.00081 U	0.00085 U	0.00089 UL
Benzo[b]fluoranthene	205-99-2	29	2.9	0.71	0.00075 U	0.00078 U	0.0081 L
Benzo[g,h,i]perylene	191-24-2	23000		37000	0.00044 U	0.00046 U	0.00048 UL
Benzo[k]fluoranthene	207-08-9	290	29	6.9	0.00086 U	0.0009 U	0.00094 UL
bis (2-chloroisopropyl) ether	108-60-1	300	47000	0.0024	0.012 U	0.013 U	0.013 UL
Bis(2-chloroethoxy)methane	111-91-1	NS	2500	NS	0.028 U	0.029 U	0.03 UL
Bis(2-chloroethyl)ether	111-44-4	13	1	6.3E-05	0.0025 U	0.0026 U	0.0028 UL
Bis(2-ethylhexyl) phthalate	117-81-7	1800	160	29	0.057 B	0.071 JB	0.042 LB
Butyl benzyl phthalate	85-68-7	13000	1200	10	0.013 U	0.013 U	0.014 UL
Caprolactam	105-60-2	440000	400000	39	0.047 U	0.049 U	0.051 UL
Carbazole	86-74-8	NS	NS	NS	0.034 U	0.036 U	0.037 UL
Chrysene	218-01-9	2900	290	21	0.0014 U	0.0015 U	0.011 L
Dibenz(a,h)anthracene	53-70-3	2.9	0.29	0.23	0.00083 U	0.00087 U	0.00091 UL
Dibenzofuran	132-64-9	2000	1000	5.8	0.00083 U	0.00087 U	0.00091 UL
Diethyl phthalate	84-66-2	700000	660000	100	0.02 U	0.021 U	0.022 UL
Dimethyl phthalate	131-11-3	NS	NS	NS	0.021 U	0.022 U	0.024 UL
Di-n-butyl phthalate	84-74-2	88000	82000	79	0.019 U	0.02 U	0.021 UL
Di-n-octyl phthalate	117-84-0	NS	8200	NS	0.01 U	0.01 U	0.011 UL
Diphenylamine	122-39-4	22000	21000	14	0.027 U	0.028 U	0.029 UL
Fluoranthene	206-44-0	30000	30000	1400	0.0007 U	0.00073 U	0.00076 UL
Fluorene	86-73-7	57000	30000	74	0.00067 U	0.0007 U	0.00073 UL
Hexachlorobenzene	118-74-1	15	0.96	0.25	0.0027 U	0.0028 U	0.0029 UL
Hexachlorobutadiene	87-68-3	320	5.3	0.033	0.0071 U	0.0074 U	0.0078 UL
Hexachlorocyclopentadiene	77-47-4	5300	7.5	3.1	0.01 U	0.011 U	0.011 UL
Hexachloroethane	67-72-1	620	8	0.02	0.011 U	0.012 U	0.012 UL
Indeno[1,2,3-cd]pyrene	193-39-5	29	2.9	2.3	0.00044 U	0.00046 U	0.00048 UL
Isophorone	78-59-1	26000	2400	0.47	0.016 U	0.017 U	0.018 UL
Naphthalene	91-20-3	180	17	0.0094	0.001 U	0.0011 U	0.0011 UL
Nitrobenzene	98-95-3	240	22	0.0016	0.0028 U	0.0029 U	0.003 UL
N-Nitrosodi-n-propylamine	621-64-7	3.5	0.33	0.00014	0.008 U	0.0083 U	0.0087 UL
N-Nitrosodiphenylamine	86-30-6	5000	470	1.5	0.027 U	0.028 U	0.029 UL
Pentachloropheno	87-86-5	33	4	0.2	0.012 U	0.012 U	0.013 UL
Phenanthrene	85-01-8	610000	NS	3200	0.0074 J	0.00096 U	0.018 L
Phenol	108-95-2	260000	250000	54	0.0092 U	0.0096 U	0.01 UL
Pyrene	129-00-0	58000	23000	320	0.00056 U	0.00058 U	0.0093 L

Notes:
All concentrations reported in milligrams per kilogram (mg/kg)
Underlined values exceed the WVDEP 60CSR3 Table 60-3B Migration to Groundwater Soil De Minimis Standard
Bolded values exceed the WVDEP 60CSR3 Table 60-3B Industrial Soil De Minimis Standard

U - Target analyte not detected above listed Method Detection Limit
J - Estimated result. Result is less greater than the Method Detection Limit but less than the labaratory method Reporting Limi
B - Method blank contamination. The associated method blank contains the target analyte at a reportable leve
K - Analyte is present. Reported value may be biased high. Actual value is expected to be lowe
L - Analyte is present. Reported value may be biased low. Actual value is expected to be highe

TABLE 3
GROUNDWATER ELEVATION DATA SUMMARY
AUGUST 29, 2016
FORMER BASF HUNTINGTON WORKS FACILITY
HUNTINGTON, WEST VIRGINIA

Well Identification	Well Depth (feet BTOC)	Screened Interval (Feet BTOC)	Top of Casing Reference Elevation (Feet MSL)	Depth to Groundwater (08/29/2016) Feet BTOC	Groundwater Elevation (08/29/2016) Feet MSL
TMW-1D	53.50	43.50 - 53.50	547.49	24.94	522.55
TMW-2D	38.00	28.00 - 38.00	548.61	25.60	523.01
TMW-4S	30.00	20.00 - 30.00	549.64	26.56	523.08
TMW-4D	56.00	51.00 - 56.00	549.71	26.75	522.96
TMW-5D	58.00	48.00 - 58.00	557.31	34.60	522.71
TMW-6D	54.00	44.00 - 54.00	549.03	26.22	522.81
TMW-7D	51.50	41.50 - 51.50	550.05	27.48	522.57
TMW-8D	58.50	48.50 - 58.50	557.14	34.32	522.82
TMW-9D	54.50	44.50 - 54.50	547.81	25.26	522.55
TMW-11S	35.00	25.00 - 35.00	554.27	31.25	523.02
TMW-12D	54.50	44.50 - 54.50	545.00	22.55	522.45
TMW-13	40.50	30.50 - 40.50	558.61	35.81	522.80
TMW-14	33.50	23.50 - 33.50	549.75	26.99	522.76
TMW-15	33.00	23.00 - 33.00	550.89	28.17	522.72
TMW-16	33.00	23.00 - 33.00	550.59	27.96	522.63
TMW-17	43.00	33.00 - 43.00	559.62	36.97	522.65
TMW-26	33.50	23.50 - 33.50	547.64	24.98	522.66
TMW-27	33.50	23.50 - 33.50	547.28	24.64	522.64
TMW-28	33.50	23.50 - 33.50	547.45	24.85	522.60
TMW-29	33.50	23.50 - 33.50	547.47	24.93	522.54
TMW-30	33.50	23.50 - 33.50	547.37	24.91	522.46
TMW-31	33.50	23.50 - 33.50	546.90	24.41	522.49

Notes:

bgs = Below ground surface

BTOC = Below Top of casing

MSL = Mean Sea Level

TABLE 4

STABILIZED GROUNDWATER FIELD PARAMETER MEASUREMENTS - AUGUST 29 - 31, 2016
FORMER BASF HUNTINGTON WORKS FACILITY
HUNTINGTON, WEST VIRGINIA

Well ID	Temperature (degrees C)	pH (STU)	Specific Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)
TMW-1D	22.90	6.10	0.324	9.7	0.07	74
TMW-2D	22.04	6.64	0.292	5.6	0.31	-84
TMW-4S	25.79	6.49	0.835	5.7	2.45	-56
TMW-4D	24.37	6.67	0.432	5.6	0.30	-154
TMW-5D	18.75	5.96	0.283	0.1	0.01	121
TMW-6D	22.18	5.53	0.512	0.8	0.10	236
TMW-7D	21.72	5.57	0.253	2.8	0.01	157
TMW-8D	18.36	6.01	0.540	0.1	0.12	69
TMW-9D	21.76	5.14	0.410	4.7	0.32	229
TMW-11S	20.46	6.12	0.501	0.1	1.52	-37
TMW-12D	24.96	6.20	0.360	8.1	0.21	37
TMW-13	19.53	5.96	0.262	0.1	1.59	239
TMW-14	19.21	5.49	0.300	1.0	1.95	229
TMW-15	19.82	5.78	0.242	1.8	0.48	81
TMW-16	22.51	5.07	0.185	4.6	0.84	222
TMW-17	20.61	5.86	0.254	5.7	1.26	209
TMW-26	24.22	5.72	0.511	7.3	0.11	195
TMW-27	20.71	5.31	0.517	2.6	0.09	229
TMW-28	20.63	5.66	0.509	5.9	0.11	232
TMW-29	21.30	5.64	0.486	7.0	0.08	181
TMW-30	21.28	5.28	0.501	2.1	0.12	189
TMW-31	22.60	5.72	0.457	8.0	0.89	234

Notes:

C = Degrees celsius.

mS/cm = Millisiemens per centimeter.

STU = Standard units.

mg/L = Milligrams per liter.

mV = Millivolts.

NTU = Nephelometric Turbidity Units.

TABLE 5
SUMMARY OF GROUNDWATER ANALYTICAL DATA
25TH STREET LANDFILL
FORMER BASF HUNTINGTON WORKS FACILITY
HUNTINGTON, WEST VIRGINIA

			Location	TMW-13	TMW-14	TMW-15	TMW-16	TMW-17	TMW-5D	TMW-6D	TMW-7D	TMW-7D	TMW-8D
			Sample	TMW-13	TMW-14	TMW-15	TMW-16	TMW-17	TMW-5D	TMW-6D	TMW-18	TMW-7D	TMW-8D
			Sample Type	N	N	N	N	N	N	N	FD	N	N
			Matrix	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG
			Sample Date	29 Aug 2016	30 Aug 2016	30 Aug 2016	30 Aug 2016	29 Aug 2016	29 Aug 2016	30 Aug 2016	30 Aug 2016	30 Aug 2016	29 Aug 2016
			Lab Sample ID	240-68908-3	240-68908-9	240-68908-8	240-68908-10	240-68908-4	240-68908-5	240-68972-3	240-68972-2	240-68972-1	240-68908-1
			Unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
ANALYTE	**CAS NO.**	**EPA MCLs**	**WV 60-3B GW DE MINIMIS CONCENTRATION**										
SW6020A													
Aluminum	7429-90-5	NS	16000	380	80	17 J	24 J	180	NA	NA	NA	NA	NA
Antimony	7440-36-0	6	6.3	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	NA	NA	NA	NA	NA
Arsenic	7440-38-2	10	10	0.58 J	0.57 J	0.35 U	0.35 U	0.76 J	NA	NA	NA	NA	NA
Barium	7440-39-3	2000	2000	44	59	81	74	63	NA	NA	NA	NA	NA
Beryllium	7440-41-7	4	4	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	NA	NA	NA	NA	NA
Cadmium	7440-43-9	5	5	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U	NA	NA	NA	NA	NA
Calcium	7440-70-2	NS	NS	30000	31000	23000	16000	23000	NA	NA	NA	NA	NA
Chromium	7440-47-3	100	NS	0.71 J	0.31 J	0.26 U	1.4 J	0.57 J	NA	NA	NA	NA	NA
Cobalt	7440-48-4	NS	4.7	0.42 J	0.66 J	4.8	6.3	0.72 J	NA	NA	NA	NA	NA
Copper	7440-50-8	1300	630	1.1 JB	0.61 JB	0.36 U	0.89 JB	0.89 JB	NA	NA	NA	NA	NA
Iron	7439-89-6	NS	11000	350	240	5800	440	320	NA	NA	NA	NA	NA
Lead	7439-92-1	15	15	0.22 J	0.19 J	0.16 U	0.16 U	0.42 J	NA	NA	NA	NA	NA
Magnesium	7439-95-4	NS	NS	14000	13000	11000	8400	11000	NA	NA	NA	NA	NA
Manganese	7439-96-5	NS	740	690 B	120 B	1300 B	420 B	26 B	NA	NA	NA	NA	NA
Nickel	7440-02-0	NS	310	1.5 J	2.7	3.9	6.5	1.3 J	NA	NA	NA	NA	NA
Potassium	7440-09-7	NS	NS	2800 L	3300 L	2500 L	2000 L	2700 L	NA	NA	NA	NA	NA
Selenium	7782-49-2	50	50	0.55 J	1.5 J	0.66 J	0.76 J	0.67 J	NA	NA	NA	NA	NA
Silver	7440-22-4	NS	78	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	NA	NA	NA	NA	NA
Sodium	7440-23-5	NS	NS	28000 B	48000 B	29000 B	33000 B	42000 B	NA	NA	NA	NA	NA
Thallium	7440-28-0	2	2	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	NA	NA	NA	NA	NA
Vanadium	7440-62-2	NS	1.1	0.54 U	0.54 U	0.54 U	0.54 U	0.89 J	NA	NA	NA	NA	NA
Zinc	7440-66-6	NS	4700	6.2 U	6.2 U	11 J	19 J	7.6 J	NA	NA	NA	NA	NA
SW7470A													
Mercury	7439-97-6	2	2	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	NA	NA	NA	NA	NA
SW8082													
Aroclor-1016	12674-11-2	NS	0.96	0.048 U	0.048 U	0.053 U	0.05 U	0.048 U	NA	NA	NA	NA	NA
Aroclor-1221	11104-28-2	NS	0.0068	0.086 U	0.086 U	0.095 U	0.09 U	0.086 U	NA	NA	NA	NA	NA
Aroclor-1232	11141-16-5	NS	0.0068	0.067 U	0.067 U	0.074 U	0.07 U	0.067 U	NA	NA	NA	NA	NA
Aroclor-1242	53469-21-9	NS	0.034	0.057 U	0.057 U	0.063 U	0.06 U	0.057 U	NA	NA	NA	NA	NA
Aroclor-1248	12672-29-6	NS	0.034	0.048 U	0.048 U	0.053 U	0.05 U	0.048 U	NA	NA	NA	NA	NA
Aroclor-1254	11097-69-1	NS	0.034	0.029 U	0.029 U	0.032 U	0.03 U	0.029 U	NA	NA	NA	NA	NA
Aroclor-1260	11096-82-5	NS	0.034	0.038 U	0.038 U	0.042 U	0.04 U	0.038 U	NA	NA	NA	NA	NA
Aroclor-1262	37324-23-5	NS	NS	0.048 U	0.048 U	0.053 U	0.05 U	0.048 U	NA	NA	NA	NA	NA
Aroclor-1268	11100-14-4	NS	NS	0.086 U	0.086 U	0.095 U	0.09 U	0.086 U	NA	NA	NA	NA	NA

TABLE 5
SUMMARY OF GROUNDWATER ANALYTICAL DATA
25TH STREET LANDFILL
FORMER BASF HUNTINGTON WORKS FACILITY
HUNTINGTON, WEST VIRGINIA

			Location	TMW-13	TMW-14	TMW-15	TMW-16	TMW-17	TMW-5D	TMW-6D	TMW-7D	TMW-7D	TMW-8D
			Sample	TMW-13	TMW-14	TMW-15	TMW-16	TMW-17	TMW-5D	TMW-6D	TMW-18	TMW-7D	TMW-8D
			Sample Type	N	N	N	N	N	N	N	FD	N	N
			Matrix	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG
			Sample Date	29 Aug 2016	30 Aug 2016	30 Aug 2016	30 Aug 2016	29 Aug 2016	29 Aug 2016	30 Aug 2016	30 Aug 2016	30 Aug 2016	29 Aug 2016
			Lab Sample ID	240-68908-3	240-68908-9	240-68908-8	240-68908-10	240-68908-4	240-68908-5	240-68972-3	240-68972-2	240-68972-1	240-68908-1
			Unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
SW8260B													
1,1,1-Trichloroethane	71-55-6	200	200	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U
1,1,2,2-Tetrachloroethane (1,1,2,2-PCA	79-34-5	NS	0.067	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	*0.22 U*	*0.22 U*
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	NS	55000	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U
1,1,2-Trichloroethane	79-00-5	5	5	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
1,1-Dichloroethane	75-34-3	NS	2.4	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
1,1-Dichloroethene	75-35-4	7	7	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U
1,2,4-Trichlorobenzene (1,2,4-TCB	120-82-1	70	70	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U
1,2-Dibromo-3-Chloropropane	96-12-8	0.2	0.2	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U
1,2-Dichlorobenzene	95-50-1	600	600	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,2-Dichloroethane	107-06-2	5	5	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U
1,2-Dichloropropane	78-87-5	5	5	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,3-Dichlorobenzene	541-73-1	NS	NS	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
1,4-Dichlorobenzene	106-46-7	75	75	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
2-Butanone (MEK)	78-93-3	NS	4900	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U
2-Hexanone	591-78-6	NS	NS	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U*	0.48 U
4-Methyl-2-pentanone (MIBK	108-10-1	NS	1000	0.99 U	0.99 U	0.99 U	0.99 U	0.99 U	0.99 U	0.99 U	0.99 U	0.99 U	0.99 U
Acetone	67-64-1	NS	12000	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	3.7 B	3.5 B	2.2 B	0.94 U
Benzene	71-43-2	5	5	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U
Bromoform	75-25-2	80	8.5	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U
Bromomethane	74-83-9	NS	7.1	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U
Carbon disulfide	75-15-0	NS	760	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U
Carbon tetrachloride	56-23-5	5	5	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U
Chlorobenzene	108-90-7	100	100	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Chlorodibromomethane	124-48-1	80	0.8	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U
Chloroethane	75-00-3	NS	21000	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U
Chloroform	67-66-3	80	0.19	*0.25 U*	*0.25 U*	*0.25 U*	*0.25 U*	*0.25 U*	*0.25 U*	*0.25 U*	*0.25 U*	*0.25 U*	*0.25 U*
Chloromethane	74-87-3	NS	190	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.66 J	0.68 J	0.44 U
cis-1,2-Dichloroethene	156-59-2	70	70	0.26 U	0.26 U	0.26 U	0.26 U	1.3	2.9	0.26 U	5.2	5.3	0.26 U
cis-1,3-Dichloropropene	10061-01-5	NS	NS	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U
Cyclohexane	110-82-7	NS	12000	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U
Dichlorobromomethane	75-27-4	80	0.12	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	*0.29 U*	*0.29 U*
Dichlorodifluoromethane	75-71-8	NS	370	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U
Ethylbenzene	100-41-4	700	700	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Ethylene Dibromide	106-93-4	0.05	0.05	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U
Isopropylbenzene	98-82-8	NS	540	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U
Methyl acetate	79-20-9	NS	5000	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U
Methyl tert-butyl ethe	1634-04-4	NS	12	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Methylcyclohexane	108-87-2	NS	NS	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U
Methylene Chloride	75-09-2	5	5	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Styrene	100-42-5	100	100	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U
Tetrachloroethene (PCE	127-18-4	5	5	0.31 U	0.31 U	0.31 U	0.31 U	**11**	0.31 U	0.31 U	0.62 J	0.67 J	0.31 U
Toluene	108-88-3	1000	1000	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U
trans-1,2-Dichloroethene	156-60-5	100	100	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
trans-1,3-Dichloropropene	10061-02-6	NS	NS	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U
Trichloroethene (TCE)	79-01-6	5	5	0.22 U	0.22 U	0.3 J	0.31 J	**8.6**	**9.4**	0.22 U	**31**	**30**	0.22 U
Trichlorofluoromethane	75-69-4	NS	1100	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U
Vinyl chloride	75-01-4	2	2	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U
Xylenes, Tota	1330-20-7	10000	10000	0.52 U	0.52 U	0.52 U	0.52 U	0.52 U	0.52 U	0.52 U	0.52 U	0.52 U	0.52 U

TABLE 5
SUMMARY OF GROUNDWATER ANALYTICAL DATA
25TH STREET LANDFILL
FORMER BASF HUNTINGTON WORKS FACILITY
HUNTINGTON, WEST VIRGINIA

			Location	TMW-13	TMW-14	TMW-15	TMW-16	TMW-17	TMW-5D	TMW-6D	TMW-7D	TMW-7D	TMW-8D
			Sample	TMW-13	TMW-14	TMW-15	TMW-16	TMW-17	TMW-5D	TMW-6D	TMW-18	TMW-7D	TMW-8D
			Sample Type	N	N	N	N	N	N	N	FD	N	N
			Matrix	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG
			Sample Date	29 Aug 2016	30 Aug 2016	30 Aug 2016	30 Aug 2016	29 Aug 2016	29 Aug 2016	30 Aug 2016	30 Aug 2016	30 Aug 2016	29 Aug 2016
			Lab Sample ID	240-68908-3	240-68908-9	240-68908-8	240-68908-10	240-68908-4	240-68908-5	240-68972-3	240-68972-2	240-68972-1	240-68908-1
			Unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
SW8270D													
1,1-Bipheny	92-52-4	NS	0.83	0.12 U	0.12 U	0.13 U	0.13 U	0.12 U	0.12 U	0.13 U	NA	0.13 U	0.12 U
1,2-Diphenylhydrazine(as Azobenzene	122-66-7	NS	0.084	0.28 U	0.28 U	0.3 U	0.29 U	0.28 U	0.28 U	0.28 U	NA	*0.29 U*	*0.28 U*
1,4-Dioxane	123-91-1	NS	0.67	0.47 U	0.47 U	0.51 U	0.49 U	0.47 U	0.47 U	0.47 U	NA	0.49 U	0.47 U
2,4,5-Trichloropheno	95-95-4	NS	1600	0.29 U	0.29 U	0.31 U	0.3 U	0.29 U	0.29 U	0.29 U	NA	0.3 U	0.29 U
2,4,6-Trichloropheno	88-06-2	NS	6.1	0.23 U	0.23 U	0.25 U	0.24 U	0.23 U	0.23 U	0.23 U	NA	0.24 U	0.23 U
2,4-Dichloropheno	120-83-2	NS	47	0.18 U	0.18 U	0.2 U	0.19 U	0.18 U	0.18 U	0.18 U	NA	0.19 U	0.18 U
2,4-Dimethylpheno	105-67-9	NS	310	0.24 U	0.24 U	0.26 U	0.25 U	0.24 U	0.24 U	0.24 U	NA	0.25 U	0.24 U
2,4-Dinitropheno	51-28-5	NS	31	0.3 U	0.3 U	0.33 U	0.32 U	0.3 U	0.3 U	0.31 U	NA	0.32 U	0.3 U
2,4-Dinitrotoluene	121-14-2	NS	0.22	0.24 U	0.24 U	0.26 U	0.25 U	0.24 U	0.24 U	0.24 U	NA	0.25 U	0.24 U
2,6-Dinitrotoluene	606-20-2	NS	16	0.76 U	0.76 U	0.82 U	0.81 U	0.76 U	0.76 U	0.77 U	NA	0.8 U	0.76 U
2-Chloronaphthalene	91-58-7	NS	400	0.095 U	0.095 U	0.1 U	0.1 U	0.095 U	0.095 U	0.096 U	NA	0.1 U	0.095 U
2-Chloropheno	95-57-8	NS	25	0.28 U	0.28 U	0.3 U	0.29 U	0.28 U	0.28 U	0.28 U	NA	0.29 U	0.28 U
2-Methylnaphthalene	91-57-6	NS	63	0.086 U	0.086 U	0.093 U	0.091 U	0.086 U	0.086 U	0.087 U	NA	0.09 U	0.086 U
2-Methylpheno	95-48-7	NS	780	0.16 U	0.16 U	0.18 U	0.17 U	0.16 U	0.16 U	0.16 U	NA	0.17 U	0.16 U
2-Nitroaniline	88-74-4	NS	160	0.2 U	0.2 U	0.22 U	0.21 U	0.2 U	0.2 U	0.2 U	NA	0.21 U	0.2 U
2-Nitropheno	88-75-5	NS	NS	0.27 U	0.27 U	0.29 U	0.28 U	0.27 U	0.27 U	0.27 U	NA	0.28 U	0.27 U
2-Toluidine	95-53-4	NS	0.28	0.69 U	0.69 U	0.74 U	0.73 U	0.69 U	0.69 U	0.69 U	NA	0.72 U	0.69 U
3 & 4 Methylpheno	MEPH3MEPH4	NS	NS	0.76 U	0.76 U	0.82 U	0.81 U	0.76 U	0.76 U	0.77 U	NA	0.8 U	0.76 U
3,3-Dichlorobenzidine	91-94-1	NS	0.15	0.35 U	0.35 U	0.38 U	0.37 U	0.35 U	0.35 U	0.36 U	NA	0.37 U	0.35 U
3,3-Dimethoxybenzidine	119-90-4	NS	4.8	9.5 U	9.5 U	10 U	10 U	9.5 U	9.5 U	9.6 U	NA	10 U	9.5 U
3,3-Dimethylbenzidine	119-93-7	NS	0.0061	0.74 U	0.74 U	0.8 U	0.79 U	0.74 U	0.74 U	0.75 U	NA	0.78 U	0.74 U
3-Nitroaniline	99-09-2	NS	NS	0.27 U	0.27 U	0.29 U	0.28 U	0.27 U	0.27 U	0.27 U	NA	0.28 U	0.27 U
4,6-Dinitro-2-methylphenc	534-52-1	NS	NS	2.3 U	2.3 U	2.5 U	2.4 U	2.3 U	2.3 U	2.3 U	NA	2.4 U	2.3 U
4-Bromophenyl phenyl ethe	101-55-3	NS	NS	0.21 U	0.21 U	0.23 U	0.22 U	0.21 U	0.21 U	0.21 U	NA	0.22 U	0.21 U
4-Chloro-3-methylpheno	59-50-7	NS	NS	0.2 U	0.2 U	0.22 U	0.21 U	0.2 U	0.2 U	0.2 U	NA	0.21 U	0.2 U
4-Chloroaniline	106-47-8	NS	0.34	0.2 U	0.2 U	0.22 U	0.21 U	0.2 U	0.2 U	0.2 U	NA	0.21 U	0.2 U
4-Chlorophenyl phenyl ethe	7005-72-3	NS	NS	0.29 U	0.29 U	0.31 U	0.3 U	0.29 U	0.29 U	0.29 U	NA	0.3 U	0.29 U
4-Nitroaniline	100-01-6	NS	NS	0.21 U	0.21 U	0.23 U	0.22 U	0.21 U	0.21 U	0.21 U	NA	0.22 U	0.21 U
4-Nitropheno	100-02-7	NS	NS	0.28 U	0.28 U	0.3 U	0.29 U	0.28 U	0.28 U	0.28 U	NA	0.29 U	0.28 U
Acenaphthene	83-32-9	NS	300	0.042 U	0.042 U	0.046 U	0.045 U	0.042 U	0.042 U	0.043 U	NA	0.044 U	0.042 U
Acenaphthylene	208-96-8	NS	300	0.046 U	0.046 U	0.05 U	0.049 U	0.046 U	0.046 U	0.046 U	NA	0.048 U	0.046 U
Acetophenone	98-86-2	NS	1600	0.32 U	0.32 U	0.35 U	0.34 U	0.32 U	0.32 U	0.33 U	NA	0.34 U	0.32 U
Aniline	62-53-3	NS	12	0.32 U	0.32 U	0.35 U	0.34 U	0.32 U	0.32 U	0.33 U	NA	0.34 U	0.32 U
Anthracene	120-12-7	NS	4700	0.084 U	0.084 U	0.091 U	0.089 U	0.084 U	0.084 U	0.085 U	NA	0.088 U	0.084 U
Atrazine	1912-24-9	3	3	0.32 U	0.32 U	0.35 U	0.34 U	0.32 U	0.32 U	0.33 U	NA	0.34 U	0.32 U
Benzaldehyde	100-52-7	NS	500	0.37 U	0.37 U	0.4 U	0.39 U	0.37 U	0.37 U	0.37 U	NA	0.39 U	0.37 U
Benzidine	92-87-5	NS	9.40E-05	0.27 U	0.27 U	0.29 U	0.28 U	0.27 U	0.27 U	0.27 U	NA	0.28 U	0.27 U
Benzo[a]anthracene	56-55-3	NS	0.029	0.028 U	0.028 U	0.03 U	0.03 U	0.028 U	0.028 U	0.028 U	NA	0.03 U	0.028 U
Benzo[a]pyrene	50-32-8	0.2	0.2	0.049 U	0.049 U	0.13 J	0.052 U	0.049 U	0.049 U	0.049 U	NA	0.051 U	0.049 U
Benzo[b]fluoranthene	205-99-2	NS	0.029	0.038 U	0.038 U	0.38	0.04 U	0.038 U	0.038 U	0.038 U	NA	0.039 U	0.038 U
Benzo[g,h,i]perylene	191-24-2	NS	470	0.044 U	0.044 U	0.12 J	0.047 U	0.044 U	0.044 U	0.045 U	NA	0.046 U	0.044 U
Benzo[k]fluoranthene	207-08-9	NS	0.29	0.043 U	0.043 U	0.11 J	0.045 U	0.043 U	0.043 U	0.043 U	NA	0.045 U	0.043 U
bis (2-chloroisopropyl) ethe	108-60-1	NS	0.32	0.38 U	0.38 U	0.41 U	0.4 U	0.38 U	0.38 U	0.38 U	NA	0.4 U	0.38 U
Bis(2-chloroethoxy)methane	111-91-1	NS	NS	0.3 U	0.3 U	0.33 U	0.32 U	0.3 U	0.3 U	0.31 U	NA	0.32 U	0.3 U
Bis(2-chloroethyl)ethe	111-44-4	NS	0.012	0.095 U	0.095 U	0.1 U	0.1 U	0.095 U	0.095 U	0.096 U	NA	0.1 U	0.095 U
Bis(2-ethylhexyl) phthalate	117-81-7	6	6	1.6 U	1.6 U	1.8 U	1.7 U	1.6 U	1.6 U	1.6 U	NA	1.7 U	1.6 U
Butyl benzyl phthalate	85-68-7	NS	35	0.25 U	0.25 U	0.27 U	0.26 U	0.25 U	0.25 U	0.25 U	NA	0.26 U	0.25 U
Caprolactam	105-60-2	NS	7800	0.19 U	0.19 U	0.21 U	0.2 U	0.19 U	0.19 U	0.33 J	NA	0.2 U	0.19 U
Carbazole	86-74-8	NS	NS	0.27 U	0.27 U	0.29 U	0.28 U	0.27 U	0.27 U	0.27 U	NA	0.28 U	0.27 U
Chrysene	218-01-9	NS	2.9	0.048 U	0.048 U	0.052 U	0.051 U	0.048 U	0.048 U	0.048 U	NA	0.05 U	0.048 U
Dibenz(a,h)anthracene	53-70-3	NS	0.0029	0.042 U	0.042 U	0.046 U	0.045 U	0.042 U	0.042 U	0.043 U	NA	0.045 U	0.042 U
Dibenzofuran	132-64-9	NS	16	0.019 U	0.019 U	0.021 U	0.02 U	0.019 U	0.019 U	0.019 U	NA	0.02 U	0.019 U
Diethyl phthalate	84-66-2	NS	13000	0.57 U	0.57 U	0.62 U	0.61 U	0.57 U	0.57 U	0.58 U	NA	0.6 U	0.57 U
Dimethyl phthalate	131-11-3	NS	NS	0.28 U	0.28 U	0.3 U	0.29 U	0.28 U	0.28 U	0.28 U	NA	0.29 U	0.28 U
Di-n-butyl phthalate	84-74-2	NS	1600	1.6 U	1.6 U	1.8 U	1.7 U	1.6 U	1.6 U	1.6 U	NA	1.7 U	1.6 U
Di-n-octyl phthalate	117-84-0	NS	NS	0.22 U	0.22 U	0.24 U	0.23 U	0.22 U	0.22 U	0.22 U	NA	0.23 U	0.22 U
Diphenylamine	122-39-4	NS	390	0.3 U	0.3 U	0.32 U	0.31 U	0.3 U	0.3 U	0.3 U	NA	0.31 U	0.3 U
Fluoranthene	206-44-0	NS	630	0.042 U	0.042 U	0.046 U	0.045 U	0.042 U	0.042 U	0.043 U	NA	0.045 U	0.042 U
Fluorene	86-73-7	NS	200	0.039 U	0.039 U	0.042 U	0.041 U	0.039 U	0.039 U	0.039 U	NA	0.041 U	0.039 U
Hexachlorobenzene	118-74-1	1	1	0.081 U	0.081 U	0.088 U	0.086 U	0.081 U	0.081 U	0.082 U	NA	0.085 U	0.081 U
Hexachlorobutadiene	87-68-3	NS	0.86	0.26 U	0.26 U	0.28 U	0.27 U	0.26 U	0.26 U	0.26 U	NA	0.27 U	0.26 U
Hexachlorocyclopentadiene	77-47-4	50	50	0.23 U	0.23 U	0.25 U	0.24 U	0.23 U	0.23 U	0.23 U	NA	0.24 U	0.23 U
Hexachloroethane	67-72-1	NS	1.7	0.18 U	0.18 U	0.2 U	0.19 U	0.18 U	0.18 U	0.18 U	NA	0.19 U	0.18 U
Indeno[1,2,3-cd]pyrene	193-39-5	NS	0.029	0.041 U	0.041 U	0.045 U	0.044 U	0.041 U	0.041 U	0.042 U	NA	0.043 U	0.041 U
Isophorone	78-59-1	NS	71	0.26 U	0.26 U	0.28 U	0.27 U	0.26 U	0.26 U	0.26 U	NA	0.27 U	0.26 U
Naphthalene	91-20-3	NS	0.14	0.06 U	0.06 U	0.065 U	0.063 U	0.06 U	0.06 U	0.06 U	NA	0.063 U	0.06 U
Nitrobenzene	98-95-3	NS	0.12	0.038 U	0.038 U	0.041 U	0.04 U	0.038 U	0.038 U	0.038 U	NA	0.04 U	0.038 U
N-Nitrosodi-n-propylamine	621-64-7	NS	0.0096	0.23 U	0.23 U	0.25 U	0.24 U	0.23 U	0.23 U	0.23 U	NA	0.24 U	0.23 U
N-Nitrosodiphenylamine	86-30-6	NS	14	0.3 U	0.3 U	0.32 U	0.31 U	0.3 U	0.3 U	0.3 U	NA	0.31 U	0.3 U
Pentachloropheno	87-86-5	1	1	0.26 U	0.26 U	0.28 U	0.27 U	0.26 U	0.26 U	0.26 U	NA	0.27 U	0.26 U
Phenanthrene	85-01-8	NS	4700	0.059 U	0.059 U	0.064 U	0.063 U	0.059 U	0.059 U	0.06 U	NA	0.062 U	0.059 U
Phenol	108-95-2	NS	4700	0.57 U	0.57 U	0.62 U	0.61 U	0.57 U	0.57 U	0.58 U	NA	0.6 U	0.57 U
Pyrene	129-00-0	NS	150	0.04 U	0.04 U	0.043 U	0.042 U	0.04 U	0.04 U	0.04 U	NA	0.042 U	0.04 U

Notes:
All concentrations reported in micrograms per liter (ug/L
Bolded values exceed the WVDEP 60CSR3 Table 60-3B Groundwater De Minimis Standard (GWDMS) and/or EPA Maximum Contaminant Level (MC
NS - No Standarc
U - Target analyte not detected above listed Method Detection Lir
J - Estimated result. Result is less greater than the Method Detection Limit but less than the labaratory method Reporting Li
B - Method blank contamination. The associated method blank contains the target analyte at a reportable le
K - Analyte is present. Reported value may be biased high. Actual value is expected to be lov
L - Analyte is present. Reported value may be biased low. Actual value is expected to be higl

TABLE 5
SUMMARY OF GROUNDWATER ANALYTICAL DATA
FORMER PROCESS SEWER AND WASTEWATER LINES
FORMER BASF HUNTINGTON WORKS FACILITY
HUNTINGTON, WEST VIRGINIA

			Location	AOC2-22	AOC2-18B	AOC2-04B
			Sample	TMW-24	TMW-25	TMW-37
			Sample Type	N	N	N
			Matrix	WG	WG	WG
			Sample Date	03 Aug 2016	09 Aug 2016	22 Aug 2016
			Lab Sample ID	240-67954-8	240-68160-6	240-68618-3
			Unit	ug/L	ug/L	ug/L
ANALYTE	**CAS NO.**	**EPA MCLs**	**WV 60-3B GW DE MINIMIS CONCENTRATION**			
SW6020A						
Aluminum	7429-90-5	NS	16000	NA	100000 K	NA
Antimony	7440-36-0	6	6.3	NA	2.9 L	NA
Arsenic	7440-38-2	10	10	NA	**84**	NA
Barium	7440-39-3	2000	2000	NA	**7700 B**	NA
Beryllium	7440-41-7	4	4	NA	**9.5**	NA
Cadmium	7440-43-9	5	5	NA	0.42 J	NA
Calcium	7440-70-2	NS	NS	NA	81000 B	NA
Chromium	7440-47-3	100	NS	NA	**250**	NA
Cobalt	7440-48-4	NS	4.7	NA	**110**	NA
Copper	7440-50-8	1300	630	NA	180 B	NA
Iron	7439-89-6	NS	11000	NA	**420000 B**	NA
Lead	7439-92-1	15	15	NA	**190**	NA
Magnesium	7439-95-4	NS	NS	NA	39000 B	NA
Manganese	7439-96-5	NS	740	NA	**18000**	NA
Nickel	7440-02-0	NS	310	NA	190 B	NA
Potassium	7440-09-7	NS	NS	NA	15000 B	NA
Selenium	7782-49-2	50	50	NA	12	NA
Silver	7440-22-4	NS	78	NA	0.16 J	NA
Sodium	7440-23-5	NS	NS	NA	160000 B	NA
Thallium	7440-28-0	2	2	NA	1.1	NA
Vanadium	7440-62-2	NS	1.1	NA	**190**	NA
Zinc	7440-66-6	NS	4700	NA	350	NA
SW7470A						
Mercury	7439-97-6	2	2	NA	0.09 U	NA
SW8082						
Aroclor-1016	12674-11-2	NS	0.96	NA	4.8 U	NA
Aroclor-1221	11104-28-2	NS	0.0068	NA	8.6 U	NA
Aroclor-1232	11141-16-5	NS	0.0068	NA	6.7 U	NA
Aroclor-1242	53469-21-9	NS	0.034	NA	5.7 U	NA
Aroclor-1248	12672-29-6	NS	0.034	NA	**210 K**	NA
Aroclor-1254	11097-69-1	NS	0.034	NA	2.9 U	NA
Aroclor-1260	11096-82-5	NS	0.034	NA	3.8 U	NA
Aroclor-1262	37324-23-5	NS	NS	NA	4.8 U	NA
Aroclor-1268	11100-14-4	NS	NS	NA	8.6 U	NA
SW8260B						
1,1,1-Trichloroethane	71-55-6	200	200	1.1 U	**440 U**	0.44 U
1,1,2,2-Tetrachloroethane (1,1,2,2-PCA)	79-34-5	NS	0.067	0.55 U	220 U	0.22 U
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	NS	55000	1.1 U	450 U	0.45 U
1,1,2-Trichloroethane	79-00-5	5	5	0.6 U	**240 U**	0.24 U
1,1-Dichloroethane	75-34-3	NS	2.4	0.75 U	300 U	0.3 U
1,1-Dichloroethene	75-35-4	7	7	1.1 U	**450 U**	0.45 U
1,2,4-Trichlorobenzene (1,2,4-TCB)	120-82-1	70	70	**73**	**8600**	0.35 J
1,2-Dibromo-3-Chloropropane	96-12-8	0.2	0.2	**2.1 U**	**820 U**	**0.82 U**
1,2-Dichlorobenzene	95-50-1	600	600	0.63 U	250 U	0.25 U
1,2-Dichloroethane	107-06-2	5	5	0.58 U	**230 U**	0.23 U
1,2-Dichloropropane	78-87-5	5	5	0.63 U	**250 U**	0.25 U
1,3-Dichlorobenzene	541-73-1	NS	NS	0.48 U	190 U	0.19 U
1,4-Dichlorobenzene	106-46-7	75	75	0.68 U	**270 U**	0.27 U
2-Butanone (MEK)	78-93-3	NS	4900	1.3 U	530 UF1	0.53 U
2-Hexanone	591-78-6	NS	NS	1.2 U	480 UF1	0.48 U
4-Methyl-2-pentanone (MIBK)	108-10-1	NS	1000	2.5 U	990 U	0.99 U
Acetone	67-64-1	NS	12000	2.4 U	940 UF1	1 B
Benzene	71-43-2	5	5	0.88 U	**350 U**	0.35 U
Bromoform	75-25-2	80	8.5	1.4 U*	**560 U**	0.56 U
Bromomethane	74-83-9	NS	7.1	1.1 U*	440 UF2	0.44 U
Carbon disulfide	75-15-0	NS	760	0.95 U	380 U	0.38 U
Carbon tetrachloride	56-23-5	5	5	1.1 U*	**430 U**	0.43 U
Chlorobenzene	108-90-7	100	100	0.63 U	**250 U**	0.25 U
Chlorodibromomethane	124-48-1	80	0.8	1.1 U	**430 U**	0.43 U
Chloroethane	75-00-3	NS	21000	0.8 U	320 U	0.32 U
Chloroform	67-66-3	80	0.19	0.63 U	**250 U**	0.25 U
Chloromethane	74-87-3	NS	190	1.1 U	440 U	0.44 U
cis-1,2-Dichloroethene	156-59-2	70	70	0.65 U	**260 U**	0.26 U
cis-1,3-Dichloropropene	10061-01-5	NS	NS	1.2 U	460 U	0.46 U
Cyclohexane	110-82-7	NS	12000	1.1 U	450 U	0.45 U
Dichlorobromomethane	75-27-4	80	0.12	0.73 U	**290 U**	0.29 U
Dichlorodifluoromethane	75-71-8	NS	370	0.8 U	320 U	0.32 U
Ethylbenzene	100-41-4	700	700	0.63 U	250 U	0.25 U
Ethylene Dibromide	106-93-4	0.05	0.05	**0.8 U**	**320 U**	**0.32 U**
Isopropylbenzene	98-82-8	NS	540	0.88 U	350 U	0.35 U
Methyl acetate	79-20-9	NS	5000	5.7 U	2300 UF1	2.3 U
Methyl tert-butyl ether	1634-04-4	NS	12	0.5 U	200 U	0.2 U
Methylcyclohexane	108-87-2	NS	NS	1.1 U	430 U	0.43 U
Methylene Chloride	75-09-2	5	5	0.83 U	**330 U**	0.33 U
Styrene	100-42-5	100	100	1.1 U	**450 U**	0.45 U
Tetrachloroethene	127-18-4	5	5	2.4 J	**310 U**	0.31 U
Toluene	108-88-3	1000	1000	0.58 U	230 U	0.23 U
trans-1,2-Dichloroethene	156-60-5	100	100	0.75 U	**300 U**	0.3 U
trans-1,3-Dichloropropene	10061-02-6	NS	NS	1.4 U	560 U	0.56 U
Trichloroethene	79-01-6	5	5	0.55 U	**220 U**	0.22 U
Trichlorofluoromethane	75-69-4	NS	1100	1.2 U	490 U	0.49 U
Vinyl chloride	75-01-4	2	2	0.73 U	**290 U**	0.29 U
Xylenes, Total	1330-20-7	10000	10000	1.3 U	520 U	0.52 U
SW8270D						
1,1-Biphenyl	92-52-4	NS	0.83	0.12 U	1.2 U	0.12 U
1,2-Diphenylhydrazine(as Azobenzene)	122-66-7	NS	0.084	0.33 U	2.8 U	0.28 U
1,4-Dioxane	123-91-1	NS	0.67	0.25 U	4.7 U	0.47 U
2,4,5-Trichlorophenol	95-95-4	NS	1600	0.35 U	7 J	0.29 U
2,4,6-Trichlorophenol	88-06-2	NS	6.1	0.25 U	2.3 U	0.23 U

TABLE 5
SUMMARY OF GROUNDWATER ANALYTICAL DATA
FORMER PROCESS SEWER AND WASTEWATER LINES
FORMER BASF HUNTINGTON WORKS FACILITY
HUNTINGTON, WEST VIRGINIA

			Location	AOC2-22	AOC2-18B	AOC2-04B
			Sample	TMW-24	TMW-25	TMW-37
			Sample Type	N	N	N
			Matrix	WG	WG	WG
			Sample Date	03 Aug 2016	09 Aug 2016	22 Aug 2016
			Lab Sample ID	240-67954-8	240-68160-6	240-68618-3
			Unit	ug/L	ug/L	ug/L
2,4-Dichlorophenol	120-83-2	NS	47	0.28 U	2.6 J	0.18 U
2,4-Dimethylphenol	105-67-9	NS	310	0.3 U	2.4 U	0.24 U
2,4-Dinitrophenol	51-28-5	NS	31	5.8 U	3 U	0.3 U
2,4-Dinitrotoluene	121-14-2	NS	0.22	0.24 U	2.4 U	0.24 U
2,6-Dinitrotoluene	606-20-2	NS	16	0.22 U	7.6 U	0.76 U
2-Chloronaphthalene	91-58-7	NS	400	0.11 U	0.95 U	0.095 U
2-Chlorophenol	95-57-8	NS	25	0.12 U	2.8 U	0.28 U
2-Methylnaphthalene	91-57-6	NS	63	0.035 U	0.86 U	0.086 U
2-Methylphenol	95-48-7	NS	780	0.18 U	1.6 U	0.16 U
2-Nitroaniline	88-74-4	NS	160	0.29 U	2 U	0.2 U
2-Nitrophenol	88-75-5	NS	NS	0.2 U	2.7 U	0.27 U
2-Toluidine	95-53-4	NS	0.28	0.8 U	6.9 U	0.69 U
3 & 4 Methylphenol	MEPH3MEPH4	NS	NS	0.32 U	7.6 U	0.76 U
3,3-Dichlorobenzidine	91-94-1	NS	0.15	0.33 U	3.5 U	0.35 U
3,3-Dimethoxybenzidine	119-90-4	NS	4.8	NA	95 U	9.5 U
3,3-Dimethylbenzidine	119-93-7	NS	0.0061	3.3 U	7.4 U	0.74 U
3-Nitroaniline	99-09-2	NS	NS	0.25 U	2.7 U	0.27 U
4,6-Dinitro-2-methylphenol	534-52-1	NS	NS	0.5 U	23 U	2.3 U
4-Bromophenyl phenyl ether	101-55-3	NS	NS	0.33 U	2.1 U	0.21 U
4-Chloro-3-methylphenol	59-50-7	NS	NS	0.26 U	2 U	0.2 U
4-Chloroaniline	106-47-8	NS	0.34	0.14 U	2 U	0.2 U
4-Chlorophenyl phenyl ether	7005-72-3	NS	NS	0.28 U	2.9 U	0.29 U
4-Nitroaniline	100-01-6	NS	NS	0.23 U	2.1 U	0.21 U
4-Nitrophenol	100-02-7	NS	NS	0.55 U	2.8 U	0.28 U
Acenaphthene	83-32-9	NS	300	0.042 U	0.42 U	0.042 U
Acenaphthylene	208-96-8	NS	300	0.019 U	0.46 U	0.046 U
Acetophenone	98-86-2	NS	1600	0.13 U	3.2 U	0.32 U
Aniline	62-53-3	NS	12	0.2 U	3.2 U	0.48 J
Anthracene	120-12-7	NS	4700	0.029 U	0.84 U	0.084 U
Atrazine	1912-24-9	3	3	0.11 U	**3.2 U**	0.32 U
Benzaldehyde	100-52-7	NS	500	0.28 U	3.7 U	0.37 U
Benzidine	92-87-5	NS	9.40E-05	3.3 U	2.7 U	0.27 U
Benzo[a]anthracene	56-55-3	NS	0.029	0.056 U	0.28 U	0.028 U
Benzo[a]pyrene	50-32-8	0.2	0.2	0.028 U	**0.49 U**	0.049 U
Benzo[b]fluoranthene	205-99-2	NS	0.029	0.056 U	0.38 U	0.038 U
Benzo[g,h,i]perylene	191-24-2	NS	470	0.047 U	0.44 U	0.044 U
Benzo[k]fluoranthene	207-08-9	NS	0.29	0.045 U	0.43 U	0.043 U
bis (2-chloroisopropyl) ether	108-60-1	NS	0.32	0.17 U	3.8 U	0.38 U
Bis(2-chloroethoxy)methane	111-91-1	NS	NS	0.035 U	3 U	0.3 U
Bis(2-chloroethyl)ether	111-44-4	NS	0.012	0.18 U	0.95 U	0.095 U
Bis(2-ethylhexyl) phthalate	117-81-7	6	6	2.1 B	**16 U**	1.6 U
Butyl benzyl phthalate	85-68-7	NS	35	0.2 U	2.5 U	0.25 U
Caprolactam	105-60-2	NS	7800	0.35 U	2.5 B	0.19 U
Carbazole	86-74-8	NS	NS	0.099 U	2.7 U	0.27 U
Chrysene	218-01-9	NS	2.9	0.033 U	0.48 U	0.048 U
Dibenz(a,h)anthracene	53-70-3	NS	0.0029	0.038 U	0.42 U	0.042 U
Dibenzofuran	132-64-9	NS	16	0.13 U	0.19 U	0.019 U
Diethyl phthalate	84-66-2	NS	13000	0.12 U	5.7 U	0.57 U
Dimethyl phthalate	131-11-3	NS	NS	0.095 U	2.8 U	0.28 U
Di-n-butyl phthalate	84-74-2	NS	1600	1.5 B	16 U	1.6 U
Di-n-octyl phthalate	117-84-0	NS	NS	0.34 U	2.2 U	0.22 U
Diphenylamine	122-39-4	NS	390	0.37 U	3 U	0.31 J
Fluoranthene	206-44-0	NS	630	0.025 U	0.42 U	0.042 U
Fluorene	86-73-7	NS	200	0.032 U	0.39 U	0.039 U
Hexachlorobenzene	118-74-1	1	1	0.11 U	0.81 U	0.14 J
Hexachlorobutadiene	87-68-3	NS	0.86	0.13 U	2.6 U	0.26 U
Hexachlorocyclopentadiene	77-47-4	50	50	2.3 U	2.3 U	0.23 U
Hexachloroethane	67-72-1	NS	1.7	0.21 U	1.8 U	0.18 U
Indeno[1,2,3-cd]pyrene	193-39-5	NS	0.029	0.045 U	0.41 U	0.041 U
Isophorone	78-59-1	NS	71	0.04 U	2.6 U	0.26 U
Naphthalene	91-20-3	NS	0.14	0.041 U	**2.5**	0.06 U
Nitrobenzene	98-95-3	NS	0.12	0.11 U	0.38 U	0.038 U
N-Nitrosodi-n-propylamine	621-64-7	NS	0.0096	0.15 U	2.3 U	0.23 U
N-Nitrosodiphenylamine	86-30-6	NS	14	0.11 U	3 U	0.36 J
Pentachlorophenol	87-86-5	1	1	**5.2 U**	**2.6 U**	0.26 U
Phenanthrene	85-01-8	NS	4700	0.029 U	0.59 U	0.059 U
Phenol	108-95-2	NS	4700	0.14 U	5.7 U	0.57 U
Pyrene	129-00-0	NS	150	0.22	0.4 U	0.04 U

Notes:
All concentrations reported in micrograms per liter (ug/L).
Bolded values exceed the WVDEP 60CSR3 Table 60-3B Groundwater De Minimis Standard (GWDMS) and/or EPA Maximum Contaminant Level (!
NS - No Standard
U - Target analyte not detected above listed Method Detection Limit.
J - Estimated result. Result is less greater than the Method Detection Limit but less than the labaratory method Reporting Limit.
B - Method blank contamination. The associated method blank contains the target analyte at a reportable level.
K - Analyte is present. Reported value may be biased high. Actual value is expected to be lower.
L - Analyte is present. Reported value may be biased low. Actual value is expected to be higher.

TABLE 5
SUMMARY OF GROUNDWATER ANALYTICAL DATA
AST AREAS
FORMER BASF HUNTINGTON WORKS FACILITY
HUNTINGTON, WEST VIRGINIA

			Location	AOC6-07	TMW-11S	TMW-2D	TMW-33	TMW-34	TMW-35	TMW-36	TMW-4D	TMW-4D	TMW-4S
			Sample	TMW-32	TMW-11S	TMW-2D	TMW-33	TMW-34	TMW-35	TMW-36	TMW-10S	TMW-4D	TMW-4S
			Sample Type	N	N	N	N	N	N	N	FD	N	N
			Matrix	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG
			Sample Date	16 Aug 2016	30 Aug 2016	31 Aug 2016	17 Aug 2016	18 Aug 2016	18 Aug 2016	19 Aug 2016	31 Aug 2016	31 Aug 2016	31 Aug 2016
			Lab Sample ID	240-68451-4	240-68908-7	240-68972-4	240-68448-7	240-68503-10	240-68573-1	240-68573-2	240-68972-7	240-68972-6	240-68972-5
			Unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
ANALYTE	**CAS NO.**	**EPA MCLs**	**WV 60-3B GW DE MINIMIS CONCENTRATION**										
SW6020A													
Aluminum	7429-90-5	NS	16000	NA	NA	13 U	NA	NA	NA	NA	NA	NA	NA
Antimony	7440-36-0	6	6.3	NA	NA	0.27 U	NA	NA	NA	NA	NA	NA	NA
Arsenic	7440-38-2	10	10	NA	NA	**23**	NA	NA	NA	NA	NA	NA	NA
Barium	7440-39-3	2000	2000	NA	NA	550	NA	NA	NA	NA	NA	NA	NA
Beryllium	7440-41-7	4	4	NA	NA	0.4 U	NA	NA	NA	NA	NA	NA	NA
Cadmium	7440-43-9	5	5	NA	NA	0.31 U	NA	NA	NA	NA	NA	NA	NA
Calcium	7440-70-2	NS	NS	NA	NA	32000	NA	NA	NA	NA	NA	NA	NA
Chromium	7440-47-3	100	NS	NA	NA	0.26 U	NA	NA	NA	NA	NA	NA	NA
Cobalt	7440-48-4	NS	4.7	NA	NA	0.46 J	NA	NA	NA	NA	NA	NA	NA
Copper	7440-50-8	1300	630	NA	NA	0.36 U	NA	NA	NA	NA	NA	NA	NA
Iron	7439-89-6	NS	11000	NA	NA	**30000**	NA	NA	NA	NA	NA	NA	NA
Lead	7439-92-1	15	15	NA	NA	0.16 U	NA	NA	NA	NA	NA	NA	NA
Magnesium	7439-95-4	NS	NS	NA	NA	13000	NA	NA	NA	NA	NA	NA	NA
Manganese	7439-96-5	NS	740	NA	NA	**3800**	NA	NA	NA	NA	NA	NA	NA
Nickel	7440-02-0	NS	310	NA	NA	0.5 J	NA	NA	NA	NA	NA	NA	NA
Potassium	7440-09-7	NS	NS	NA	NA	1400 B	NA	NA	NA	NA	NA	NA	NA
Selenium	7782-49-2	50	50	NA	NA	0.48 U	NA	NA	NA	NA	NA	NA	NA
Silver	7440-22-4	NS	78	NA	NA	0.03 U	NA	NA	NA	NA	NA	NA	NA
Sodium	7440-23-5	NS	NS	NA	NA	23000	NA	NA	NA	NA	NA	NA	NA
Thallium	7440-28-0	2	2	NA	NA	0.28 U	NA	NA	NA	NA	NA	NA	NA
Vanadium	7440-62-2	NS	1.1	NA	NA	0.54 U	NA	NA	NA	NA	NA	NA	NA
Zinc	7440-66-6	NS	4700	NA	NA	12 J	NA	NA	NA	NA	NA	NA	NA
SW7470A													
Mercury	7439-97-6	2	2	NA	NA	0.09 U	NA	NA	NA	NA	NA	NA	NA
SW8260B													
1,1,1-Trichloroethane	71-55-6	200	200	**1500 U**	0.88 U	0.44 U	0.44 U	**4400 U**	55 U	22 U	**550 U**	**440 U**	55 U
1,1,2,2-Tetrachloroethane (1,1,2,2-PCA)	79-34-5	NS	0.067	730 U	0.44 U	0.22 U	0.22 U	2200 U	28 U	11 U	280 U	220 U	28 U
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	NS	55000	1500 U	0.9 U	0.45 U	0.45 U	4500 U	56 U	23 UL	560 U	450 U	56 U
1,1,2-Trichloroethane	79-00-5	5	5	**800 U**	0.48 U	0.24 U	0.24 U	**2400 U**	**30 U**	**12 U**	**300 U**	**240 U**	**30 U**
1,1-Dichloroethane	75-34-3	NS	2.4	1000 U	0.6 U	0.3 U	0.3 U	3000 U	38 U	15 U	380 U	300 U	38 U
1,1-Dichloroethene	75-35-4	7	7	**1500 U**	0.9 U	0.45 U	0.45 U	**4500 U**	**56 U**	**23 U**	**560 U**	**450 U**	**56 U**
1,2,4-Trichlorobenzene (1,2,4-TCB)	120-82-1	70	70	**1900 J**	0.64 U	0.32 U	0.32 U	**3200 U**	40 U	**240**	**400 U**	**320 U**	40 U
1,2-Dibromo-3-Chloropropane	96-12-8	0.2	0.2	**2700 U**	**1.6 U**	**0.82 U**	**0.82 U**	**8200 U**	**100 U**	**41 U**	**1000 U**	**820 U**	**100 U**
1,2-Dichlorobenzene	95-50-1	600	600	**830 U**	0.5 U	0.25 U	0.25 U	**2500 U**	31 U	13 U	310 U	250 U	31 U
1,2-Dichloroethane	107-06-2	5	5	**770 U**	0.46 U	0.23 U	0.23 U	**2300 U**	**29 U**	**12 U**	**290 U**	**230 U**	**29 U**
1,2-Dichloropropane	78-87-5	5	5	**830 U**	0.5 U	0.25 U	0.25 U	**2500 U**	**31 U**	**13 U**	**310 U**	**250 U**	**31 U**
1,3-Dichlorobenzene	541-73-1	NS	NS	630 U	0.38 U	0.19 U	0.19 U	1900 U	24 U	9.5 U	240 U	190 U	24 U
1,4-Dichlorobenzene	106-46-7	75	75	**900 U**	0.54 U	0.27 U	0.27 U	**2700 U**	34 U	41 J	**340 U**	**270 U**	34 U
2-Butanone (MEK)	78-93-3	NS	4900	1800 U	1.1 U	0.53 U	0.53 U	5300 U	66 U*	27 U	660 U	530 U	66 U
2-Hexanone	591-78-6	NS	NS	1600 U	0.96 U	0.48 U	0.48 U	4800 U	60 U	24 U	600 U	480 U	60 U
4-Methyl-2-pentanone (MIBK)	108-10-1	NS	1000	3300 U	2 U	0.99 U	0.99 U	9900 U	120 U	50 U	1200 U	990 U	120 U
Acetone	67-64-1	NS	12000	3100 U	1.9 U	0.94 U	0.94 U	9400 U	120 U	47 U	1200 U	940 U	120 U
Benzene	71-43-2	5	5	**1200 U**	3.5	0.35 U	0.35 U	**3500 U**	**44 U**	**18 U**	**440 U**	**350 U**	**44 U**
Bromoform	75-25-2	80	8.5	**1900 U**	1.1 U	0.56 U	0.56 U	**5600 U**	70 U	28 U	**700 U**	**560 U**	70 U
Bromomethane	74-83-9	NS	7.1	1500 U	0.88 U	0.44 U	0.44 U	4400 U	55 U	22 U	550 U	440 U	55 U
Carbon disulfide	75-15-0	NS	760	1300 U	0.76 U	0.38 U	0.53 J	3800 U	48 U	19 U	570 J	560 J	48 U
Carbon tetrachloride	56-23-5	5	5	**1400 U**	0.86 U	0.43 U	0.43 U	**4300 U**	**54 U**	**22 U**	**540 U**	**430 U**	**54 U**
Chlorobenzene	108-90-7	100	100	**830 U**	0.5 U	0.25 U	0.25 U	**2500 U**	31 U	17 J	**310 U**	**250 U**	31 U
Chlorodibromomethane	124-48-1	80	0.8	**1400 U**	0.86 U	0.43 U	0.43 U	**4300 U**	54 U	22 U	**540 U**	**430 U**	54 U
Chloroethane	75-00-3	NS	21000	1100 U	0.64 U	0.32 U	0.32 U	3200 U	40 U	16 U	400 U*	320 U*	40 U
Chloroform	67-66-3	80	0.19	**830 U**	0.5 U	0.25 U	0.25 U	**2500 U**	31 U	13 U	**310 U**	**250 U**	31 U
Chloromethane	74-87-3	NS	190	1500 U	0.88 U	0.44 U	0.44 U	4400 U	55 U	22 U	550 U	440 U	55 U
cis-1,2-Dichloroethene	156-59-2	70	70	**870 U**	0.52 U	0.26 U	0.26 U	**2600 U**	33 U	13 U	**330 U**	**260 U**	33 U
cis-1,3-Dichloropropene	10061-01-5	NS	NS	1500 U	0.92 U	0.46 U	0.46 U	4600 U	58 U	23 U	580 U	460 U	58 U
Cyclohexane	110-82-7	NS	12000	1500 U	0.9 U	0.45 U	0.45 U	4500 U	56 U	23 UL	560 U	450 U	56 U
Dichlorobromomethane	75-27-4	80	0.12	**970 U**	0.58 U	0.29 U	0.29 U	**2900 U**	36 U	15 U	**360 U**	**290 U**	36 U
Dichlorodifluoromethane	75-71-8	NS	370	1100 U	0.64 U	0.32 U	0.32 U	3200 U	40 UL	16 UL	400 U	320 U	40 U
Ethylbenzene	100-41-4	700	700	**33000**	37	0.25 U	4.5	**23000**	95 J	**740**	**14000**	**13000**	**1300**
Ethylene Dibromide	106-93-4	0.05	0.05	**1100 U**	**0.64 U**	**0.32 U**	**0.32 U**	**3200 U**	**40 U**	**16 U**	**400 U**	**320 U**	**40 U**
Isopropylbenzene	98-82-8	NS	540	1200 U	3	0.35 U	0.35 U	3500 U	44 U	18 J	440 U	350 U	44 U
Methyl acetate	79-20-9	NS	5000	7600 U	4.5 U	2.3 U	2.3 U	23000 U	280 U	110 U	2800 U	2300 U	280 U
Methyl tert-butyl ether	1634-04-4	NS	12	670 U	0.4 U	0.2 U	0.2 U	2000 U	25 U	10 U	250 U	200 U	25 U
Methylcyclohexane	108-87-2	NS	NS	1400 U	0.86 U	0.43 U	0.43 U	4300 U	54 U	22 UL	540 U	430 U	54 U
Methylene Chloride	75-09-2	5	5	**1100 U**	0.66 U	0.33 U	0.33 U	**3300 U**	**41 U**	**17 U**	**410 U**	**330 U**	**41 U**
Styrene	100-42-5	100	100	**1500 U**	0.9 U	0.45 U	0.45 U	**4500 U**	56 U	23 U	**560 U**	**450 U**	56 U
Tetrachloroethene	127-18-4	5	5	**1000 U**	0.62 U	0.31 U	0.31 U	**3100 U**	**39 U**	**16 U**	**390 U**	**310 U**	**39 U**
Toluene	108-88-3	1000	1000	**77000**	2.2	0.23 U	1.5 B	**46000**	29 U	**1300**	500 J	500 J	130
trans-1,2-Dichloroethene	156-60-5	100	100	**1000 U**	0.6 U	0.3 U	0.3 U	**3000 U**	38 U	15 U	**380 U**	**300 U**	38 U
trans-1,3-Dichloropropene	10061-02-6	NS	NS	1900 U	1.1 U	0.56 U	0.56 U	5600 U	70 U	28 U	700 U	560 U	70 U
Trichloroethene	79-01-6	5	5	**730 U**	0.44 U	0.22 U	0.22 U	**2200 U**	**28 U***	**11 U**	**280 U**	**220 U**	**28 U**
Trichlorofluoromethane	75-69-4	NS	1100	1600 U	0.98 U	0.49 U	0.49 U	4900 U	61 U	25 U	610 U	490 U	61 U
Vinyl chloride	75-01-4	2	2	**970 U**	0.58 U	0.29 U	0.29 U	**2900 U**	**36 U**	**15 U**	**360 U**	**290 U**	**36 U**
Xylenes, Total	1330-20-7	10000	10000	**130000**	53	0.52 U	34	**100000**	2300	1700	**46000**	**45000**	4000

TABLE 5
SUMMARY OF GROUNDWATER ANALYTICAL DATA
AST AREAS
FORMER BASF HUNTINGTON WORKS FACILITY
HUNTINGTON, WEST VIRGINIA

			Location	AOC6-07	TMW-11S	TMW-2D	TMW-33	TMW-34	TMW-35	TMW-36	TMW-4D	TMW-4D	TMW-4S
			Sample	TMW-32	TMW-11S	TMW-2D	TMW-33	TMW-34	TMW-35	TMW-36	TMW-10S	TMW-4D	TMW-4S
			Sample Type	N	N	N	N	N	N	N	FD	N	N
			Matrix	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG
			Sample Date	16 Aug 2016	30 Aug 2016	31 Aug 2016	17 Aug 2016	18 Aug 2016	18 Aug 2016	19 Aug 2016	31 Aug 2016	31 Aug 2016	31 Aug 2016
			Lab Sample ID	240-68451-4	240-68908-7	240-68972-4	240-68448-7	240-68503-10	240-68573-1	240-68573-2	240-68972-7	240-68972-6	240-68972-5
			Unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
ANALYTE	**CAS NO.**	**EPA MCLs**	**WV 60-3B GW DE MINIMIS CONCENTRATION**										
SW8270D													
1,1-Biphenyl	92-52-4	NS	0.83	2500 U	0.12 U	0.12 U	12 U	1.2 U	0.12 U	77 U	NA	0.62 U	1.3 U
1,2-Diphenylhydrazine(as Azobenzene)	122-66-7	NS	0.084	5500 U	0.28 U	0.28 U	28 U	2.8 U	0.28 U	170 U	NA	1.4 U	2.8 U
1,4-Dioxane	123-91-1	NS	0.67	9300 U	0.47 U	0.47 U	47 U	4.7 U	0.47 U	290 U	NA	2.4 U	4.7 U
2,4,5-Trichlorophenol	95-95-4	NS	1600	5700 U	0.29 U	0.29 U	29 U	2.9 R	0.29 U	180 U	NA	1.4 U	2.9 U
2,4,6-Trichlorophenol	88-06-2	NS	6.1	4600 U	0.23 U	0.23 U	23 U	2.3 R	0.23 UL	140 UL	NA	1.2 U	2.3 U
2,4-Dichlorophenol	120-83-2	NS	47	3600 U	0.18 U	0.18 U	18 U	1.8 R	0.18 U	110 U	NA	0.91 U	1.8 U
2,4-Dimethylphenol	105-67-9	NS	310	4800 U	0.24 U	0.24 U	24 U	8.9 L	3	150 U	NA	82	51
2,4-Dinitrophenol	51-28-5	NS	31	6100 U	0.3 U	0.3 U	30 U	3 R	0.3 U	190 U	NA	1.5 U	3.1 U
2,4-Dinitrotoluene	121-14-2	NS	0.22	4800 U	0.24 U	0.24 U	24 U	2.4 U	0.24 U	150 U	NA	1.2 U	2.4 U
2,6-Dinitrotoluene	606-20-2	NS	16	15000 U	0.76 U	0.76 U	76 U	7.6 U	0.76 U	480 U	NA	3.8 U	7.7 U
2-Chloronaphthalene	91-58-7	NS	400	1900 U	0.095 U	0.095 U	9.5 U	0.95 U	0.095 U	60 U	NA	0.48 U	0.96 U
2-Chlorophenol	95-57-8	NS	25	5500 U	0.28 U	0.28 U	28 U	2.8 R	0.28 U	170 U	NA	1.4 U	2.8 U
2-Methylnaphthalene	91-57-6	NS	63	1700 U	0.086 U	0.086 U	8.6 U	0.86 U	0.086 U	54 U	NA	0.43 U	0.87 U
2-Methylphenol	95-48-7	NS	780	3200 U	0.16 U	0.16 U	16 U	2 L	0.16 U	100 U	NA	2.2 J	1.6 U
2-Nitroaniline	88-74-4	NS	160	4000 U	0.2 U	0.2 U	20 U	2 U	0.2 U	130 U	NA	1 U	2 U
2-Nitrophenol	88-75-5	NS	NS	5300 U	0.27 U	0.27 U	27 U	2.7 R	0.27 U	170 U	NA	1.3 U	2.7 U
2-Toluidine	95-53-4	NS	0.28	14000 U	0.69 U	0.69 U	69 U	6.9 U	0.69 U	430 U	NA	3.5 U	6.9 U
3 & 4 Methylphenol	MEPH3MEPH4	NS	NS	15000 U	0.76 U	0.76 U	76 U	7.6 R	0.76 U	480 U	NA	3.8 U	7.7 U
3,3-Dichlorobenzidine	91-94-1	NS	0.15	7000 U	0.35 U	0.35 U	35 U	3.5 U	0.35 U	220 U	NA	1.8 U	3.6 U
3,3-Dimethoxybenzidine	119-90-4	NS	4.8	190000 U	9.5 U	9.5 U	950 U	95 U	9.5 U	6000 U	NA	48 U	96 U
3,3-Dimethylbenzidine	119-93-7	NS	0.0061	15000 U	0.74 U	0.74 U	74 U	7.4 U	0.74 U	460 U	NA	3.7 U	7.5 U
3-Nitroaniline	99-09-2	NS	NS	5300 U	0.27 U	0.27 U	27 U	2.7 U	0.27 U	170 U	NA	1.3 U	2.7 U
4,6-Dinitro-2-methylphenol	534-52-1	NS	NS	46000 U	2.3 U	2.3 U	230 U	23 R	2.3 U	1400 U	NA	12 U	23 U
4-Bromophenyl phenyl ether	101-55-3	NS	NS	4200 U	0.21 U	0.21 U	21 U	2.1 U	0.21 U	130 U	NA	1.1 U	2.1 U
4-Chloro-3-methylphenol	59-50-7	NS	NS	4000 U	0.2 U	0.2 U	20 U	2 R	0.2 U	130 U	NA	1 U	2 U
4-Chloroaniline	106-47-8	NS	0.34	4000 U	**1.1 J**	0.2 U	20 U	2 U	0.2 U	130 U	NA	1 U	**5.5 J**
4-Chlorophenyl phenyl ether	7005-72-3	NS	NS	5700 U	0.29 U	0.29 U	29 U	2.9 U	0.29 U	180 U	NA	1.4 U	2.9 U
4-Nitroaniline	100-01-6	NS	NS	4200 U	0.21 U	0.21 U	21 U	2.1 U	0.21 U	130 U	NA	1.1 U	2.1 U
4-Nitrophenol	100-02-7	NS	NS	5500 U	0.28 U	0.28 U	28 U	2.8 R	0.28 U	170 U	NA	1.4 U	2.8 U
Acenaphthene	83-32-9	NS	300	840 U	0.042 U	0.042 U	4.2 U	0.42 U	0.042 U	26 U	NA	0.21 U	0.42 U
Acenaphthylene	208-96-8	NS	300	920 U	0.046 U	0.046 U	4.6 U	0.46 U	0.046 U	29 U	NA	0.23 U	0.46 U
Acetophenone	98-86-2	NS	1600	6500 U	0.32 U	0.32 U	32 U	17	0.57 J	200 U	NA	67	6.6 J
Aniline	62-53-3	NS	12	**570000**	3.5 J	0.32 U	**3200**	4.6 J	0.32 U	**73000**	NA	5.5 J	10 J
Anthracene	120-12-7	NS	4700	1700 U	0.084 U	0.084 U	8.4 U	0.84 U	0.084 UL	52 UL	NA	0.42 U	0.85 U
Atrazine	1912-24-9	3	3	**6500 U**	0.32 U	0.32 U	**32 U**	**3.2 U**	0.32 UL	**200 UL**	NA	1.6 U	**3.3 U**
Benzaldehyde	100-52-7	NS	500	7400 U	0.37 U	0.37 U	37 U	3.7 U	0.37 U	230 U	NA	1.9 U	3.7 U
Benzidine	92-87-5	NS	9.40E-05	5300 U	0.27 U	0.27 U	27 U	2.7 U	0.27 U	170 U	NA	1.3 U	2.7 U
Benzo[a]anthracene	56-55-3	NS	0.029	560 U	0.028 U	0.028 U	2.8 U	0.28 U	0.028 U	18 U	NA	0.14 U	0.28 U
Benzo[a]pyrene	50-32-8	0.2	0.2	**980 U**	0.049 U	0.049 U	**4.9 U**	**0.49 U**	0.049 U	**31 U**	NA	**0.25 U**	**0.49 U**
Benzo[b]fluoranthene	205-99-2	NS	0.029	750 U	0.038 U	0.038 U	3.8 U	0.38 U	0.038 U	23 U	NA	0.19 U	0.38 U
Benzo[g,h,i]perylene	191-24-2	NS	470	880 U	0.044 U	0.044 U	4.4 U	0.44 U	0.044 U	28 U	NA	0.22 U	0.45 U
Benzo[k]fluoranthene	207-08-9	NS	0.29	850 U	0.043 U	0.043 U	4.3 U	0.43 U	0.043 U	27 U	NA	0.21 U	0.43 U
bis (2-chloroisopropyl) ether	108-60-1	NS	0.32	7600 U	0.38 U	0.38 U	38 U	3.8 U	0.38 U	240 U	NA	1.9 U	3.8 U
Bis(2-chloroethoxy)methane	111-91-1	NS	NS	6100 U	0.3 U	0.3 U	30 U	3 U	0.3 U	190 U	NA	1.5 U	3.1 U
Bis(2-chloroethyl)ether	111-44-4	NS	0.012	1900 U	0.095 U	0.095 U	9.5 U	0.95 U	0.095 U	60 U	NA	0.48 U	0.96 U
Bis(2-ethylhexyl) phthalate	117-81-7	6	6	**32000 U**	1.6 U	1.6 U	**160 U**	**16 U**	1.6 U	**1000 U**	NA	**8.2 U**	**16 U**
Butyl benzyl phthalate	85-68-7	NS	35	5000 U	0.25 U	0.25 U	25 U	2.5 U	0.25 U	150 U	NA	1.3 U	2.5 U
Caprolactam	105-60-2	NS	7800	3800 U	0.19 U	0.37 J	19 U	1.9 U	0.19 U	120 U	NA	6.1 J	1.9 U
Carbazole	86-74-8	NS	NS	5300 U	0.44 J	0.27 U	27 U	2.7 U	0.27 UL	170 UL	NA	1.3 U	2.7 U
Chrysene	218-01-9	NS	2.9	960 U	0.048 U	0.048 U	4.8 U	0.48 U	0.048 U	30 U	NA	0.24 U	0.48 U
Dibenz(a,h)anthracene	53-70-3	NS	0.0029	850 U	0.042 U	0.042 U	4.2 U	0.42 U	0.042 U	27 U	NA	0.21 U	0.43 U
Dibenzofuran	132-64-9	NS	16	380 U	0.019 U	0.019 U	1.9 U	0.19 U	0.019 U	12 U	NA	0.096 U	0.19 U
Diethyl phthalate	84-66-2	NS	13000	11000 U	0.57 U	0.57 U	57 U	5.7 U	0.57 U	360 U	NA	2.9 U	5.8 U
Dimethyl phthalate	131-11-3	NS	NS	5500 U	0.28 U	0.28 U	28 U	2.8 U	0.28 U	170 U	NA	1.4 U	2.8 U
Di-n-butyl phthalate	84-74-2	NS	1600	32000 U	1.6 U	1.6 U	160 U	16 U	1.6 U	1000 U	NA	8.2 U	16 U
Di-n-octyl phthalate	117-84-0	NS	NS	4400 U	0.22 U	0.22 U	22 U	2.2 U	0.22 U	140 U	NA	1.1 U	2.2 U
Diphenylamine	122-39-4	NS	390	5900 U	19	0.3 U	30 U	3 U	0.3 U*	180 U*	NA	6.1	**110**
Fluoranthene	206-44-0	NS	630	850 U	0.042 U	0.042 U	4.2 U	0.42 U	0.042 UL	27 UL	NA	0.21 U	0.43 U
Fluorene	86-73-7	NS	200	770 U	0.039 U	0.039 U	3.9 U	0.39 U	0.039 U	24 U	NA	0.19 U	0.39 U
Hexachlorobenzene	118-74-1	1	1	**1600 U**	0.081 U	0.081 U	**8.1 U**	0.81 U	0.081 U	**51 U**	NA	0.41 U	0.82 U
Hexachlorobutadiene	87-68-3	NS	0.86	5100 U	0.26 U	0.26 U	26 U	2.6 U	0.26 U	160 U	NA	1.3 U	2.6 U
Hexachlorocyclopentadiene	77-47-4	50	50	**4600 U**	0.23 U	0.23 U	23 U	2.3 U	0.23 U	**140 U**	NA	1.2 U	2.3 U
Hexachloroethane	67-72-1	NS	1.7	3600 U	0.18 U	0.18 U	18 U	1.8 U	0.18 U	110 U	NA	0.91 U	1.8 U
Indeno[1,2,3-cd]pyrene	193-39-5	NS	0.029	820 U	0.041 U	0.041 U	4.1 U	0.41 U	0.041 U	26 U	NA	0.21 U	0.42 U
Isophorone	78-59-1	NS	71	5100 U	0.26 U	0.26 U	26 U	2.6 U	0.26 U	160 U	NA	1.3 U	2.6 U
Naphthalene	91-20-3	NS	0.14	1200 U	0.06 U	0.06 U	6 U	1.2 J	0.06 U	37 U	NA	0.55 J	0.6 U
Nitrobenzene	98-95-3	NS	0.12	760 U	0.038 U	0.038 U	3.8 U	0.38 U	0.038 U	24 U	NA	0.19 U	0.38 U
N-Nitrosodi-n-propylamine	621-64-7	NS	0.0096	4600 U	0.23 U	0.23 U	23 U	2.3 U	0.23 U	140 U	NA	1.2 U	2.3 U
N-Nitrosodiphenylamine	86-30-6	NS	14	5900 U	**22**	0.3 U	30 U	3 U	0.3 U	180 U	NA	7.2	**120**
Pentachlorophenol	87-86-5	1	1	**5100 U**	0.26 U	0.26 U	**26 U**	**2.6 R**	0.26 U	**160 U**	NA	**1.3 U**	**2.6 U**
Phenanthrene	85-01-8	NS	4700	1200 U	0.059 U	0.059 U	5.9 U	0.97 J	0.1 L	37 UL	NA	0.3 U	0.6 U
Phenol	108-95-2	NS	4700	11000 U	0.57 U	0.57 U	57 U	5.7 R	0.57 U	360 U	NA	2.9 U	5.8 U
Pyrene	129-00-0	NS	150	800 U	0.04 U	0.04 U	4 U	0.4 U	0.04 U	25 U	NA	0.2 U	0.4 U

Notes:
All concentrations reported in micrograms per liter (ug/L).
Bolded values exceed the WVDEP 60CSR3 Table 60-3B Groundwater De Minimis Standard (GWDMS) and/or EPA Maximum Contaminant Level (f
NS - No Standard
U - Target analyte not detected above listed Method Detection Limit.
J - Estimated result. Result is less greater than the Method Detection Limit but less than the laboratory method Reporting Limit.
B - Method blank contamination. The associated method blank contains the target analyte at a reportable level.
K - Analyte is present. Reported value may be biased high. Actual value is expected to be lower.
L - Analyte is present. Reported value may be biased low. Actual value is expected to be higher.
R - Data was rejected during the data validation process

TABLE 5
SUMMARY OF GROUNDWATER ANALYTICAL DATA
NORTH PARKING LOT
FORMER BASF HUNTINGTON WORKS FACILITY
HUNTINGTON, WEST VIRGINIA

			Location	TMW-1D	TMW-26	TMW-27	TMW-28	TMW-29	TMW-30	TMW-31
			Sample	TMW-1D	TMW-26	TMW-27	TMW-28	TMW-29	TMW-30	TMW-31
			Sample Type	N	N	N	N	N	N	N
			Matrix	WG	WG	WG	WG	WG	WG	WG
			Sample Date	01 Sep 2016	31 Aug 2016	01 Sep 2016	01 Sep 2016	01 Sep 2016	01 Sep 2016	01 Sep 2016
			Lab Sample ID	240-69057-8	240-69057-7	240-69057-1	240-69057-2	240-69057-3	240-69057-5	240-69057-6
			Unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
ANALYTE	**CAS NO.**	**EPA MCLs**	**WV 60-3B GW DE MINIMIS CONCENTRATION**							
SW8260B										
1,1,1-Trichloroethane	71-55-6	200	200	0.73 U	1.3 U	1.5 U	1.3 U	1.3 U	2.2 U	1.5 U
1,1,2,2-Tetrachloroethane (1,1,2,2-PCA)	79-34-5	NS	0.067	1.4 J	**3.8**	**6.3**	**7.3**	**8.2**	**11**	**19**
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	NS	55000	0.75 U	1.3 U	1.5 U	1.3 U	1.3 U	2.3 U	1.5 U
1,1,2-Trichloroethane	79-00-5	5	5	0.75 J	0.69 U	0.8 U	0.69 U	0.69 U	1.2 U	0.8 U
1,1-Dichloroethane	75-34-3	NS	2.4	0.5 U	0.86 U	1 U	0.86 U	0.86 U	1.5 U	1 U
1,1-Dichloroethene	75-35-4	7	7	0.75 U	1.3 U	1.5 U	1.3 U	1.3 U	2.3 U	1.5 U
1,2,4-Trichlorobenzene (1,2,4-TCB)	120-82-1	70	70	1.9	53	48	61	45	46	2.9 J
1,2-Dibromo-3-Chloropropane	96-12-8	0.2	0.2	**1.4 U**	**2.3 U**	**2.7 U**	**2.3 U**	**2.3 U**	**4.1 U**	**2.7 U**
1,2-Dichlorobenzene	95-50-1	600	600	0.42 U	6.8	10	11	11	12	5.3
1,2-Dichloroethane	107-06-2	5	5	0.38 U	0.66 U	0.77 U	0.66 U	0.66 U	1.2 U	0.77 U
1,2-Dichloropropane	78-87-5	5	5	0.42 U	0.72 U	0.83 U	0.72 U	0.72 U	1.3 U	0.83 U
1,3-Dichlorobenzene	541-73-1	NS	NS	0.32 U	13	13	14	9	5	1 J
1,4-Dichlorobenzene	106-46-7	75	75	0.45 U	45	60	59	45	22	6.5
2-Butanone (MEK)	78-93-3	NS	4900	0.89 U	1.5 U	1.8 U	1.5 U	1.5 U	2.7 U	1.8 U
2-Hexanone	591-78-6	NS	NS	0.8 U	1.4 U	1.6 U	1.4 U	1.4 U	2.4 U	1.6 U
4-Methyl-2-pentanone (MIBK)	108-10-1	NS	1000	1.7 U	2.8 U	3.3 U	2.8 U	2.8 U	5 U	3.3 U
Acetone	67-64-1	NS	12000	1.6 U	2.7 U	3.1 U	2.7 U	2.7 U	4.7 U	3.1 U
Benzene	71-43-2	5	5	0.58 U	1 U	1.2 U	1 U	1.5 J	1.8 J	2 J
Bromoform	75-25-2	80	8.5	0.94 U	1.6 U	1.9 U	1.6 U	1.6 U	2.8 U	1.9 U
Bromomethane	74-83-9	NS	7.1	0.73 U*	1.3 U*	1.5 U*	1.3 U*	1.3 U*	2.2 U	1.5 U*
Carbon disulfide	75-15-0	NS	760	0.63 U	1.1 U	1.3 U	1.1 U	1.1 U	1.9 U	1.3 U
Carbon tetrachloride	56-23-5	5	5	0.72 U	1.2 U	1.4 U	1.2 U	1.2 U	2.2 U	1.4 U
Chlorobenzene	108-90-7	100	100	0.42 U	10	17	15	13	8.6	4.3
Chlorodibromomethane	124-48-1	80	0.8	0.72 U	1.2 U	1.4 U	1.2 U	1.2 U	2.2 U	1.4 U
Chloroethane	75-00-3	NS	21000	0.53 U	0.92 U	1.1 U	0.92 U	0.92 U	1.6 U	1.1 UF1
Chloroform	67-66-3	80	0.19	0.42 U	0.72 U	0.83 U	0.72 U	0.72 U	1.3 U	0.83 U
Chloromethane	74-87-3	NS	190	0.73 U	1.3 U	1.5 U	1.3 U	1.3 U	2.2 U	1.5 U
cis-1,2-Dichloroethene	156-59-2	70	70	21	2.7 J	3.2 J	3.3	4.2	4.5 J	10
cis-1,3-Dichloropropene	10061-01-5	NS	NS	0.77 U	1.3 U	1.5 U	1.3 U	1.3 U	2.3 U	1.5 U
Cyclohexane	110-82-7	NS	12000	0.75 U	1.3 U	1.5 U	1.3 U	1.3 U	2.3 U	1.5 U
Dichlorobromomethane	75-27-4	80	0.12	0.48 U	0.83 U	0.97 U	0.83 U	0.83 U	1.5 U	0.97 U
Dichlorodifluoromethane	75-71-8	NS	370	0.53 U	0.92 U	1.1 U	0.92 U	0.92 U	1.6 U	1.1 U
Ethylbenzene	100-41-4	700	700	0.42 U	0.72 U	0.83 U	0.72 U	0.72 U	1.3 U	0.83 U
Ethylene Dibromide	106-93-4	0.05	0.05	**0.53 U**	**0.92 U**	**1.1 U**	**0.92 U**	**0.92 U**	**1.6 U**	**1.1 U**
Isopropylbenzene	98-82-8	NS	540	0.58 U	1 U	1.2 U	1 U	1 U	1.8 U	1.2 U
Methyl acetate	79-20-9	NS	5000	3.8 U	6.5 U	7.6 U	6.5 U	6.5 U	11 U	7.6 U
Methyl tert-butyl ether	1634-04-4	NS	12	0.33 U	0.57 U	0.67 U	0.57 U	0.57 U	1 U	0.67 U
Methylcyclohexane	108-87-2	NS	NS	0.72 U	1.2 U	1.4 U	1.2 U	1.2 U	2.2 U	1.4 U
Methylene Chloride	75-09-2	5	5	0.55 U	0.94 U	1.1 U	0.94 U	0.94 U	1.7 U	1.1 U
Styrene	100-42-5	100	100	0.75 U	1.3 U	1.5 U	1.3 U	1.3 U	2.3 U	1.5 U
Tetrachloroethene (PCE)	127-18-4	5	5	0.52 U	**48**	**54**	**71**	**58**	**100**	**78**
Toluene	108-88-3	1000	1000	0.38 U	0.66 U	0.77 U	0.66 U	0.66 U	1.2 U	0.77 U
trans-1,2-Dichloroethene	156-60-5	100	100	37	1.7 J	1.9 J	2 J	2.3 J	2.7 J	13
trans-1,3-Dichloropropene	10061-02-6	NS	NS	0.94 U	1.6 U	1.9 U	1.6 U	1.6 U	2.8 U	1.9 U
Trichloroethene (TCE)	79-01-6	5	5	**36**	**8.5**	**9**	**10**	**9.8**	**17**	**46**
Trichlorofluoromethane	75-69-4	NS	1100	0.82 U	1.4 U	1.6 U	1.4 U	1.4 U	2.5 U	1.6 U
Vinyl chloride	75-01-4	2	2	1.1 J	0.83 U	0.97 U	0.83 U	0.83 U	1.5 U	0.97 J
Xylenes, Total	1330-20-7	10000	10000	0.87 U	1.5 U	1.7 U	1.5 U	1.5 U	2.6 U	1.7 U

TABLE 5
SUMMARY OF GROUNDWATER ANALYTICAL DATA
NORTH PARKING LOT
FORMER BASF HUNTINGTON WORKS FACILITY
HUNTINGTON, WEST VIRGINIA

			Location	TMW-1D	TMW-26	TMW-27	TMW-28	TMW-29	TMW-30	TMW-31
			Sample	TMW-1D	TMW-26	TMW-27	TMW-28	TMW-29	TMW-30	TMW-31
			Sample Type	N	N	N	N	N	N	N
			Matrix	WG	WG	WG	WG	WG	WG	WG
			Sample Date	01 Sep 2016	31 Aug 2016	01 Sep 2016	01 Sep 2016	01 Sep 2016	01 Sep 2016	01 Sep 2016
			Lab Sample ID	240-69057-8	240-69057-7	240-69057-1	240-69057-2	240-69057-3	240-69057-5	240-69057-6
			Unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
ANALYTE	**CAS NO.**	**EPA MCLs**	**WV 60-3B GW DE MINIMIS CONCENTRATION**							
SW8270D										
1,1-Biphenyl	92-52-4	NS	0.83	0.13 U	0.13 U	0.12 U	0.12 U	0.13 U	0.12 U	0.12 U
1,2-Diphenylhydrazine(as Azobenzene)	122-66-7	NS	0.084	0.3 U	0.29 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U
1,4-Dioxane	123-91-1	NS	0.67	0.51 U	0.49 U	0.47 U	0.47 U	0.48 U	0.47 U	0.47 U
2,4,5-Trichlorophenol	95-95-4	NS	1600	0.31 U	0.3 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U
2,4,6-Trichlorophenol	88-06-2	NS	6.1	0.25 U	0.24 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U
2,4-Dichlorophenol	120-83-2	NS	47	0.2 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
2,4-Dimethylphenol	105-67-9	NS	310	0.26 U	0.25 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
2,4-Dinitrophenol	51-28-5	NS	31	0.33 U	0.32 U	0.3 U	0.3 U	0.31 U	0.3 U	0.3 U
2,4-Dinitrotoluene	121-14-2	NS	0.22	0.26 U	0.25 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
2,6-Dinitrotoluene	606-20-2	NS	16	0.82 U	0.81 U	0.76 U	0.76 U	0.78 U	0.76 U	0.76 U
2-Chloronaphthalene	91-58-7	NS	400	0.1 U	0.1 U	0.095 U	0.095 U	0.097 U	0.095 U	0.095 U
2-Chlorophenol	95-57-8	NS	25	0.3 U	0.29 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U
2-Methylnaphthalene	91-57-6	NS	63	0.093 U	0.091 U	0.086 U	0.086 U	0.088 U	0.086 U	0.086 U
2-Methylphenol	95-48-7	NS	780	0.18 U	0.17 U	0.16 U	0.16 U	0.17 U	0.16 U	0.16 U
2-Nitroaniline	88-74-4	NS	160	0.22 U	0.21 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
2-Nitrophenol	88-75-5	NS	NS	0.29 U	0.28 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
2-Toluidine	95-53-4	NS	0.28	0.74 U	0.73 U	0.69 U	0.69 U	0.7 U	0.69 U	0.69 U
3 & 4 Methylphenol	MEPH3MEPH4	NS	NS	0.82 U	0.81 U	0.76 U	0.76 U	0.78 U	0.76 U	0.76 U
3,3-Dichlorobenzidine	91-94-1	NS	0.15	0.38 U	0.37 U	0.35 U	0.35 U	0.36 U	0.35 U	0.35 U
3,3-Dimethoxybenzidine	119-90-4	NS	4.8	10 U	10 U	9.5 U	9.5 U	9.7 U	9.5 U	9.5 U
3,3-Dimethylbenzidine	119-93-7	NS	0.0061	0.8 U	0.79 U	0.74 U	0.74 U	0.76 U	0.74 U	0.74 U
3-Nitroaniline	99-09-2	NS	NS	0.29 U	0.28 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
4,6-Dinitro-2-methylphenol	534-52-1	NS	NS	2.5 U	2.4 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U
4-Bromophenyl phenyl ether	101-55-3	NS	NS	0.23 U	0.22 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
4-Chloro-3-methylphenol	59-50-7	NS	NS	0.22 U	0.21 U	0.28 J	0.29 J	0.36 J	0.45 J	0.39 J
4-Chloroaniline	106-47-8	NS	0.34	0.22 U	**1.4 J**	**1.9**	**1.9**	**3**	**3**	**1.8 J**
4-Chlorophenyl phenyl ether	7005-72-3	NS	NS	0.31 U	0.3 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U
4-Nitroaniline	100-01-6	NS	NS	0.23 U	0.22 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
4-Nitrophenol	100-02-7	NS	NS	0.3 U	0.29 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U
Acenaphthene	83-32-9	NS	300	0.046 U	0.045 U	0.042 U	0.042 U	0.043 U	0.042 U	0.042 U
Acenaphthylene	208-96-8	NS	300	0.05 U	0.049 U	0.046 U	0.046 U	0.047 U	0.046 U	0.046 U
Acetophenone	98-86-2	NS	1600	0.35 U	0.34 U	0.32 U	0.32 U	0.33 U	0.32 U	0.32 U
Aniline	62-53-3	NS	12	0.35 U	0.34 U	0.32 U	0.32 U	0.33 U	0.32 U	0.32 U
Anthracene	120-12-7	NS	4700	0.091 U	0.089 U	0.084 U	0.084 U	0.085 U	0.084 U	0.084 U
Atrazine	1912-24-9	3	3	0.35 U	0.34 U	0.32 U	0.32 U	0.33 U	0.32 U	0.32 U
Benzaldehyde	100-52-7	NS	500	0.4 U	0.39 U	0.37 U	0.37 U	0.38 U	0.37 U	0.37 U
Benzidine	92-87-5	NS	9.40E-05	0.29 U	0.28 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
Benzo[a]anthracene	56-55-3	NS	0.029	0.03 U	0.03 U	0.028 U	0.028 U	0.029 U	0.028 U	0.028 U
Benzo[a]pyrene	50-32-8	0.2	0.2	0.053 U	0.052 U	0.049 U	0.049 U	0.05 U	0.049 U	0.049 U
Benzo[b]fluoranthene	205-99-2	NS	0.029	0.041 U	0.04 U	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U
Benzo[g,h,i]perylene	191-24-2	NS	470	0.048 U	0.047 U	0.044 U	0.044 U	0.045 U	0.044 U	0.044 U
Benzo[k]fluoranthene	207-08-9	NS	0.29	0.046 U	0.045 U	0.043 U	0.043 U	0.043 U	0.043 U	0.043 U
bis (2-chloroisopropyl) ether	108-60-1	NS	0.32	0.41 U	0.4 U	0.38 U	0.38 U	0.39 U	0.38 U	0.38 U
Bis(2-chloroethoxy)methane	111-91-1	NS	NS	0.33 U	0.32 U	0.3 U	0.3 U	0.31 U	0.3 U	0.3 U
Bis(2-chloroethyl)ether	111-44-4	NS	0.012	0.1 U	0.1 U	0.095 U	0.095 U	0.097 U	0.095 U	0.095 U
Bis(2-ethylhexyl) phthalate	117-81-7	6	6	1.8 U	1.7 U	1.6 U	1.6 U	1.7 U	1.6 U	1.6 U
Butyl benzyl phthalate	85-68-7	NS	35	0.27 U	0.26 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Caprolactam	105-60-2	NS	7800	0.21 U	0.2 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
Carbazole	86-74-8	NS	NS	0.29 U	0.28 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
Chrysene	218-01-9	NS	2.9	0.052 U	0.051 U	0.048 U	0.048 U	0.049 U	0.048 U	0.048 U
Dibenz(a,h)anthracene	53-70-3	NS	0.0029	0.046 U	0.045 U	0.042 U	0.042 U	0.043 U	0.042 U	0.042 U
Dibenzofuran	132-64-9	NS	16	0.021 U	0.02 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U
Diethyl phthalate	84-66-2	NS	13000	0.62 U	0.61 U	0.57 U	0.57 U	0.58 U	0.57 U	0.57 U
Dimethyl phthalate	131-11-3	NS	NS	0.3 U	0.29 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U
Di-n-butyl phthalate	84-74-2	NS	1600	1.8 U	1.7 U	1.6 U	1.6 U	1.7 U	1.6 U	1.6 U
Di-n-octyl phthalate	117-84-0	NS	NS	0.24 U	0.23 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
Diphenylamine	122-39-4	NS	390	0.32 U	0.31 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Fluoranthene	206-44-0	NS	630	0.046 U	0.045 U	0.042 U	0.042 U	0.043 U	0.042 U	0.042 U
Fluorene	86-73-7	NS	200	0.042 U	0.041 U	0.039 U	0.039 U	0.039 U	0.039 U	0.039 U
Hexachlorobenzene	118-74-1	1	1	0.088 U	0.086 U	0.081 U	0.081 U	0.083 U	0.081 U	0.081 U
Hexachlorobutadiene	87-68-3	NS	0.86	0.28 U	0.27 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
Hexachlorocyclopentadiene	77-47-4	50	50	0.25 U	0.24 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U
Hexachloroethane	67-72-1	NS	1.7	0.2 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
Indeno[1,2,3-cd]pyrene	193-39-5	NS	0.029	0.045 U	0.044 U	0.041 U	0.041 U	0.042 U	0.041 U	0.041 U
Isophorone	78-59-1	NS	71	0.28 U	0.27 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
Naphthalene	91-20-3	NS	0.14	0.065 U	0.063 U	0.06 U	0.06 U	0.061 U	0.19	0.06 U
Nitrobenzene	98-95-3	NS	0.12	0.041 U	0.04 U	0.038 U	0.038 U	0.039 U	0.21 J	0.55 J
N-Nitrosodi-n-propylamine	621-64-7	NS	0.0096	0.25 U	0.24 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U
N-Nitrosodiphenylamine	86-30-6	NS	14	0.32 U	0.31 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Pentachlorophenol	87-86-5	1	1	0.28 U	0.27 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
Phenanthrene	85-01-8	NS	4700	0.064 U	0.063 U	0.059 U	0.059 U	0.06 U	0.059 U	0.059 U
Phenol	108-95-2	NS	4700	0.62 U	0.61 U	0.57 U	0.57 U	0.58 U	0.57 U	0.57 U
Pyrene	129-00-0	NS	150	0.043 U	0.042 U	0.04 U	0.04 U	0.041 U	0.04 U	0.04 U

Notes:
All concentrations reported in micrograms per liter (ug/L)
Bolded values exceed the WVDEP 60CSR3 Table 60-3B Groundwater De Minimis Standard (GWDMS) and/or EPA Maximum Contaminant Level (MCL)
NS - No Standard
U - Target analyte not detected above listed Method Detection Limit
J - Estimated result. Result is less greater than the Method Detection Limit but less than the labaratory method Reporting Limi
B - Method blank contamination. The associated method blank contains the target analyte at a reportable leve
K - Analyte is present. Reported value may be biased high. Actual value is expected to be lowe
L - Analyte is present. Reported value may be biased low. Actual value is expected to be highe

TABLE 5
SUMMARY OF GROUNDWATER ANALYTICAL DATA
SHIPPING AND WAREHOUSE AREA
FORMER BASF HUNTINGTON WORKS FACILITY
HUNTINGTON, WEST VIRGINIA

			Location	TMW-19	TMW-19	TMW-20	TMW-21	TMW-22	TMW-9D
			Sample	TMW-19	TMW-23	TMW-20	TMW-21	TMW-22	TMW-9D
			Sample Type	N	FD	N	N	N	N
			Matrix	WG	WG	WG	WG	WG	WG
			Sample Date	02 Aug 2016	02 Aug 2016	02 Aug 2016	02 Aug 2016	02 Aug 2016	31 Aug 2016
			Lab Sample ID	240-67885-6	240-67885-7	240-67885-9	240-67885-8	240-67885-5	240-68972-8
			Unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
ANALYTE	**CAS NO.**	**EPA MCLs**	**WV 60-3B GW DE MINIMIS CONCENTRATION**						
SW8260B									
1,1,1-Trichloroethane	71-55-6	200	200	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U
1,1,2,2-Tetrachloroethane (1,1,2,2-PCA)	79-34-5	NS	0.067	**1.2**	**0.74 J**	0.22 U	0.22 U	**0.53 J**	**0.7 J**
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	NS	55000	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U
1,1,2-Trichloroethane	79-00-5	5	5	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
1,1-Dichloroethane	75-34-3	NS	2.4	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
1,1-Dichloroethene	75-35-4	7	7	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U
1,2,4-Trichlorobenzene (1,2,4-TCB)	120-82-1	70	70	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U
1,2-Dibromo-3-Chloropropane	96-12-8	0.2	0.2	**0.82 U**	**0.82 U**	**0.82 U**	**0.82 U**	**0.82 U**	**0.82 U**
1,2-Dichlorobenzene	95-50-1	600	600	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,2-Dichloroethane	107-06-2	5	5	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U
1,2-Dichloropropane	78-87-5	5	5	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,3-Dichlorobenzene	541-73-1	NS	NS	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
1,4-Dichlorobenzene	106-46-7	75	75	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
2-Butanone (MEK)	78-93-3	NS	4900	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U
2-Hexanone	591-78-6	NS	NS	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U
4-Methyl-2-pentanone (MIBK)	108-10-1	NS	1000	0.99 U	0.99 U	0.99 U	0.99 U	0.99 U	0.99 U
Acetone	67-64-1	NS	12000	0.94 U	0.94 U	0.98 B	0.94 U	0.94 UB	0.96 B
Benzene	71-43-2	5	5	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U
Bromoform	75-25-2	80	8.5	0.56 U	0.56 U*	0.56 U	0.56 U	0.56 U	0.56 U
Bromomethane	74-83-9	NS	7.1	0.44 U	0.44 U*	0.44 U	0.44 U	0.44 U	0.44 U
Carbon disulfide	75-15-0	NS	760	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U
Carbon tetrachloride	56-23-5	5	5	0.43 U	0.43 U*	0.43 U	0.43 U	0.43 U	0.43 U
Chlorobenzene	108-90-7	100	100	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Chlorodibromomethane	124-48-1	80	0.8	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U
Chloroethane	75-00-3	NS	21000	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U
Chloroform	67-66-3	80	0.19	0.62 J	0.76 J	0.25 U	0.25 U	0.25 U	0.25 U
Chloromethane	74-87-3	NS	190	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U
cis-1,2-Dichloroethene	156-59-2	70	70	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
cis-1,3-Dichloropropene	10061-01-5	NS	NS	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U
Cyclohexane	110-82-7	NS	12000	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U
Dichlorobromomethane	75-27-4	80	0.12	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U
Dichlorodifluoromethane	75-71-8	NS	370	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U
Ethylbenzene	100-41-4	700	700	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Ethylene Dibromide	106-93-4	0.05	0.05	**0.32 U**	**0.32 U**	**0.32 U**	**0.32 U**	**0.32 U**	**0.32 U**
Isopropylbenzene	98-82-8	NS	540	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U
Methyl acetate	79-20-9	NS	5000	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U
Methyl tert-butyl ether	1634-04-4	NS	12	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Methylcyclohexane	108-87-2	NS	NS	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U
Methylene Chloride	75-09-2	5	5	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Styrene	100-42-5	100	100	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U
Tetrachloroethene	127-18-4	5	5	1.1	0.99 J	0.31 U	0.31 U	0.31 U	0.31 U
Toluene	108-88-3	1000	1000	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U
trans-1,2-Dichloroethene	156-60-5	100	100	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
trans-1,3-Dichloropropene	10061-02-6	NS	NS	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U
Trichloroethene	79-01-6	5	5	2.8	3	0.22 U	0.22 U	0.66 J	4.8
Trichlorofluoromethane	75-69-4	NS	1100	0.49 U	0.49 U*	0.49 U	0.49 U*	0.49 U	0.49 U
Vinyl chloride	75-01-4	2	2	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U
Xylenes, Total	1330-20-7	10000	10000	0.52 U	0.52 U	0.52 U	0.52 U	0.52 U	0.52 U

TABLE 5
SUMMARY OF GROUNDWATER ANALYTICAL DATA
SHIPPING AND WAREHOUSE AREA
FORMER BASF HUNTINGTON WORKS FACILITY
HUNTINGTON, WEST VIRGINIA

			Location	TMW-19	TMW-19	TMW-20	TMW-21	TMW-22	TMW-9D
			Sample	TMW-19	TMW-23	TMW-20	TMW-21	TMW-22	TMW-9D
			Sample Type	N	FD	N	N	N	N
			Matrix	WG	WG	WG	WG	WG	WG
			Sample Date	02 Aug 2016	02 Aug 2016	02 Aug 2016	02 Aug 2016	02 Aug 2016	31 Aug 2016
			Lab Sample ID	240-67885-6	240-67885-7	240-67885-9	240-67885-8	240-67885-5	240-68972-8
			Unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
ANALYTE	**CAS NO.**	**EPA MCLs**	**WV 60-3B GW DE MINIMIS CONCENTRATION**						
SW8270D									
1,1-Biphenyl	92-52-4	NS	0.83	0.11 U	0.12 U	0.11 U	0.11 U	0.11 U	0.12 U
1,2-Diphenylhydrazine(as Azobenzene)	122-66-7	NS	0.084	0.33 U	0.34 U	0.33 U	0.33 U	0.31 U	0.28 U
1,4-Dioxane	123-91-1	NS	0.67	0.24 U	0.25 U	0.24 U	0.24 U	0.23 U	0.47 U
2,4,5-Trichlorophenol	95-95-4	NS	1600	0.34 U	0.35 U	0.34 U	0.34 U	0.33 U	0.29 U
2,4,6-Trichlorophenol	88-06-2	NS	6.1	0.24 U	0.25 U	0.24 U	0.24 U	0.23 U	0.23 U
2,4-Dichlorophenol	120-83-2	NS	47	0.27 U	0.28 U	0.27 U	0.27 U	0.26 U	0.18 U
2,4-Dimethylphenol	105-67-9	NS	310	0.29 U	0.3 U	0.29 U	0.29 U	0.28 U	0.24 U
2,4-Dinitrophenol	51-28-5	NS	31	5.7 U	5.9 U	5.7 U	5.7 U	5.5 U	0.3 U
2,4-Dinitrotoluene	121-14-2	NS	0.22	0.24 U	0.25 U	0.24 U	0.24 U	0.23 U	0.24 U
2,6-Dinitrotoluene	606-20-2	NS	16	0.22 U	0.23 U	0.22 U	0.22 U	0.21 U	0.76 U
2-Chloronaphthalene	91-58-7	NS	400	0.11 U	0.11 U	0.11 U	0.11 U	0.1 U	0.095 U
2-Chlorophenol	95-57-8	NS	25	0.12 U	0.13 U	0.12 U	0.12 U	0.12 U	0.28 U
2-Methylnaphthalene	91-57-6	NS	63	0.034 U	0.036 U	0.034 U	0.034 U	0.033 U	0.086 U
2-Methylphenol	95-48-7	NS	780	0.17 U	0.18 U	0.17 U	0.17 U	0.17 U	0.16 U
2-Nitroaniline	88-74-4	NS	160	0.29 U	0.3 U	0.29 U	0.29 U	0.28 U	0.2 U
2-Nitrophenol	88-75-5	NS	NS	0.19 U	0.2 U	0.19 U	0.19 U	0.18 U	0.27 U
2-Toluidine	95-53-4	NS	0.28	0.79 U	0.82 U	0.79 U	0.79 U	0.76 U	0.69 U
3 & 4 Methylphenol	MEPH3MEPH4	NS	NS	0.31 U	0.32 U	0.31 U	0.31 U	0.3 U	0.76 U
3,3-Dichlorobenzidine	91-94-1	NS	0.15	0.33 U	0.34 U	0.33 U	0.33 U	0.32 U	0.35 U
3,3-Dimethoxybenzidine	119-90-4	NS	4.8	NA	NA	NA	NA	NA	9.5 U
3,3-Dimethylbenzidine	119-93-7	NS	0.0061	3.2 U	3.4 U	3.2 U	3.2 U	3.1 U	0.74 U
3-Nitroaniline	99-09-2	NS	NS	0.25 U	0.25 U	0.25 U	0.25 U	0.24 U	0.27 U
4,6-Dinitro-2-methylphenol	534-52-1	NS	NS	0.49 U	0.5 U	0.49 U	0.49 U	0.47 U	2.3 U
4-Bromophenyl phenyl ether	101-55-3	NS	NS	0.32 U	0.33 U	0.32 U	0.32 U	0.31 U	0.21 U
4-Chloro-3-methylphenol	59-50-7	NS	NS	0.26 U	0.27 U	0.26 U	0.26 U	0.25 U	0.2 U
4-Chloroaniline	106-47-8	NS	0.34	0.14 U	0.14 U	0.14 U	0.14 U	0.13 U	0.2 U
4-Chlorophenyl phenyl ether	7005-72-3	NS	NS	0.27 U	0.28 U	0.27 U	0.27 U	0.26 U	0.29 U
4-Nitroaniline	100-01-6	NS	NS	0.22 U	0.23 U	0.22 U	0.22 U	0.22 U	0.21 U
4-Nitrophenol	100-02-7	NS	NS	0.54 U	0.56 U	0.54 U	0.54 U	0.52 U	0.28 U
Acenaphthene	83-32-9	NS	300	0.041 U	0.042 U	0.041 U	0.041 U	0.039 U	0.042 U
Acenaphthylene	208-96-8	NS	300	0.019 U	0.019 U	0.019 U	0.019 U	0.018 U	0.046 U
Acetophenone	98-86-2	NS	1600	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.32 U
Aniline	62-53-3	NS	12	0.2 U	0.21 U	0.2 U	0.2 U	0.19 U	0.32 U
Anthracene	120-12-7	NS	4700	0.029 U	0.03 U	0.029 U	0.029 U	0.028 U	0.084 U
Atrazine	1912-24-9	3	3	0.11 U	0.11 U	0.11 U	0.11 U	0.1 U	0.32 U
Benzaldehyde	100-52-7	NS	500	0.27 U	0.28 U	0.27 U	0.27 U	0.26 U	0.37 U
Benzidine	92-87-5	NS	9.40E-05	3.2 U	3.3 U	3.2 U	3.2 U	3.1 U	0.27 U
Benzo[a]anthracene	56-55-3	NS	0.029	0.055 U	0.057 U	0.055 U	0.055 U	0.053 U	0.028 U
Benzo[a]pyrene	50-32-8	0.2	0.2	0.028 U	0.029 U	0.028 U	0.028 U	0.027 U	0.049 U
Benzo[b]fluoranthene	205-99-2	NS	0.029	0.055 U	0.057 U	0.055 U	0.055 U	0.053 U	0.038 U
Benzo[g,h,i]perylene	191-24-2	NS	470	0.046 U	0.048 U	0.046 U	0.046 U	0.045 U	0.044 U
Benzo[k]fluoranthene	207-08-9	NS	0.29	0.044 U	0.046 U	0.044 U	0.044 U	0.043 U	0.043 U
bis (2-chloroisopropyl) ether	108-60-1	NS	0.32	0.17 U	0.18 U	0.17 U	0.17 U	0.16 U	0.38 U
Bis(2-chloroethoxy)methane	111-91-1	NS	NS	0.034 U	0.036 U	0.034 U	0.034 U	0.033 U	0.3 U
Bis(2-chloroethyl)ether	111-44-4	NS	0.012	0.18 U	0.18 U	0.18 U	0.18 U	0.17 U	0.095 U
Bis(2-ethylhexyl) phthalate	117-81-7	6	6	1.4 U	1.5 U	1.4 U	1.4 U	1.4 U	1.6 U
Butyl benzyl phthalate	85-68-7	NS	35	0.2 U	0.21 U	0.2 U	0.2 U	0.19 U	0.25 U
Caprolactam	105-60-2	NS	7800	0.34 U	0.36 U	0.34 U	0.34 U	0.33 U	0.19 U
Carbazole	86-74-8	NS	NS	0.097 U	0.1 U	0.097 U	0.097 U	0.094 U	0.27 U
Chrysene	218-01-9	NS	2.9	0.032 U	0.034 U	0.032 U	0.032 U	0.031 U	0.048 U
Dibenz(a,h)anthracene	53-70-3	NS	0.0029	0.037 U	0.038 U	0.037 U	0.037 U	0.036 U	0.042 U
Dibenzofuran	132-64-9	NS	16	0.13 U	0.13 U	0.13 U	0.13 U	0.12 U	0.019 U
Diethyl phthalate	84-66-2	NS	13000	0.12 U	0.12 U	0.12 U	0.12 U	0.11 U	0.57 U
Dimethyl phthalate	131-11-3	NS	NS	0.094 U	0.097 U	0.094 U	0.094 U	0.09 U	0.28 U
Di-n-butyl phthalate	84-74-2	NS	1600	0.96 B	0.76 B	0.55 B	0.71 B	0.68 B	1.6 U
Di-n-octyl phthalate	117-84-0	NS	NS	0.34 U	0.35 U	0.34 U	0.34 U	0.33 U	0.22 U
Diphenylamine	122-39-4	NS	390	0.36 U	0.37 U	0.36 U	0.36 U	0.35 U	0.3 U
Fluoranthene	206-44-0	NS	630	0.025 U	0.026 U	0.025 U	0.025 U	0.024 U	0.042 U
Fluorene	86-73-7	NS	200	0.031 U	0.033 U	0.031 U	0.031 U	0.03 U	0.039 U
Hexachlorobenzene	118-74-1	1	1	0.11 U	0.11 U	0.11 U	0.11 U	0.1 U	0.081 U
Hexachlorobutadiene	87-68-3	NS	0.86	0.13 U	0.14 U	0.13 U	0.13 U	0.13 U	0.26 U
Hexachlorocyclopentadiene	77-47-4	50	50	2.3 U	2.4 U	2.3 U	2.3 U	2.2 U	0.23 U
Hexachloroethane	67-72-1	NS	1.7	0.2 U	0.21 U	0.2 U	0.2 U	0.2 U	0.18 U
Indeno[1,2,3-cd]pyrene	193-39-5	NS	0.029	0.044 U	0.046 U	0.044 U	0.044 U	0.043 U	0.041 U
Isophorone	78-59-1	NS	71	0.039 U	0.04 U	0.039 U	0.039 U	0.038 U	0.26 U
Naphthalene	91-20-3	NS	0.14	0.04 U	0.041 U	0.04 U	0.04 U	0.038 U	**0.91**

TABLE 5
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SHIPPING AND WAREHOUSE AREA
FORMER BASF HUNTINGTON WORKS FACILITY
HUNTINGTON, WEST VIRGINIA

			Location	TMW-19	TMW-19	TMW-20	TMW-21	TMW-22	TMW-9D
			Sample	TMW-19	TMW-23	TMW-20	TMW-21	TMW-22	TMW-9D
			Sample Type	N	FD	N	N	N	N
			Matrix	WG	WG	WG	WG	WG	WG
			Sample Date	02 Aug 2016	02 Aug 2016	02 Aug 2016	02 Aug 2016	02 Aug 2016	31 Aug 2016
			Lab Sample ID	240-67885-6	240-67885-7	240-67885-9	240-67885-8	240-67885-5	240-68972-8
			Unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
ANALYTE	**CAS NO.**	**EPA MCLs**	**WV 60-3B GW DE MINIMIS CONCENTRATION**						
Nitrobenzene	98-95-3	NS	0.12	0.11 U	0.11 U	0.11 U	0.11 U	0.1 U	0.038 U
N-Nitrosodi-n-propylamine	621-64-7	NS	0.0096	0.15 U	0.15 U	0.15 U	0.15 U	0.14 U	0.23 U
N-Nitrosodiphenylamine	86-30-6	NS	14	0.1 U	0.11 U	0.1 U	0.1 U	0.1 U	0.3 U
Pentachlorophenol	87-86-5	1	1	**5.1 U**	**5.3 U**	**5.1 U**	**5.1 U**	**4.9 U**	0.26 U
Phenanthrene	85-01-8	NS	4700	0.029 U	0.03 U	0.029 U	0.029 U	0.028 U	0.059 U
Phenol	108-95-2	NS	4700	0.14 U	0.14 U	0.14 U	0.14 U	0.13 U	0.57 U
Pyrene	129-00-0	NS	150	0.026 U	0.027 U	0.026 U	0.026 U	0.025 U	0.04 U

Notes:
All concentrations reported in micrograms per liter (ug/L).
Bolded values exceed the WVDEP 60CSR3 Table 60-3B Groundwater De Minimis Standard (GWDMS) and/or EPA Maximum Contaminant Level (MCL).
NS - No Standard
U - Target analyte not detected above listed Method Detection Limit.
J - Estimated result. Result is less greater than the Method Detection Limit but less than the labaratory method Reporting Limit.
B - Method blank contamination. The associated method blank contains the target analyte at a reportable level.
K - Analyte is present. Reported value may be biased high. Actual value is expected to be lower.
L - Analyte is present. Reported value may be biased low. Actual value is expected to be higher.

TABLE 5
SUMMARY OF GROUNDWATER ANALYTICAL DATA
OFF-SITE DOWNGRADIENT SENTINEL WELL (TMW-12D)
FORMER BASF HUNTINGTON WORKS FACILITY
HUNTINGTON, WEST VIRGINIA

			Location	**TMW-12D**
			Sample	**TMW-12D**
			Sample Type	**N**
			Matrix	**WG**
			Sample Date	**31 Aug 2016**
			Lab Sample ID	**240-68972-9**
			Unit	**ug/L**
ANALYTE	**CAS NO.**	**EPA MCLs**	**WV 60-3B GW DE MINIMIS CONCENTRATION**	
SW8260B				
1,1,1-Trichloroethane	71-55-6	200	200	0.44 U
1,1,2,2-Tetrachloroethane (1,1,2,2-PCA	79-34-5	NS	0.067	0.22 U
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	NS	55000	0.45 U
1,1,2-Trichloroethane	79-00-5	5	5	0.24 U
1,1-Dichloroethane	75-34-3	NS	2.4	0.3 U
1,1-Dichloroethene	75-35-4	7	7	0.45 U
1,2,4-Trichlorobenzene (1,2,4-TCB	120-82-1	70	70	0.32 U
1,2-Dibromo-3-Chloropropane	96-12-8	0.2	0.2	**0.82 U**
1,2-Dichlorobenzene	95-50-1	600	600	0.25 U
1,2-Dichloroethane	107-06-2	5	5	0.23 U
1,2-Dichloropropane	78-87-5	5	5	0.25 U
1,3-Dichlorobenzene	541-73-1	NS	NS	0.19 U
1,4-Dichlorobenzene	106-46-7	75	75	0.27 U
2-Butanone (MEK)	78-93-3	NS	4900	0.53 U
2-Hexanone	591-78-6	NS	NS	0.48 U
4-Methyl-2-pentanone (MIBK	108-10-1	NS	1000	0.99 U
Acetone	67-64-1	NS	12000	1.2 B
Benzene	71-43-2	5	5	0.35 U
Bromoform	75-25-2	80	8.5	0.56 U
Bromomethane	74-83-9	NS	7.1	0.44 U
Carbon disulfide	75-15-0	NS	760	0.38 U
Carbon tetrachloride	56-23-5	5	5	0.43 U
Chlorobenzene	108-90-7	100	100	0.25 U
Chlorodibromomethane	124-48-1	80	0.8	0.43 U
Chloroethane	75-00-3	NS	21000	0.32 U
Chloroform	67-66-3	80	0.19	0.25 U
Chloromethane	74-87-3	NS	190	0.44 U
cis-1,2-Dichloroethene	156-59-2	70	70	10
cis-1,3-Dichloropropene	10061-01-5	NS	NS	0.46 U
Cyclohexane	110-82-7	NS	12000	0.45 U
Dichlorobromomethane	75-27-4	80	0.12	0.29 U
Dichlorodifluoromethane	75-71-8	NS	370	0.32 U
Ethylbenzene	100-41-4	700	700	0.25 U
Ethylene Dibromide	106-93-4	0.05	0.05	**0.32 U**
Isopropylbenzene	98-82-8	NS	540	0.35 U
Methyl acetate	79-20-9	NS	5000	2.3 U
Methyl tert-butyl ethe	1634-04-4	NS	12	0.2 U
Methylcyclohexane	108-87-2	NS	NS	0.43 U
Methylene Chloride	75-09-2	5	5	0.33 U
Styrene	100-42-5	100	100	0.45 U
Tetrachloroethene	127-18-4	5	5	0.31 U
Toluene	108-88-3	1000	1000	0.23 U
trans-1,2-Dichloroethene	156-60-5	100	100	11
trans-1,3-Dichloropropene	10061-02-6	NS	NS	0.56 U
Trichloroethene	79-01-6	5	5	0.22 U
Trichlorofluoromethane	75-69-4	NS	1100	0.49 U
Vinyl chloride	75-01-4	2	2	**2.1**
Xylenes, Tota	1330-20-7	10000	10000	0.52 U

TABLE 5
SUMMARY OF GROUNDWATER ANALYTICAL DATA
OFF-SITE DOWNGRADIENT SENTINEL WELL (TMW-12D)
FORMER BASF HUNTINGTON WORKS FACILITY
HUNTINGTON, WEST VIRGINIA

			Location	**TMW-12D**
			Sample	**TMW-12D**
			Sample Type	**N**
			Matrix	**WG**
			Sample Date	**31 Aug 2016**
			Lab Sample ID	**240-68972-9**
			Unit	**ug/L**
ANALYTE	**CAS NO.**	**EPA MCLs**	**WV 60-3B GW DE MINIMIS CONCENTRATION**	
SW8270D				
1,1-Bipheny	92-52-4	NS	0.83	0.13 U
1,2-Diphenylhydrazine(as Azobenzene	122-66-7	NS	0.084	0.28 U
1,4-Dioxane	123-91-1	NS	0.67	0.48 U
2,4,5-Trichloropheno	95-95-4	NS	1600	0.29 UL
2,4,6-Trichloropheno	88-06-2	NS	6.1	0.23 R
2,4-Dichloropheno	120-83-2	NS	47	0.18 UL
2,4-Dimethylpheno	105-67-9	NS	310	0.24 UL
2,4-Dinitropheno	51-28-5	NS	31	0.31 U
2,4-Dinitrotoluene	121-14-2	NS	0.22	0.24 U
2,6-Dinitrotoluene	606-20-2	NS	16	0.78 U
2-Chloronaphthalene	91-58-7	NS	400	0.097 U
2-Chloropheno	95-57-8	NS	25	0.28 UL
2-Methylnaphthalene	91-57-6	NS	63	0.088 U
2-Methylpheno	95-48-7	NS	780	0.17 UL
2-Nitroaniline	88-74-4	NS	160	0.2 U
2-Nitropheno	88-75-5	NS	NS	0.27 U
2-Toluidine	95-53-4	NS	0.28	0.7 U
3 & 4 Methylpheno	MEPH3MEPH4	NS	NS	0.78 UL
3,3-Dichlorobenzidine	91-94-1	NS	0.15	0.36 U
3,3-Dimethoxybenzidine	119-90-4	NS	4.8	9.7 U
3,3-Dimethylbenzidine	119-93-7	NS	0.0061	0.76 U
3-Nitroaniline	99-09-2	NS	NS	0.27 U
4,6-Dinitro-2-methylpheno	534-52-1	NS	NS	2.3 U
4-Bromophenyl phenyl ethe	101-55-3	NS	NS	0.21 U
4-Chloro-3-methylpheno	59-50-7	NS	NS	0.2 R
4-Chloroaniline	106-47-8	NS	0.34	0.2 U
4-Chlorophenyl phenyl ethe	7005-72-3	NS	NS	0.29 U
4-Nitroaniline	100-01-6	NS	NS	0.21 U
4-Nitropheno	100-02-7	NS	NS	0.28 U
Acenaphthene	83-32-9	NS	300	0.043 U
Acenaphthylene	208-96-8	NS	300	0.047 U
Acetophenone	98-86-2	NS	1600	0.33 U
Aniline	62-53-3	NS	12	0.33 U
Anthracene	120-12-7	NS	4700	0.085 U
Atrazine	1912-24-9	3	3	0.33 U
Benzaldehyde	100-52-7	NS	500	0.38 U
Benzidine	92-87-5	NS	9.40E-05	0.27 U
Benzo[a]anthracene	56-55-3	NS	0.029	0.029 U
Benzo[a]pyrene	50-32-8	0.2	0.2	0.05 U
Benzo[b]fluoranthene	205-99-2	NS	0.029	0.038 U
Benzo[g,h,i]perylene	191-24-2	NS	470	0.045 U
Benzo[k]fluoranthene	207-08-9	NS	0.29	0.043 U
bis (2-chloroisopropyl) ethe	108-60-1	NS	0.32	0.39 U
Bis(2-chloroethoxy)methane	111-91-1	NS	NS	0.31 U
Bis(2-chloroethyl)ethe	111-44-4	NS	0.012	0.097 U
Bis(2-ethylhexyl) phthalate	117-81-7	6	6	1.7 U
Butyl benzyl phthalate	85-68-7	NS	35	0.25 U
Caprolactam	105-60-2	NS	7800	0.26 J
Carbazole	86-74-8	NS	NS	0.27 U
Chrysene	218-01-9	NS	2.9	0.049 U
Dibenz(a,h)anthracene	53-70-3	NS	0.0029	0.043 U
Dibenzofuran	132-64-9	NS	16	0.019 U
Diethyl phthalate	84-66-2	NS	13000	0.58 U
Dimethyl phthalate	131-11-3	NS	NS	0.28 U
Di-n-butyl phthalate	84-74-2	NS	1600	1.7 U
Di-n-octyl phthalate	117-84-0	NS	NS	0.22 U
Diphenylamine	122-39-4	NS	390	0.3 U
Fluoranthene	206-44-0	NS	630	0.043 U
Fluorene	86-73-7	NS	200	0.039 U
Hexachlorobenzene	118-74-1	1	1	0.083 U
Hexachlorobutadiene	87-68-3	NS	0.86	0.26 U
Hexachlorocyclopentadiene	77-47-4	50	50	0.23 U
Hexachloroethane	67-72-1	NS	1.7	0.18 U
Indeno[1,2,3-cd]pyrene	193-39-5	NS	0.029	0.042 U
Isophorone	78-59-1	NS	71	0.26 U
Naphthalene	91-20-3	NS	0.14	0.061 U
Nitrobenzene	98-95-3	NS	0.12	0.039 U
N-Nitrosodi-n-propylamine	621-64-7	NS	0.0096	0.23 U
N-Nitrosodiphenylamine	86-30-6	NS	14	0.3 U
Pentachloropheno	87-86-5	1	1	0.26 UL
Phenanthrene	85-01-8	NS	4700	0.06 U
Phenol	108-95-2	NS	4700	0.58 U
Pyrene	129-00-0	NS	150	0.041 U

Notes:
All concentrations reported in micrograms per liter (ug/L
Bolded values exceed the WVDEP 60CSR3 Table 60-3B Groundwater De Minimis Standard (GWDMS) and/or EPA Maximum Contaminant Level (MC
NS - No Standard
U - Target analyte not detected above listed Method Detection Lim
J - Estimated result. Result is less greater than the Method Detection Limit but less than the labaratory method Reporting Li
B - Method blank contamination. The associated method blank contains the target analyte at a reportable le
K - Analyte is present. Reported value may be biased high. Actual value is expected to be low
L - Analyte is present. Reported value may be biased low. Actual value is expected to be high
R - Data was rejected during the data validation proces

TABLE 6
SUMMARY OF SOIL GAS ANALYTICAL DATA
AOC 1 - 25TH STREET LANDFILL
FORMER BASF HUNTINGTON WORKS FACILITY
HUNTINGTON, WEST VIRGINIA

		Sample	TMW-13V	TMW-14V	TMW-15V	TMW-16V	TMW-17V
		Sample Type	N	N	N	N	N
		Matrix	AA	AA	AA	AA	AA
		Sample Date	31 Aug 2016	30 Aug 2016	30 Aug 2016	30 Aug 2016	31 Aug 2016
		Lab Sample ID	1609225-10A	1609225-08A	1609225-07A	1609225-09A	1609225-11A
		Unit	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3
	EPA VISL Soil Gas Screening Values - Commercial	**EPA VISL Soil Gas Screening Values - Residential**					
TO15							
1,1,1-Trichloroethane	730000	173810	0.53 U	0.45 U	0.55 U	0.45 U	1.2 U
1,1,2,2-Tetrachloroethane	7.0	1.61	1.4 U	1.2 U	1.4 U	1.2 U	3.2 U
1,1,2-Trichloro-1,2,2-trifluoroethane	4380000	1042857	1.9 U	1.6 U	2 U	1.6 U	4.5 U
1,1,2-Trichloroethane	26	5.85	1.2 U	1 U	1.3 U	1 U	2.8 U
1,1-Dichloroethane	256	58.5	0.61 U	0.52 U	0.64 U	0.52 U	1.4 U
1,1-Dichloroethene	29200	6952	0.97 U	0.83 U	1 U	0.83 U	2.3 U
1,2,4-Trichlorobenzene	292	69.5	14 U	12 U	14 U	12 U	32 U
1,2,4-Trimethylbenzene	1022	243	1.2 U	18	1.3 U	21	2.9 U
1,2-Dichlorobenzene	29200	6952	2.5 U	2.1 U	2.6 U	2.1 U	5.8 U
1,2-Dichloroethane	15.7	*3.60*	0.39 U	*12*	0.41 U	*9.4*	0.92 U
1,2-Dichloropropane	40.9	9.36	1.3 U	1.2 U	1.4 U	1.2 U	3.1 U
1,3,5-Trimethylbenzene	NS	NS	0.78 U	9.8	0.82 U	12	1.8 U
1,3-Butadiene	13.6	3.12	0.56 U	0.48 U	0.59 U	0.48 U	1.3 U
1,3-Dichlorobenzene	NS	NS	2.3 U	2 U	2.4 U	2 U	5.3 U
1,4-Dichlorobenzene	37.2	8.51	1.6 U	1.4 U	1.7 U	1.4 U	3.8 U
1,4-Dioxane	81.8	18.7	1 U	0.89 U	1.1 U	0.89 U	2.4 U
2,2,4-Trimethylpentane	NS	NS	0.44 U	0.38 U	0.46 U	11	200
2-Butanone (MEK)	730000	173810	1.8 U	41	1.9 U	42	4.2 U
2-Hexanone	4380	1043	0.78 U	0.67 U	0.81 U	0.67 U	1.8 U
2-Propanol	29200	6952	1.1 U	0.92 U	1.1 U	24	2.5 U
3-Chloropropene	68.1	NS	1.6 U	1.4 U	1.7 U	1.4 U	3.7 U
4-Ethyltoluene	NS	NS	0.76 U	28	0.8 U	31	1.8 U
4-Methyl-2-pentanone (MIBK)	438000	104285.7	1.1 U	6.7	8.4	0.94 U	2.6 U
Acetone	4526000	NS	42	280	61	270	200
alpha-Chlorotoluene	8.34	*1.91*	0.87 U	0.75 U	0.91 U	0.75 U	*2 U*
Benzene	52.4	*12.0*	5.8	11	0.44 U	8	*17*
Bromoform	372	85.1	2.9 U	2.5 U	3 U	2.5 U	6.7 U
Bromomethane	730	174	2.4 U	2.1 U	2.6 U	2.1 U	5.7 U
Carbon disulfide	102200	24333	0.55 U	79	0.57 U	30	140
Carbon tetrachloride	68.1	*15.6*	*25*	14	0.93 U	0.76 U	2.1 U
Chlorobenzene	7300	1738	1.1 U	0.95 U	1.2 U	0.95 U	2.6 U
Chlorodibromomethane	NS	NS	2 U	1.7 U	2 U	1.7 U	4.6 U
Chloroethane	1460000	347619	1.2 U	1.1 U	1.3 U	1.1 U	2.9 U
Chloroform	17.8	*4.07*	*12*	0.54 U	0.65 U	0.54 U	1.5 U
Chloromethane	13140	3129	0.72 U	0.62 U	0.75 U	0.62 U	1.7 U
cis-1,2-Dichloroethene	NS	NS	0.45 U	0.39 U	0.47 U	0.39 U	1 U
cis-1,3-Dichloropropene	NS	NS	1.1 U	0.97 U	1.2 U	0.97 U	2.6 U
Cyclohexane	876000	208571	5.4	67	0.66 U	47	46
Dichlorobromomethane	11.0	2.53	0.86 U	0.74 U	0.9 U	0.74 U	2 U
Dichlorodifluoromethane	14600	3476	0.49 U	0.42 U	0.51 U	0.42 U	1.1 U
Ethanol	NS	NS	1.4 U	100	14	220	21
Ethylbenzene	164	37.4	1.2 U	22	7.5	17	2.8 U
Ethylene Dibromide	**0.681**	*0.156*	**1.4 U**	**1.2 U**	**1.4 U**	**1.2 U**	**3.2 U**
Freon 114	NS	NS	1.2 U	1 U	1.3 U	1 U	2.8 U
Heptane	NS	NS	0.57 U	100	27	24	1.3 U
Hexachlorobutadiene	**18.6**	*4.25*	**22 U**	**19 U**	**23 U**	**19 U**	**52 U**
Hexane	102200	24333	0.72 U	41	5	20	15
Isopropylbenzene	58400	13905	1 U	0.87 U	1.1 U	0.87 U	2.4 U
Methyl tert-butyl ether	1572	360	0.39 U	0.34 U	0.41 U	0.34 U	0.92 U
Methylene Chloride	40880	3380	1.2 U	1.1 U	1.3 U	1.1 U	2.9 U
m-Xylene & p-Xylene	14600	NS	0.69 U	82	32	64	23
o-Xylene	14600	3476	0.78 U	28	16	18	1.8 U
Propylbenzene	146000	34762	1.1 U	6.5	1.2 U	6.1	2.6 U
Styrene	146000	34762	0.83 U	10	0.86 U	11	1.9 U
Tetrachloroethene	1572	360	2.1 U	15	2.2 U	16	4.9 U
Tetrahydrofuran	292000	69524	0.96 U	0.83 U	1 U	0.83 U	2.2 U
Toluene	730000	173810	5.6	410	110	370	37
trans-1,2-Dichloroethene	NS	NS	1.3 U	1.1 U	1.3 U	1.1 U	3 U
trans-1,3-Dichloropropene	NS	NS	0.66 U	0.57 U	0.69 U	0.57 U	1.6 U
Trichloroethene	99.7	15.9	1 U	0.86 U	1 U	0.86 U	2.3 U
Trichlorofluoromethane	NS	NS	1.2 U	1 U	1.2 U	1 U	2.8 U
Vinyl chloride	92.9	5.59	0.25 U	0.21 U	0.26 U	0.21 U	0.58 U

Notes
All concentrations are reported in micrograms per cubic meter (ug/m3).
Screening values are taken from the Vapor Intrusion Screening Level (VISL) Calculator Verson 3.4 (May 2016 RSLs)
Target Risk for Carcinogens (TCR) = 1.00E-06
Target Hazard Quotient for Non-Carcinogens (THQ) = 1
Both Commercial and Residential Soil Gas Screening Levels are provided although adjacent buildings to the 25th Street Landfill (AOC 1) are commercial.
Italicized value indicates the concentration exceeds the Residential Soil Gas Screening Level.
Bold value indicates the concentration exceeds the Commercial Soil Gas Screening Level.
U = Target analyte was not detected.

TABLE 6
SUMMARY OF SOIL GAS ANALYTICAL DATA
AOC 10 - NORTH PARKING LOT
FORMER BASF HUNTINGTON WORKS FACILITY
HUNTINGTON, WEST VIRGINIA

		Sample	TMW-26V	TMW-27V	TMW-28V	TMW-29V	TMW-30V	TMW-31V
		Sample Type	N	N	N	N	N	N
		Matrix	AA	AA	AA	AA	AA	AA
		Sample Date	26 Aug 2016	26 Aug 2016	26 Aug 2016	26 Aug 2016	26 Aug 2016	26 Aug 2016
		Lab Sample ID	1609225-01A	1609225-02A	1609225-03A	1609225-04A	1609225-05A	1609225-06A
		Unit	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3
	EPA VISL Soil Gas Screening Values - Commercial	**EPA VISL Soil Gas Screening Values - Residential**						
TO15								
1,1,1-Trichloroethane	730000	173810	0.57 U	0.65 U	0.57 U	0.59 U	1.1 U	0.58 U
1,1,2,2-Tetrachloroethane	7.05	*1.61*	1.5 U	*1.7 U*	1.5 U	1.5 U	*3 U*	1.5 U
1,1,2-Trichloro-1,2,2-trifluoroethane	4380000	1042857	2 U	2.4 U	2.1 U	2.1 U	4.1 U	2.1 U
1,1,2-Trichloroethane	25.6	5.85	1.3 U	1.5 U	1.3 U	1.3 U	2.6 U	1.3 U
1,1-Dichloroethane	255.5	58.5	0.66 U	0.75 U	0.66 U	0.68 U	1.3 U	0.67 U
1,1-Dichloroethene	29200	6952	1 U	1.2 U	1 U	1.1 U	2.1 U	1.1 U
1,2,4-Trichlorobenzene	292	69.5	15 U	17 U	15 U	15 U	30 U	15 U
1,2,4-Trimethylbenzene	1022	243	27	1.5 U	1.4 U	1.4 U	2.7 U	1.4 U
1,2-Dichlorobenzene	29200	6952	2.6 U	3 U	2.7 U	2.7 U	5.3 U	2.7 U
1,2-Dichloroethane	15.7	3.60	0.42 U	0.49 U	0.42 U	0.44 U	0.85 U	0.43 U
1,2-Dichloroethane-d4 (Surr)	NS	NS	86	90	90	88	88	88
1,2-Dichloropropane	40.9	9.36	1.4 U	1.7 U	1.4 U	1.5 U	2.9 U	1.5 U
1,3,5-Trimethylbenzene	NS	NS	8.8	0.96 U	0.84 U	0.87 U	1.7 U	0.86 U
1,3-Butadiene	13.6	3.12	0.61 U	0.7 U	0.61 U	0.63 U	1.2 U	0.62 U
1,3-Dichlorobenzene	NS	NS	2.4 U	2.8 U	2.5 U	2.5 U	4.9 U	2.5 U
1,4-Dichlorobenzene	37.2	8.51	1.8 U	2 U	1.8 U	1.8 U	3.5 U	1.8 U
1,4-Dioxane	81.8	18.7	1.1 U	1.3 U	1.1 U	1.2 U	2.2 U	1.1 U
2,2,4-Trimethylpentane	NS	NS	0.48 U	0.55 U	0.48 U	0.49 U	0.96 U	0.49 U
2-Butanone (MEK)	730000	173810	1.9 U	2.2 U	1.9 U	2 U	3.9 U	2 U
2-Hexanone	4380	1043	0.84 U	0.96 U	0.84 U	0.86 U	1.7 U	0.86 U
2-Propanol	29200	6952	1.2 U	1.3 U	1.2 U	1.2 U	2.3 U	1.2 U
3-Chloropropene	68.1	NS	1.7 U	2 U	1.7 U	1.8 U	3.4 U	1.8 U
4-Bromofluorobenzene (Surr)	NS	NS	180	180	180	180	180	180
4-Ethyltoluene	NS	NS	16	0.94 U	0.82 U	0.84 U	1.6 U	0.84 U
4-Methyl-2-pentanone (MIBK)	438000	104286	1.2 U	1.4 U	1.2 U	1.2 U	2.4 U	1.2 U
Acetone	4526000	NS	88	65	1.5 U	1.6 U	3.1 U	65
Alpha-Chlorotoluene	8.3	1.91	0.94 U	1.1 U	0.94 U	0.97 U	1.9 U	0.96 U
Benzene	52.4	12.0	6.7	0.52 U	0.45 U	0.46 U	0.91 U	0.46 U
Bromoform	371.6	85.1	3.1 U	3.5 U	3.1 U	3.2 U	6.2 U	3.2 U
Bromomethane	730	174	2.6 U	3 U	2.6 U	2.7 U	5.3 U	2.7 U
Carbon disulfide	102200	24333	110	0.68 U	0.59 U	36	1.2 U	24
Carbon tetrachloride	**68.1**	*15.6*	0.96 U	9.1	0.96 U	*40*	***100***	*28*
Chlorobenzene	7300	1738	1.2 U	1.4 U	1.2 U	1.2 U	2.4 U	1.2 U
Chlorodibromomethane	NS	NS	2.1 U	2.4 U	2.1 U	2.2 U	4.2 U	2.2 U
Chloroethane	1460000	347619	1.3 U	1.5 U	1.3 U	1.4 U	2.7 U	1.4 U
Chloroform	17.8	4.07	0.67 U	0.77 U	0.68 U	0.69 U	1.4 U	0.69 U
Chloromethane	13140	3129	0.77 U	0.89 U	0.78 U	0.8 U	1.6 U	0.79 U
cis-1,2-Dichloroethene	NS	NS	0.49 U	0.56 U	0.49 U	0.5 U	0.98 U	0.5 U
cis-1,3-Dichloropropene	NS	NS	1.2 U	1.4 U	1.2 U	1.2 U	2.4 U	1.2 U
Cyclohexane	876000	208571	10	0.78 U	0.68 U	0.7 U	1.4 U	0.7 U
Dichlorobromomethane	11.0	2.53	0.93 U	1.1 U	0.93 U	0.96 U	1.8 U	0.95 U
Dichlorodifluoromethane	14600	3476	0.52 U	0.6 U	0.52 U	0.54 U	1 U	0.54 U
Ethanol	NS	NS	28	22	14	21	3 U	44
Ethylbenzene	163.5	37.4	14	1.5 U	1.3 U	1.3 U	2.6 U	1.3 U
Ethylene Dibromide	**0.681**	*0.156*	***1.4 U***	***1.7 U***	***1.5 U***	***1.5 U***	***2.9 U***	***1.5 U***
Freon 114	NS	NS	1.3 U	1.5 U	1.3 U	1.3 U	2.6 U	1.3 U
Heptane	NS	NS	5.5	0.71 U	0.62 U	0.64 U	1.2 U	0.63 U
Hexachlorobutadiene	**18.6**	*4.25*	***24 U***	***27 U***	***24 U***	***24 U***	***48 U***	***24 U***
Hexane	102200	24333	17	0.88 U	0.78 U	0.8 U	1.6 U	5.5
Isopropylbenzene	58400	13905	1.1 U	1.2 U	1.1 U	1.1 U	2.2 U	1.1 U
Methyl tert-butyl ether	1572	360	0.42 U	0.49 U	0.43 U	0.44 U	0.85 U	0.43 U
Methylene Chloride	40880	3380	1.3 U	1.5 U	1.3 U	1.4 U	2.7 U	1.4 U
m-Xylene & p-Xylene	NS	NS	94	0.85 U	0.75 U	0.77 U	1.5 U	10
o-Xylene	14600	3476	46	0.96 U	0.84 U	0.86 U	1.7 U	0.86 U
Propylbenzene	146000	34762	1.2 U	1.4 U	1.2 U	1.2 U	2.4 U	1.2 U
Styrene	146000	34762	0.89 U	1 U	0.89 U	0.92 U	1.8 U	0.91 U
Tetrachloroethene	**1572**	*360*	***1700***	***2100***	220	*630*	***4200***	210
Tetrahydrofuran	292000	69524	1 U	1.2 U	1 U	1.1 U	2.1 U	1.1 U
Toluene	730000	173810	70	14	4.9	0.4 U	12	46
Toluene-d8 (Surr)	NS	NS	100	100	100	100	100	100
trans-1,2-Dichloroethene	NS	NS	1.4 U	1.6 U	1.4 U	1.4 U	2.8 U	1.4 U
trans-1,3-Dichloropropene	NS	NS	0.71 U	0.82 U	0.72 U	0.74 U	1.4 U	0.73 U
Trichloroethene	99.7	*15.9*	*16*	*26*	1.1 U	1.1 U	*54*	*12*
Trichlorofluoromethane	NS	NS	1.3 U	1.4 U	1.3 U	1.3 U	2.5 U	1.3 U
Vinyl chloride	92.9	5.59	0.27 U	0.31 U	0.27 U	0.28 U	0.54 U	0.27 U

Notes
All concentrations are reported in micrograms per cubic meter (ug/m3)
Screening values are taken from the Vapor Intrusion Screening Level (VISL) Calculator Verson 3.5.1 (May 2016 RSLs
Target Risk for Carcinogens (TCR) = 1.00E-06
Target Hazard Quotient for Non-Carcinogens (THQ) = 1
Both Commercial and Residential Soil Gas Screening Levels are provided although adjacent buildings to the North Parking Lot (AOC10) are residenti
Italicized value indicates the concentration exceeds the Residential Soil Gas Screening Leve
Bold value indicates the concentration exceeds the Commercial Soil Gas Screening Leve
U = Target analyte was not detected.

FIGURES

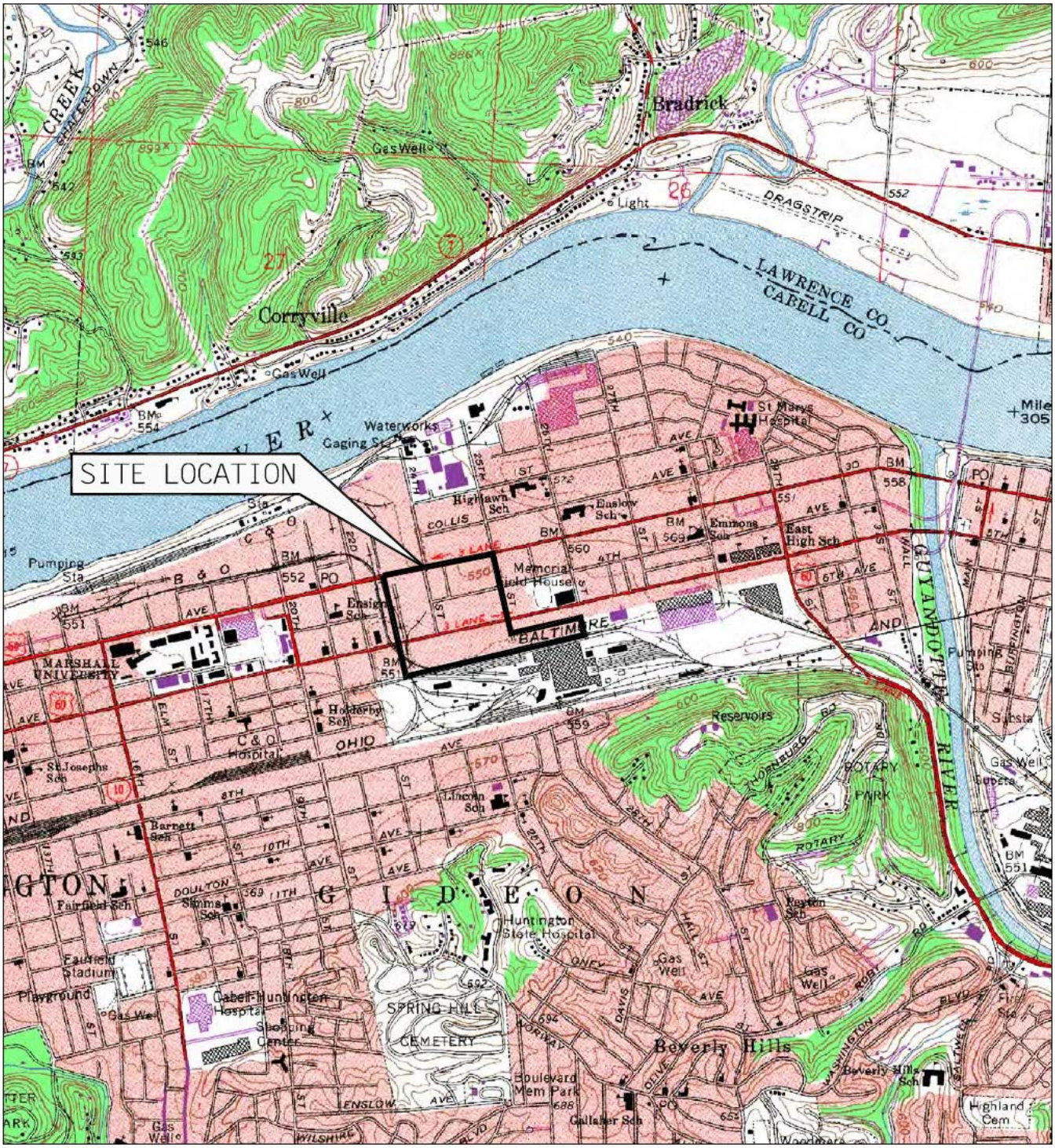

Figure 1 – Site Location Map	**Source:** USGS 7.5 Minute Topographic Map Huntington, WV - Ohio Quadrangle 1985	**Scale: NTS**

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Site Name: **Former BASF Huntington Works Facility**
5th Avenue and 24th Street
Huntington, West Virginia

AREAS OF CONCERN

AOC 1 - 25TH STREET LANDFILL
AOC 2 - FORMER PROCESS SEWERS
AOC 3 - ON-SITE RAILROAD LINES
AOC 4 - FORMER GASOLINE STATION
AOC 5 - ON-SITE WASTEWATER TREATMENT SYSTEM
AOC 6 - ABOVE GROUND STORAGE TANKS
AOC 7 - ELECTRICAL TRANSFORMERS
AOC 8 - FORMER COAL STORAGE AREA
AOC 9 - GROUND WATER

BUILDING LEGEND

1 - WAREHOUSE
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9B - WAREHOUSE
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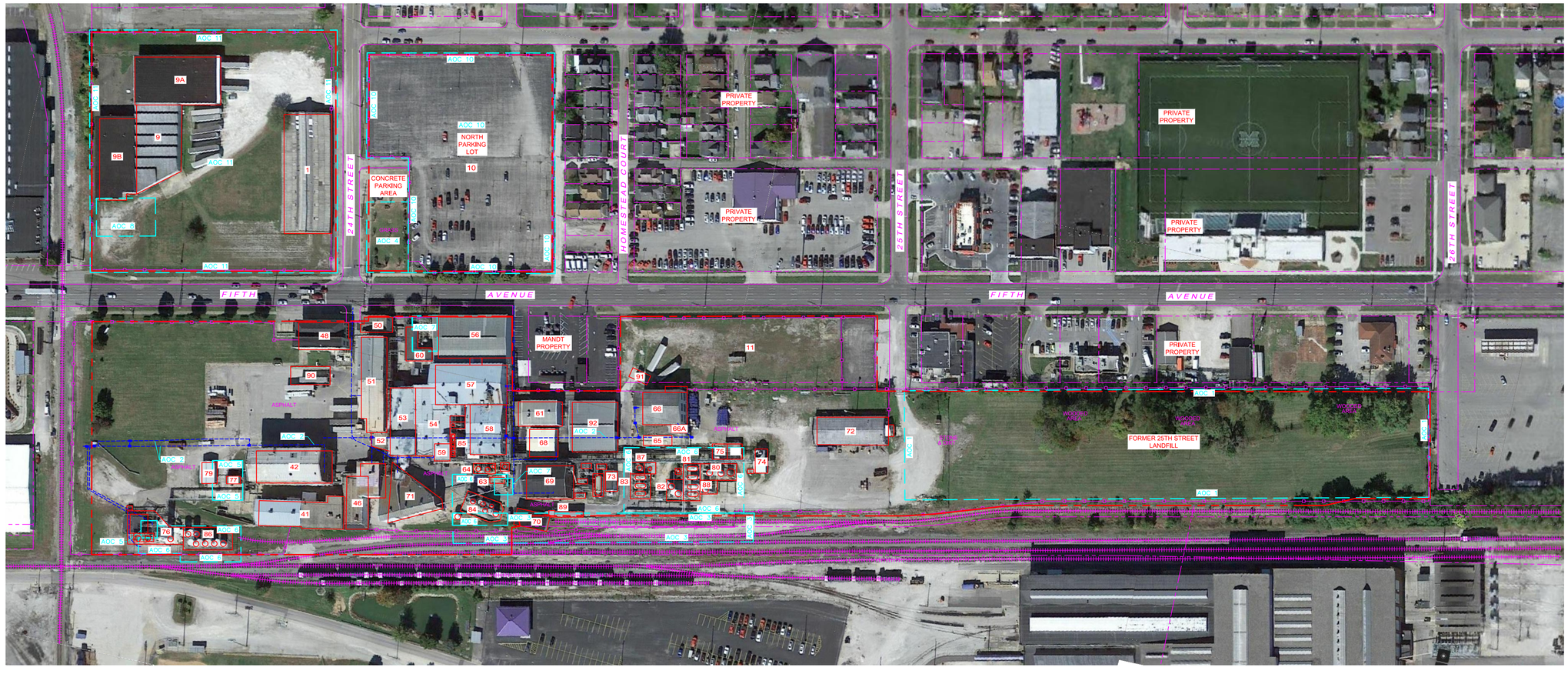

0' 100' 200' 300'
SCALE: 1" = 100'

LINETYPE AND SYMBOL LEGEND

	BASF PROPERTY BOUNDARIES (APPROXIMATE)
	OUTLINE OF AREA OF CONCERN (AOC)
AOC2	AREA OF CONCERN NAME TAG
	BUILDING FOUNDATION / STRUCTURE OUTLINE
88	BUILDING / STRUCTURE NUMBER KEY
	PROCESS WASTE WATER / STORMWATER PIPING
	FENCE LINE
	RAILROAD TRACKS
	OFFSITE PROPERTY LINES
	STREET EDGE OF PAVEMENT

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Phone: (919) 792-3733

REVISIONS

Figure 2- Site Map
Former BASF Facility
Huntington, West Virginia

JO	KW	RN
DESIGNED	DRAWN	CHECKED

HORIZONTAL SCALE 1" = 100'

DATE DECEMBER 2016

PROJECT NO.

Figure 2

SHEET NO.

AREAS OF CONCERN

AOC 1 - 25TH STREET LANDFILL
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0' 100' 200' 300'
SCALE: 1" = 100'

LINETYPE AND SYMBOL LEGEND

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	OFFSITE PROPERTY LINES
	STREET EDGE OF PAVEMENT
TMW-11S	GROUNDWATER MONITORING WELL

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REVISIONS

Figure 3- Groundwater Monitoring Well Location Map
Former BASF Facility
Huntington, West Virginia

JO	KW	RN
DESIGNED	DRAWN	CHECKED

HORIZONTAL SCALE 1" = 100'

DATE DECEMBER 2016

PROJECT NO.

Figure 3

SHEET NO.

AREAS OF CONCERN

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	RAILROAD TRACKS
	OFFSITE PROPERTY LINES
	STREET EDGE OF PAVEMENT
TMW-11S GWE 523.02'	GROUNDWATER MONITORING WELL AND GROUNDWATER ELEVATION
523.00	GROUNDWATER ELEVATION CONTOUR (0.20' CONTOUR INTERVAL)
	GROUNDWATER FLOW DIRECTION

0' 100' 200' 300'
SCALE: 1" = 100'

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REVISIONS

Figure 4- Potentiometric Contours for Groundwater (August 29, 2016)
Former BASF Facility
Huntington, West Virginia

JO	KW	RN
DESIGNED	DRAWN	CHECKED

HORIZONTAL SCALE 1" = 100'

DATE DECEMBER 2016

PROJECT NO.

Figure 4

SHEET NO.

AREAS OF CONCERN

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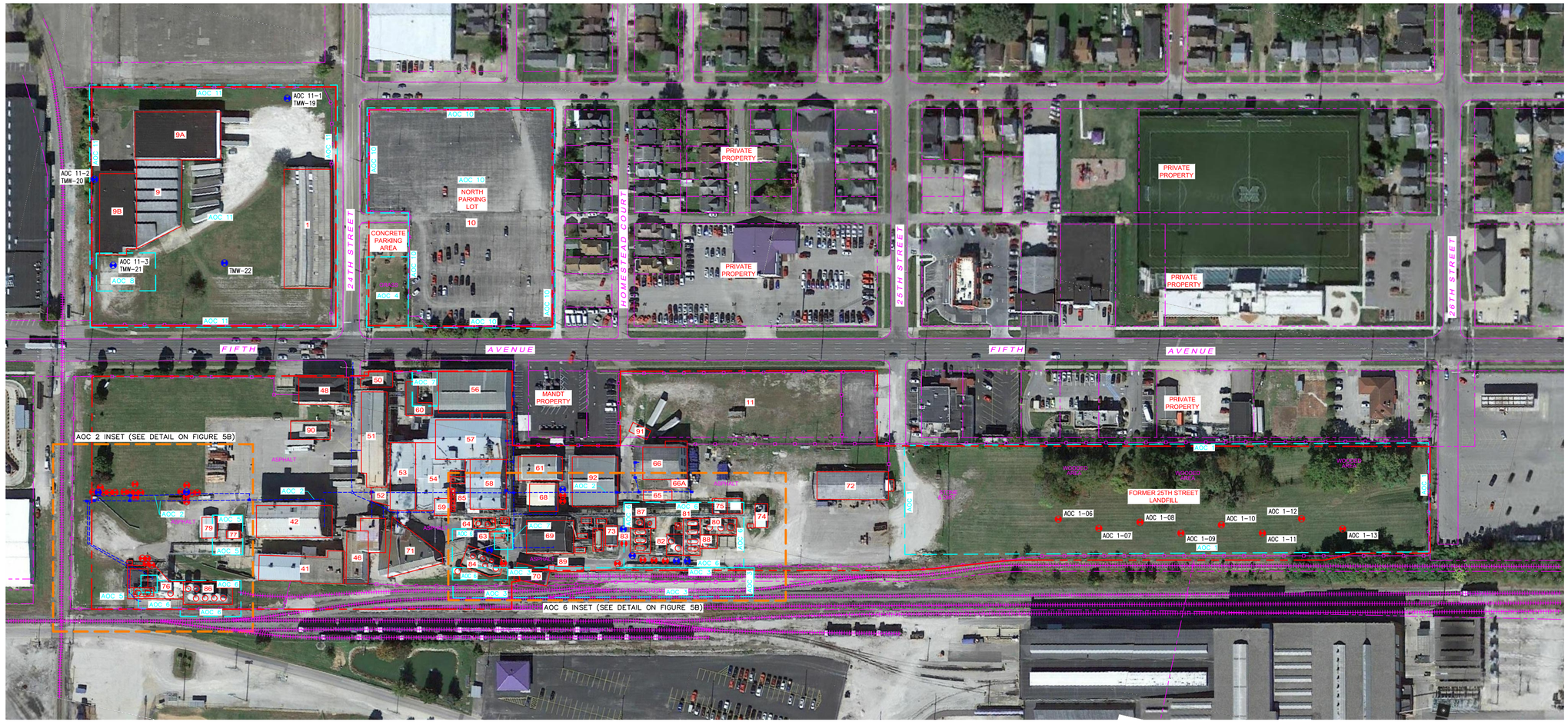

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SCALE: 1" = 100'

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	STREET EDGE OF PAVEMENT
AOC2-16	SOIL BORING LOCATION
AOC 11-3 TMW-21	SOIL BORING LOCATION AND GROUNDWATER GRAB SAMPLE

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REVISIONS

Figure 5A- Data Gap Soil Boring Locations
Former BASF Facility
Huntington, West Virginia

JO	KW	RN
DESIGNED	DRAWN	CHECKED

HORIZONTAL SCALE 1" = 100'

DATE DECEMBER 2016

PROJECT NO.

Figure 5A

SHEET NO.

AREAS OF CONCERN

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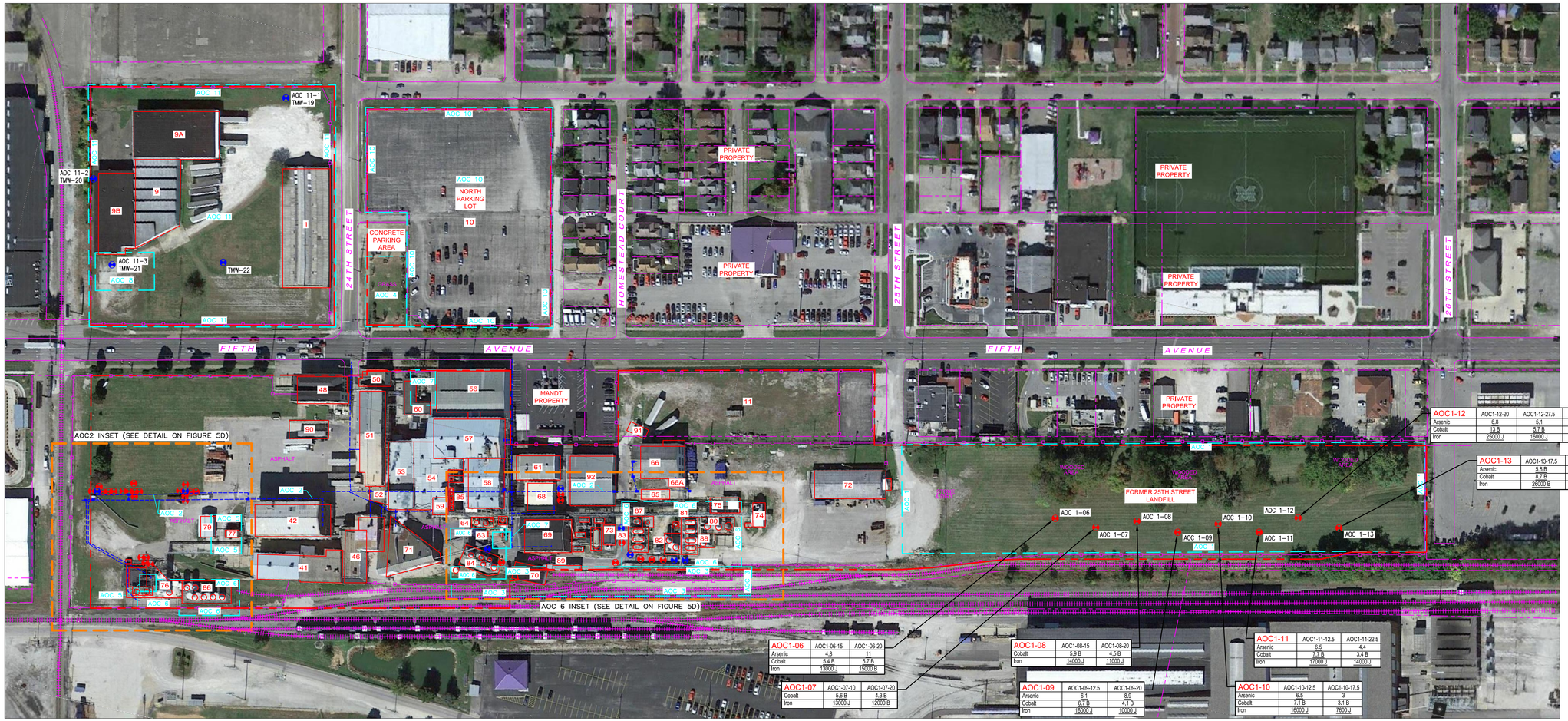

AOC1-12	AOC1-12-20	AOC1-12-27.5	DUP-1
Arsenic	6.8	5.1	4.4
Cobalt	13 B	5.7 B	4.3 B
Iron	25000 J	16000 J	11000 J

AOC1-13	AOC1-13-17.5	AOC1-13-30
Arsenic	5.8 B	5.8 B
Cobalt	8.7 B	6 B
Iron	26000 B	22000 B

AOC1-06	AOC1-06-15	AOC1-06-20
Arsenic	4.8	11
Cobalt	5.4 B	5.7 B
Iron	13000 J	15000 B

AOC1-07	AOC1-07-10	AOC1-07-20
Cobalt	5.6 B	4.3 B
Iron	13000 J	12000 B

AOC1-08	AOC1-08-15	AOC1-08-20
Cobalt	5.9 B	4.5 B
Iron	14000 J	11000 J

AOC1-09	AOC1-09-12.5	AOC1-09-20
Arsenic	6.1	8.9
Cobalt	6.7 B	4.1 B
Iron	16000 J	10000 J

AOC1-10	AOC1-10-12.5	AOC1-10-17.5
Arsenic	6.5	3
Cobalt	7.1 B	3.1 B
Iron	16000 J	7600 J

AOC1-11	AOC1-11-12.5	AOC1-11-22.5
Arsenic	6.5	4.4
Cobalt	7.7 B	3.4 B
Iron	17000 J	14000 J

0' 100' 200' 300'
SCALE: 1" = 100'

LINETYPE AND SYMBOL LEGEND

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- PROCESS WASTE WATER / STORMWATER PIPING
- FENCE LINE
- RAILROAD TRACKS
- OFFSITE PROPERTY LINES
- STREET EDGE OF PAVEMENT
- AOC2-16 — SOIL BORING LOCATION
- AOC 11-3 TMW-21 — SOIL BORING LOCATION AND AND GROUNDWATER GRAB SAMPLE
- AOC1-07 / Cobalt 5.6 B / Iron 13000 J — SOIL CONTAMINANT CONCENTRATIONS

LEGEND OF CONTAMINANTS IN SOIL

CHEMICAL NAME	WVDEP INDUSTRIAL SOIL DE MINIMIS STANDARD (mg/kg)	EPA INDUSTRIAL SOIL SCREENING LEVEL (mg/kg)	WVDEP MIGRATION TO GROUNDWATER DE MINIMIS STANDARD (mg/kg)
Arsenic	27	*3*	5.8
Barium	360000	220000	1600
Cobalt	600	350	4.2
Iron	1000000	820000	5500
Copper	82000	47000	440

Notes:
All concentrations reported in milligrams per kilogram (mg/kg).
Bolded values exceed the WVDEP 60CSR3 Table 60-3B Industrial Soil De Minimis Standard.
U - Target analyte not detected above listed Method Detection Limit.
J - Estimated result. Result is less greater than the Method Detection Limit but less than the labaratory method Reporting Limit.
B - Method blank contamination. The associated method blank contains the target analyte at a reportable level.
K - Analyte is present. Reported value may be biased high. Actual value is expected to be lower.
L - Analyte is present. Reported value may be biased low. Actual value is expected to be higher.

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REVISIONS

Figure 5B- Soil Contaminant Concentrations (AOC 1 25th Street Landfill) Former BASF Facility Huntington, West Virginia

JO	KW	RN
DESIGNED	DRAWN	CHECKED

HORIZONTAL SCALE 1" = 100'
DATE DECEMBER 2016
PROJECT NO.

Figure 5B
SHEET NO.

AREAS OF CONCERN

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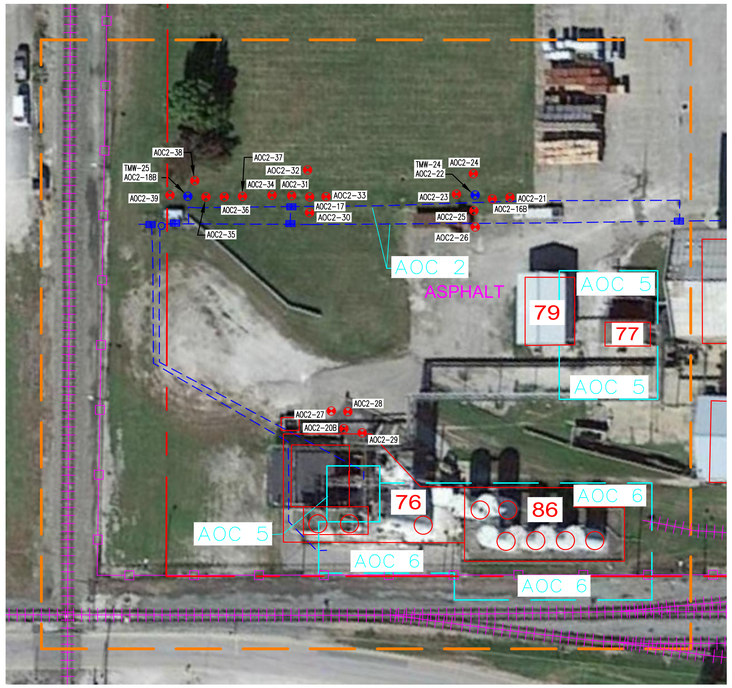
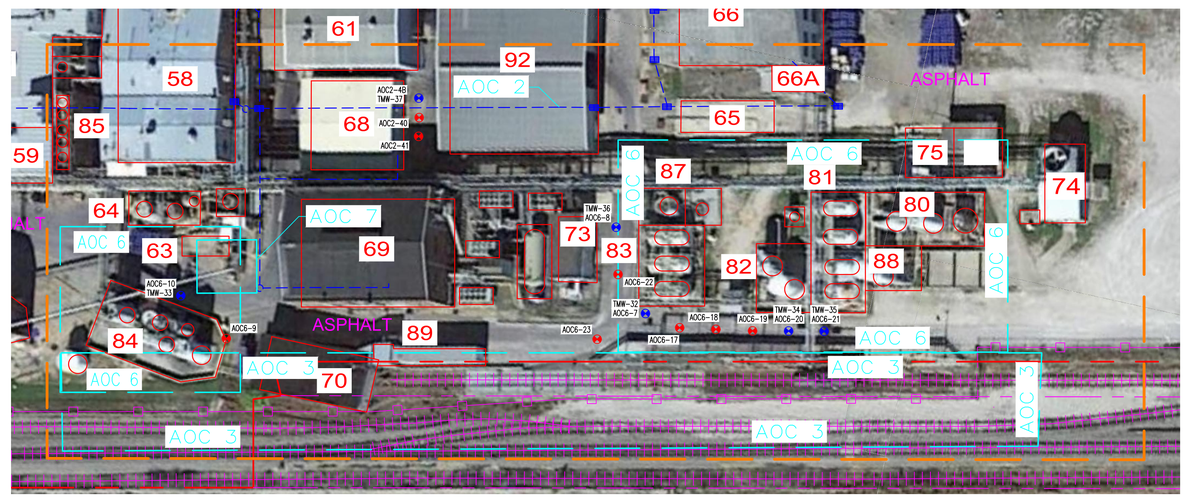
AOC 4 - FORMER GASOLINE STATION
AOC 5 - ON-SITE WASTEWATER TREATMENT SYSTEM
AOC 6 - ABOVE GROUND STORAGE TANKS
AOC 7 - ELECTRICAL TRANSFORMERS
AOC 8 - FORMER COAL STORAGE AREA
AOC 9 - GROUND WATER

BUILDING LEGEND *(NOTE: NOT ALL ALL SHOWN IN DETAILS)*

1 - WAREHOUSE
9 - WAREHOUSE
9A - SHIPPING
9B - WAREHOUSE
10 - PARKING LOT
11 - CONTRACTOR AREA
41 - ENGINEERING & MAINTENANCE
42 - STORAGE
46 - STOREROOM
47 - VACANT
48 - ADMINISTRATION
50 - SECURITY
51 - LAB, HUMAN RESOURCES, FLUSH COLOR
52 - COMPRESSOR ROOM
53 - FLUSH COLOR
54 - DYE & FLUSH COLOR
56 - DYE
57 - DYE & FLUSH COLOR
58 - DYE
59 - FLUSH COLOR
60 - ELECTRIC SUBSTATION
61 - DYE
63 - DYE
64 - PHENOL EXTRACTION
65 - PHENOL EXTRACTION
66 - STORAGE
66A - PHENOL EXTRACTION
68 - CONTROL BUILDING
69 - REFRIGERATION
70 - MIDPLANT DOCK
71 - BOILER HOUSE
72 - CARPENTER SHOP
73 - ELECTRIC SUBSTATION
74 - COOLING TOWER
75 - HAZARDOUS MATERIAL PAD
76 - WASTE TREATMENT
77 - WASTE TREATMENT
78 - HAZARDOUS MATERIAL PAD
79 - FIRE TRUCK GARAGE
80 - CAUSTIC, FORMALDEHYDE TANK FARM
81 - ANILINE TANK FARM
82 - ACID TANK FARM
83 - ANILINE TANK FARM
84 - MID PLANT TANK FARM
85 - SEPARATOR TANK FARM
86 - WEST END TANK FARM
87 - PHENOL EXTRACTION
88 - SULFURIC ACID TANK FARM
89 - RAILCAR UNLOADING RACK
90 - WEST TRUCK LOADING PAD
91 - EAST UNLOADING PAD
92 - OPAL STORAGE AREA



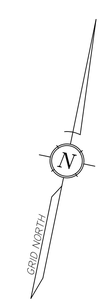
0' 40' 80' 120'
SCALE: 1" = 40'



0' 40' 80' 120'
SCALE: 1" = 40'

LINETYPE AND SYMBOL LEGEND

	BASF PROPERTY BOUNDARIES (APPROXIMATE)
	OUTLINE OF AREA OF CONCERN (AOC)
AOC2	AREA OF CONCERN NAME TAG
	BUILDING FOUNDATION / STRUCTURE OUTLINE
88	BUILDING / STRUCTURE NUMBER KEY
	PROCESS WASTE WATER / STORMWATER PIPING
	FENCE LINE
	RAILROAD TRACKS
	OFFSITE PROPERTY LINES
	STREET EDGE OF PAVEMENT
AOC2-16	SOIL BORING LOCATION
AOC2-18 TMW-25	SOIL BORING LOCATION AND GROUNDWATER GRAB SAMPLE



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RALEIGH, NC 27624
Phone: (919) 792-3733

REVISIONS

Figure 5C- Data Gap Soil Boring Locations
(AOC 2 and AOC 6)
Former BASF Facility
Huntington, West Virginia

JO	KW	RN
DESIGNED	DRAWN	CHECKED

HORIZONTAL SCALE 1" = 40'

DATE DECEMBER 2016

PROJECT NO.

Figure 5C

SHEET NO.

BUILDING LEGEND (NOTE: NOT ALL ALL SHOWN IN DETAILS)

1 - WAREHOUSE
9 - WAREHOUSE
9A - SHIPPING
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88 - SULFURIC ACID TANK FARM
89 - RAILCAR UNLOADING RACK
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91 - EAST UNLOADING PAD
92 - OPAL STORAGE AREA

AREAS OF CONCERN

AOC 1 - 25TH STREET LANDFILL
AOC 2 - FORMER PROCESS SEWERS
AOC 3 - ON-SITE RAILROAD LINES
AOC 4 - FORMER GASOLINE STATION
AOC 5 - ON-SITE WASTEWATER TREATMENT SYSTEM
AOC 6 - ABOVE GROUND STORAGE TANKS
AOC 7 - ELECTRICAL TRANSFORMERS
AOC 8 - FORMER COAL STORAGE AREA
AOC 9 - GROUND WATER

AOC2-36	AOC2-36-5	AOC2-36-10	AOC2-36-15	AOC2-36-20
Arsenic	11	9.2	2.1	1.6
Barium	1100	2500	150	140
Cobalt	4.1 B	10 B	14 B	11 B
Iron	31000	17000	15000	13000
Aroclor-1248	0.076	**16 K**	0.32	0.0071 U
1,2,4-Trichlorobenzene	0.00028 U	**1900**	22	0.0047
1,2-Dichlorobenzene	0.00025 U	10 J	0.076 U	0.00032 U
1,4-Dichlorobenzene	0.00021 U	54 J	0.19 U	0.00026 U
cis-1,2-Dichloroethene	0.00021 U	16 U	1.2	0.00021 U
Trichloroethene	0.00028 U	17 U	0.36 J	0.006
1,1-Biphenyl	0.33	0.091 U	0.0047 U	0.0044 U
1,2-Diphenylhydrazine (as Azobenzene)	0.11 J	7.7	0.023 U	0.021 U
2-Methylnaphthalene	1.8	0.4	0.00068 U	0.01
Aniline	0.53 J	21	0.055 J	0.014 U
Benzidine	0.075 U	**3.6 J**	0.039 U	0.037 U
Benzo(a)anthracene	0.9	0.016 U	0.00085 U	0.00079 U
Benzo(b)fluoranthene	1.3	0.015 U	0.0008 U	0.027
Naphthalene	1.1	0.83	0.0011 U	0.0011 U
N-Nitrosodiphenylamine	0.054 U	3.8	0.028 U	0.026 U

AOC2-37	AOC2-37-5	AOC2-37-10	AOC2-37-15	AOC2-37-20
Cobalt	16 B	5.1 B	23 B	8.9 B
Iron	16000	8800	13000	13000
1,2,4-Trichlorobenzene	0.00053 U	12	0.035 U	0.0003 U
1,2-Dichlorobenzene	0.00047 U	0.44 J	0.022 U	0.00027 U
Benzene	0.0012 U	0.2 J	0.015 J	0.00072 U
cis-1,2-Dichloroethene	0.00039 U	1.1	0.86	0.061
Tetrachloroethene	0.0011 U	0.086 J	0.031 U	0.00064 U
Trichloroethene	0.00053 U	12	3.3	0.0003 U
Aniline	0.016 U	2.4	0.45	0.015 U
Naphthalene	0.082	0.0011 U	0.001 U	0.0011 U

AOC2-38	AOC2-38-5	AOC2-38-12.5	AOC2-38-20
Arsenic	8.5	5.4 B	2 B
Barium	3500	250	73
Cobalt	15 B	8.2 B	9.3 B
Iron	30000	13000	9400
1,2-Diphenylhydrazine (as Azobenzene)	0.024 J	0.026 UL	0.022 U
Aniline	0.24 J	0.017 UL	0.014 U
Naphthalene	0.089	0.0013 UL	0.0011 U

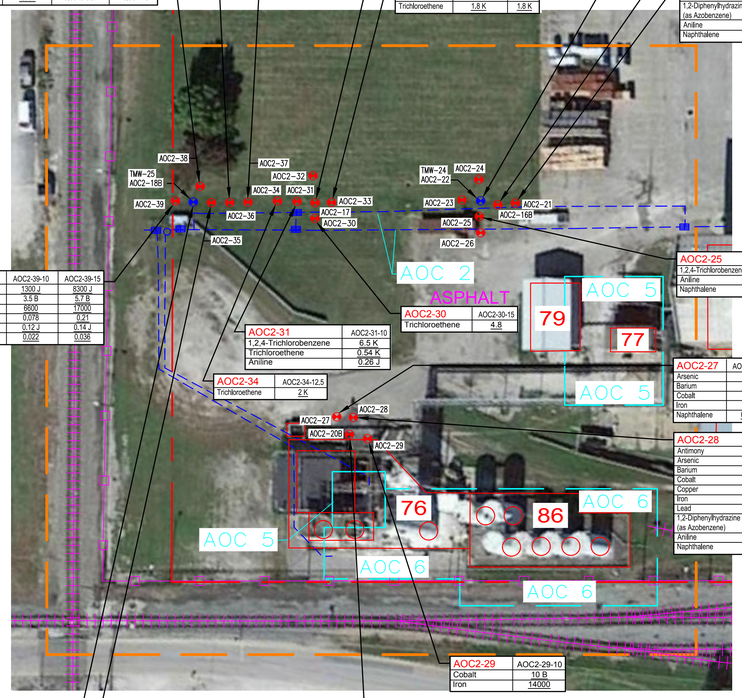
AOC2-22	AOC2-22-13.5	AOC2-22-17.5
1,2,4-Trichlorobenzene	**5500**	N/A
1,2-Dichlorobenzene	15 J	N/A
1,2-Diphenylhydrazine (as Azobenzene)	1.8	0.021 U
Aniline	10	0.014 U
Naphthalene	0.85	0.001 U

AOC2-17B	AOC2-17B-11.5
1,2,4-Trichlorobenzene	4.7 K
1,4-Dichlorobenzene	2 K
Benzene	0.1K
Trichloroethene	2.2 K
Aniline	0.18 J
Naphthalene	0.03

AOC2-16B	AOC2-16B-10.5	AOC2-16B-15
Aniline	20	0.32 J

AOC2-33	AOC2-33-12.5	DUP-02
Trichloroethene	1.8 K	1.8 K

AOC2-21	AOC2-21-12.5	AOC2-21-15
1,2-Diphenylhydrazine (as Azobenzene)	0.23 J	0.021 U
Aniline	16	0.21 J
Naphthalene	0.059 J	0.001 U



AOC2-39	AOC2-39-10	AOC2-39-15
Barium	1300 J	8300 J
Cobalt	3.5 B	5.7 B
Iron	6600	17000
Aroclor-1248	0.078	0.21
Aniline	0.12 J	0.74 J
Naphthalene	0.022	0.036

AOC2-25	AOC2-25-15
1,2,4-Trichlorobenzene	36000
Aniline	0.32 J
Naphthalene	0.43

AOC2-30	AOC2-30-15
Trichloroethene	4.8

AOC2-31	AOC2-31-10
1,2,4-Trichlorobenzene	6.5 K
Trichloroethene	0.54 K
Aniline	0.28 J

AOC2-34	AOC2-34-12.5
Trichloroethene	2 K

AOC2-27	AOC2-27-7.5	AOC1-27-15
Arsenic	7.4	3.9
Barium	14000	130
Cobalt	9.2 B	9.1 B
Iron	22000	9500
Naphthalene	0.024 J	0.0011 U

AOC2-28	AOC2-28-5	AOC2-28-10
Antimony	7.4 L	0.33 L
Arsenic	14 B	5.2 B
Barium	2600 J	5400 J
Cobalt	8.6 B	12 B
Copper	780 B	29 B
Iron	31000	20000
Lead	**1300 B**	72 B
1,2-Diphenylhydrazine (as Azobenzene)	8.6	0.022 U
Aniline	38	0.13 J
Naphthalene	0.052 U	0.0095

AOC2-29	AOC2-29-10
Cobalt	10 B
Iron	14000

0' 40' 80' 120'
SCALE: 1" = 40'

AOC2-20B	AOC2-20B-10	AOC2-20B-15	AOC2-20B-20
Arsenic	9.1	3.3	3
Barium	4600	5400	350
Cobalt	14 B	11 B	16 B
Iron	25000	14000	12000
Aniline	0.015 U	0.32 J	0.014 U
Naphthalene	0.015	0.0058 J	0.001 U

AOC2-35	AOC2-35-5	AOC2-35-10	AOC2-35-15	AOC2-35-20
Arsenic	8.5	2.1	4.4	1.8
Cobalt	4.8 B	4.8 B	13 B	13 B
Iron	19000	7700	20000	12000
1,1-Biphenyl	0.25	0.0049 U	0.0068 U	0.0044 U
1,2-Diphenylhydrazine (as Azobenzene)	0.087 J	0.024 U	0.033 U	0.021 U
2-Methylnaphthalene	1.5	0.0007 U	0.00096 U	0.00062 U
Aniline	0.27 J	0.015 U	0.021 U	0.014 U
Benzo(a)anthracene	0.32	0.00088 U	0.0012 U	0.0085
Naphthalene	0.98	0.0011 U	0.0016 U	0.001 U

AOC2-18B	AOC2-18B-7.5	AOC2-18B-11.5	AOC2-18B-15	AOC2-18B-20	AOC2-18B-25
Arsenic	3.7	9.2	6.9	2	2.2
Barium	3600	5100	2500	97	35
Cobalt	4.4 B	9.2 B	14 B	14 B	2.4 B
Iron	9800	19000	17000	13000	5900
Aroclor-1248	0.19	3.9	**95K**	4.3	0.98
1,2,4-Trichlorobenzene	0.0004 U	5.6	**2400**	120	3.8
1,4-Dichlorobenzene	0.0003 U	2.4	24 J	1.1 U	0.053 U
Aniline	0.065 J	0.18 J	0.25 J	0.014 U	0.014 U
Naphthalene	0.048	0.03	0.28	0.0088	0.001U

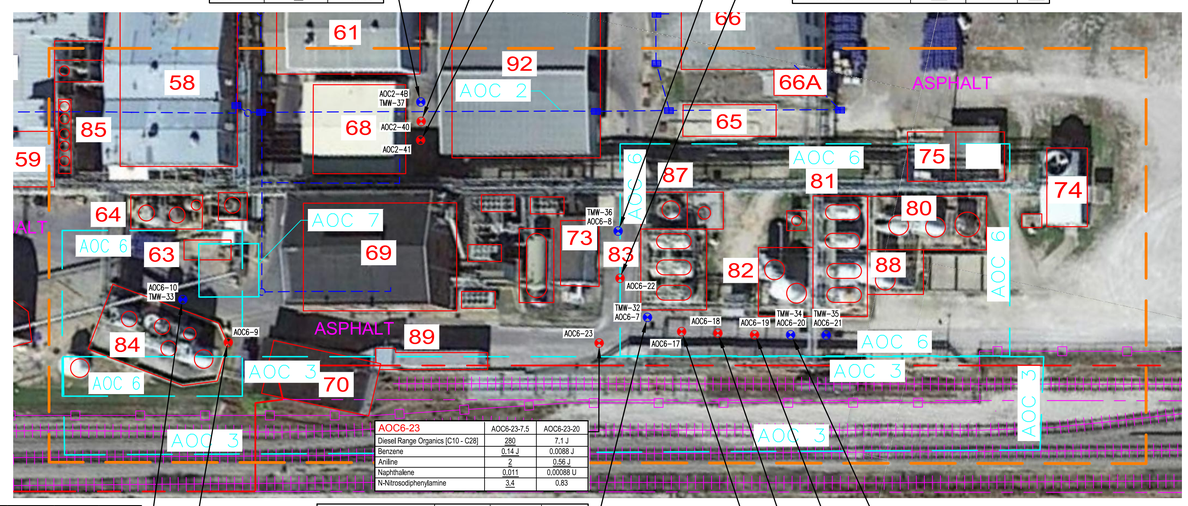
AOC2-40	AOC2-40-10	AOC2-40-17.5
Cobalt	2.8 B	15 B
Iron	12000	13000
1,2,4-Trichlorobenzene	50 K	**17000**
1,2-Dichlorobenzene	0.39 K	53 U
1,4-Dichlorobenzene	45 K	110 U

AOC2-41	AOC2-41-12.5	AOC2-41-20
Cobalt	4.7 B	18 B
Iron	11000	14000
1,2,4-Trichlorobenzene	56	**3700**

AOC2-4B	AOC2-4B-7.5	AOC2-4B-25
Iron	7900	21000
Aniline	1.9	0.012 U

AOC6-08	AOC6-08-5	AOC6-08-15	AOC6-08-20
1,2,4-Trichlorobenzene	0.17 J	150 K	0.8
1,4-Dichlorobenzene	1.4	1.2 U	0.053 U
Benzene	0.081 J	0.27 U	0.11 J
Aniline	20 L	21 L	170
Diphenylamine	49	23 U	0.25 U
Naphthalene	0.024 UL	0.1 L	0.021 U
N-Nitrosodiphenylamine	4.5 L	1.6 L	0.55 U

AOC6-22	AOC6-22-10	AOC6-22-20	DUP-4
Diesel Range Organics [C10 - C28]	1900 U	11 J	2600 J
Gasoline Range Organics [C6 - C10]	**8700**	6.4 J	**13000**
1,2,4-Trichlorobenzene	5.5 U	0.028 U	35 J
Benzene	7.8 J	0.0083 J	13 J
Ethylbenzene	110 J	3.5	**610 J**
Toluene	710 J	0.051 B	**3700 J**
Xylenes, Total	**380 J**	2.5	**2600 J**
Aniline	430 J	30	910 J
Diphenylamine	330 J	0.51 U	660 J
N-Nitrosodiphenylamine	390 J	0.51 U	780 J



AOC6-10	AOC6-10-5	AOC6-10-10	AOC6-10-15	AOC6-10-20
2,4-Dinitrotoluene	6.4 U	0.034 U	2.4 U	0.15 J
Aniline	590 B	120 B	0.59 JB	0.15 B
N-Nitrosodiphenylamine	9.5 J	3.4 J	0.042 U	0.034 U

AOC6-09	AOC6-09-10	AOC6-09-15	AOC6-09-20
Aniline	1100 B	3.5 B	0.025 B

AOC6-23	AOC6-23-7.5	AOC6-23-20
Diesel Range Organics [C10 - C28]	280	7.1 J
Benzene	0.14 J	0.0088 J
Aniline	2	0.56 J
Naphthalene	0.011	0.00088 U
N-Nitrosodiphenylamine	3.4	0.83

AOC6-07	AOC6-07-2.5	AOC6-07-7.5	AOC6-07-20
Diesel Range Organics [C10 - C28]	3500	350	11 J
Gasoline Range Organics [C6 - C10]	1100	990 L	70 L
Lead	790 B	35 B	5.2 B
Benzene	0.44 L	6.5 U	0.18 U
Ethylbenzene	0.45 L	**990**	57 K
Isopropylbenzene	21 L	26 J	2.4 K
Toluene	6.5 L	**1100 B**	12 K
Xylenes, Total	45 L	**4500**	230 K
Aniline	48 B	1100 B	12 B
Diphenylamine	49	23 U	0.25 U
Naphthalene	2.5	0.91 U	0.0097
N-Nitrosodiphenylamine	58	23 U	0.25 U

0' 40' 80' 120'
SCALE: 1" = 40'

AOC6-20	AOC6-20-15	AOC6-20-20
Gasoline Range Organics [C6 - C10]	370	12
Ethylbenzene	74	3
Xylenes, Total	**300**	13
Naphthalene	0.011	0.00088 U

AOC6-19	AOC6-19-5	AOC6-19-12.5	AOC6-19-20
Gasoline Range Organics [C6 - C10]	2.6 U	830 L	200 J
Ethylbenzene	0.032	43 K	**340**
Isopropylbenzene	0.0012 J	5.9 K	28 J
Xylenes, Total	0.14	160 K	**1500**
Aniline	0.012 U	0.089 B	0.047 B
Naphthalene	0.00091 U	0.00092 U	0.014

AOC6-18	AOC6-18-10	AOC6-18-20
Ethylbenzene	0.0018 B	25 K
Aniline	0.22 JB	0.3 B

AOC6-17B	AOC6-17B-10	AOC6-17B-20	DUP-3
Gasoline Range Organics [C6 - C10]	1100 L	22	6600 L
Ethylbenzene	**1500**	17	**1300**
Isopropylbenzene	64 J	0.43 K	51 J
Toluene	**1300 B**	7.4 K	**990 B**
Xylenes, Total	**6800**	74 K	**5700**
Aniline	61 J	1.9 B	34 J
N-Nitrosodiphenylamine	2.6 J	0.067	1.1 J

LEGEND OF CONTAMINANTS IN SOIL

CHEMICAL NAME	WVDEP INDUSTRIAL SOIL DE MINIMIS STANDARD (MG/KG)	EPA INDUSTRIAL SOIL SCREENING LEVEL (MG/KG)	WVDEP MIGRATION TO GROUNDWATER DE MINIMIS STANDARD (MG/KG)
Arsenic	27	*3*	5.8
Barium	360000	220000	1600
Cobalt	600	350	4.2
Iron	1000000	820000	5500
Copper	82000	47000	440
Lead	1000	800	270
Diesel Range Organics [C10 - C28]	8300		170
Gasoline Range Organics [C6 - C10]	**6600**		83
Aroclor-1248	**10**	*0.95*	0.1
1,2,4-Trichlorobenzene	**280**	*110*	4.1
1,2-Dichlorobenzene	380	9300	12
1,4-Dichlorobenzene	**140**	*11*	1.4
Benzene	57	*5.1*	0.051
cis-1,2-Dichloroethene	**82**	2300	0.41
Ethylbenzene	**290**	25	16
Isopropylbenzene	270	9900	18
Tetrachloroethene	170	*100*	0.045
Toluene	**820**	47000	14
Trichloroethene	**21**	*6*	0.036
Xylenes, Total	**260**	*2500*	200
1,1-Biphenyl	220	200	0.17
2,4-Dinitrotoluene	80	*7.4*	0.0059
1,2-Diphenylhydrazine (as Azobenzene)	31	*2.9*	0.0054
2-Methylnaphthalene	8200	3000	0.51
Aniline	4300	400	0.08
Benzidine	**0.11**	*0.01*	4.8E-06
Benzo[a]anthracene	29	2.9	0.21
Benzo[b]fluoranthene	29	2.9	0.71
Diphenylamine	22000	21000	14
Naphthalene	180	17	0.0094
N-Nitrosodiphenylamine	5000	470	1.5

Notes:
All concentrations reported in milligrams per kilogram (mg/kg).
Bolded values exceed the WVDEP 60CSR3 Table 60-3B Industrial Soil De Minimis Standard.
Underlined values exceed the WVDEP 60CSR3 Table 60-3B Migration to Groundwater Soil De Minimis Standard.
U - Target analyte not detected above listed Method Detection Limit.
J - Estimated result. Result is less greater than the Method Detection Limit but less than the labaratory method Reporting Limit.
B - Method blank contamination. The associated method blank contains the target analyte at a reportable level.
K - Analyte is present. Reported value may be biased high. Actual value is expected to be lower.
L - Analyte is present. Reported value may be biased low. Actual value is expected to be higher.

LINETYPE AND SYMBOL LEGEND

- BASF PROPERTY BOUNDARIES (APPROXIMATE)
- OUTLINE OF AREA OF CONCERN (AOC)
- AOC2 — AREA OF CONCERN NAME TAG
- BUILDING FOUNDATION / STRUCTURE OUTLINE
- 88 — BUILDING / STRUCTURE NUMBER KEY
- PROCESS WASTE WATER / STORMWATER PIPING
- FENCE LINE
- RAILROAD TRACKS
- OFFSITE PROPERTY LINES
- STREET EDGE OF PAVEMENT
- AOC2-16 — SOIL BORING LOCATION
- AOC 11-3 / TMW-21 — SOIL BORING LOCATION AND AND GROUNDWATER GRAB SAMPLE

AOC1-07	AOC1-07-10	AOC1-07-20
Cobalt	5.6 B	4.3 B
Iron	13000 J	12000 B

SOIL CONTAMINANT CONCENTRATIONS

GRID NORTH

ELM SITE SOLUTIONS
ENVIRONMENT & DEVELOPMENT
ELM Site Solutions, Inc.
P.O. BOX 97607
RALEIGH, NC 27624
Phone: (919) 792-3733

REVISIONS

Figure 5D- Soil Contaminant Concentrations (AOC 2 and AOC 6) Former BASF Facility Huntington, West Virginia

KBW	KBW	KBW
DESIGNED	DRAWN	CHECKED

HORIZONTAL SCALE 1" = 40'
DATE DECEMBER 2016
PROJECT NO.

Figure 5D
SHEET NO.

AREAS OF CONCERN

AOC 1 - 25TH STREET LANDFILL
AOC 2 - FORMER PROCESS SEWERS
AOC 3 - ON-SITE RAILROAD LINES
AOC 4 - FORMER GASOLINE STATION
AOC 5 - ON-SITE WASTEWATER TREATMENT SYSTEM
AOC 6 - ABOVE GROUND STORAGE TANKS
AOC 7 - ELECTRICAL TRANSFORMERS
AOC 8 - FORMER COAL STORAGE AREA
AOC 9 - GROUND WATER

BUILDING LEGEND

1 - WAREHOUSE
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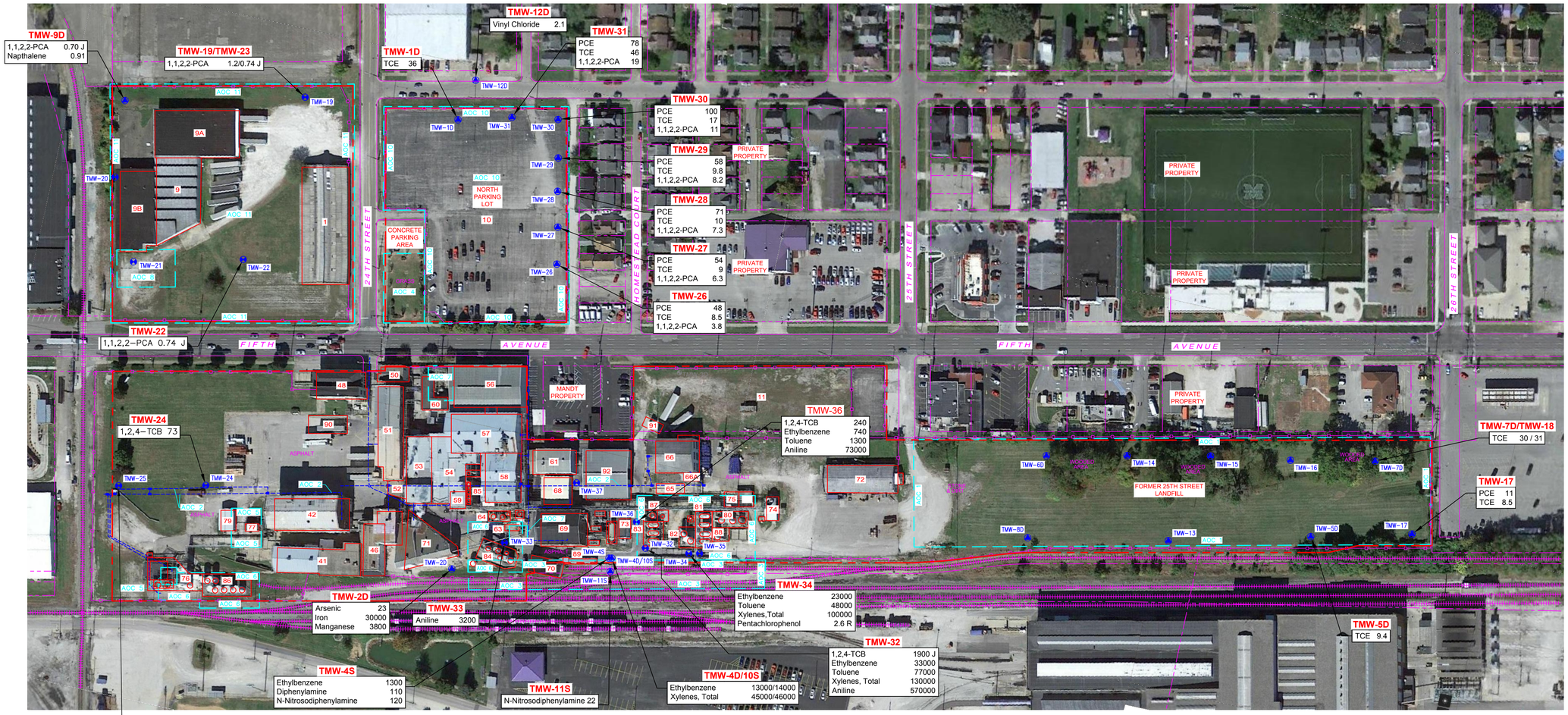
65 - PHENOL EXTRACTION
66 - STORAGE
66A - PHENOL EXTRACTION
68 - CONTROL BUILDING
69 - REFRIGERATION
70 - MIDPLANT DOCK
71 - BOILER HOUSE
72 - CARPENTER SHOP
73 - ELECTRIC SUBSTATION
74 - COOLING TOWER
75 - HAZARDOUS MATERIAL PAD
76 - WASTE TREATMENT
77 - WASTE TREATMENT
78 - HAZARDOUS MATERIAL PAD
79 - FIRE TRUCK GARAGE
80 - CAUSTIC, FORMALDEHYDE TANK FARM
81 - ANILINE TANK FARM
82 - ACID TANK FARM
83 - ANILINE TANK FARM
84 - MID PLANT TANK FARM
85 - SEPARATOR TANK FARM
86 - WEST END TANK FARM
87 - PHENOL EXTRACTION
88 - SULFURIC ACID TANK FARM
89 - RAILCAR UNLOADING RACK
90 - WEST TRUCK LOADING PAD
91 - EAST UNLOADING PAD
92 - OPAL STORAGE AREA



TMW-25

Arsenic	84
Barium	7700 B
Chromium	250
Cobalt	110
Iron	420000 B
Lead	190
Manganese	18000
Vanadium	190
Aroclor-1248	210 K
1,2,4-TCB	8600
Napthalene	2.5

LEGEND OF CONTAMINANTS IN GROUNDWATER

CHEMICAL NAME	EPA MCLs (ug/L)	WV 60-3B GW DE MINIMIS CONC. (ug/L)
TETRACHLOROETHENE (PCE)	5	5
TRICHLOROETHENE (TCE)	5	5
1,1,2,2-TETRACHLOROETHANE (1,1,2,2-PCA)	NS	0.067
1,2,4-TRICHLOROBENZENE (1,2,4-TCB)	70	70
NAPTHALENE	NS	0.14
ARSENIC	10	10
BARIUM	2000	2000
CHROMIUM	100	NS
COBALT	NS	4.7
IRON	NS	11000
LEAD	15	15
MANGANESE	NS	740
VANADIUM	NS	1.1
AROCLOR-1248	NS	0.034
ETHYLBENZENE	700	700

LEGEND OF CONTAMINANTS IN GROUNDWATER (CON'T)

CHEMICAL NAME	EPA MCLs (ug/L)	WV 60-3B GW DE MINIMIS CONC. (ug/L)
TOLUENE	1000	1000
XYLENES, TOTAL	10000	10000
ANILINE	NS	12
DIPHENYLAMINE	NS	390
N-NITROSODIPHENYLAMINE	NS	14
PENTACHLOROPHENOL	1	1
VINYL CHLORIDE	2	2

Notes:
All concentrations reported in micrograms per liter (ug/L).

J - Estimated result. Result is less greater than the Method Detection Limit but less than the labaratory method Reporting Limit.
K - Analyte is present. Reported value may be biased high. Actual value is expected to be lower.
R - Unreliable results; data is rejected or unusable. Analyte may or may not be present in the sample.
NS- No standard.

LINETYPE AND SYMBOL LEGEND

- BASF PROPERTY BOUNDARIES (APPROXIMATE)
- OUTLINE OF AREA OF CONCERN (AOC)
- AOC2 — AREA OF CONCERN NAME TAG
- BUILDING FOUNDATION / STRUCTURE OUTLINE
- 88 — BUILDING / STRUCTURE NUMBER KEY
- PROCESS WASTE WATER / STORMWATER PIPING
- FENCE LINE
- RAILROAD TRACKS
- OFFSITE PROPERTY LINES
- STREET EDGE OF PAVEMENT
- TMW-5D — GROUNDWATER MONITORING WELL
- TMW-25 — GROUNDWATER GRAB SAMPLE LOCATION
- TMW-5D TCE 9.4 — CONTAMINANT CONCENTRATION IN GROUNDWATER

0' 100' 200' 300'
SCALE: 1" = 100'

GRID NORTH

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RALEIGH, NC 27624
Phone: (919) 792-3733

REVISIONS

Figure 6- Data Gap Groundwater Contaminant Concentrations Former BASF Facility Huntington, West Virginia

KBW	KBW	KBW
DESIGNED	DRAWN	CHECKED

HORIZONTAL SCALE 1" = 100'
DATE DECEMBER 2016
PROJECT NO.

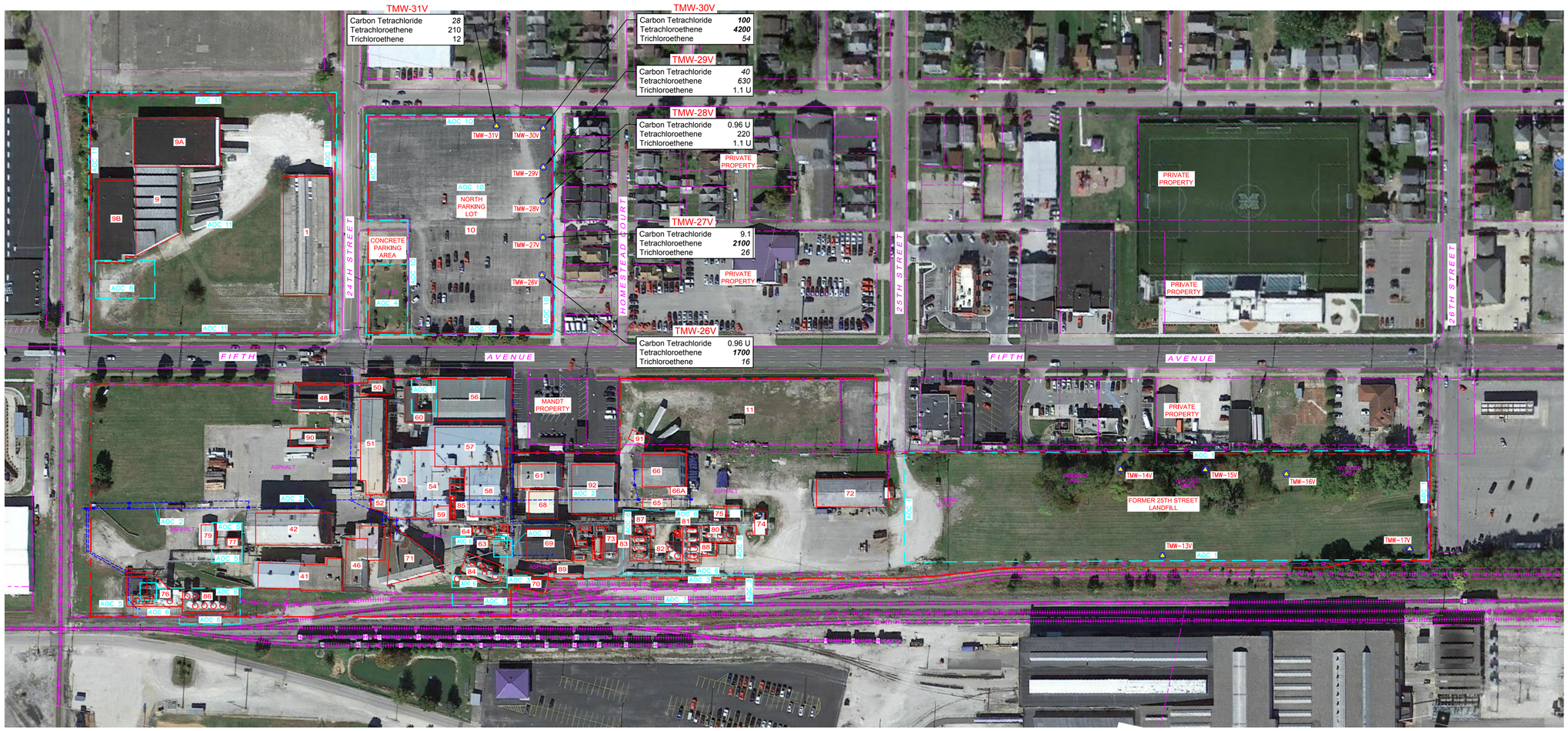
Figure 6
SHEET NO.

AREAS OF CONCERN

AOC 1 - 25TH STREET LANDFILL
AOC 2 - FORMER PROCESS SEWERS
AOC 3 - ON-SITE RAILROAD LINES
AOC 4 - FORMER GASOLINE STATION
AOC 5 - ON-SITE WASTEWATER TREATMENT SYSTEM
AOC 6 - ABOVE GROUND STORAGE TANKS
AOC 7 - ELECTRICAL TRANSFORMERS
AOC 8 - FORMER COAL STORAGE AREA
AOC 9 - GROUND WATER

BUILDING LEGEND

1 - WAREHOUSE
9 - WAREHOUSE
9A - SHIPPING
9B - WAREHOUSE
10 - PARKING LOT
11 - CONTRACTOR AREA
41 - ENGINEERING & MAINTENANCE
42 - STORAGE
46 - STOREROOM
47 - VACANT
48 - ADMINISTRATION
50 - SECURITY
51 - LAB, HUMAN RESOURCES, FLUSH COLOR
52 - COMPRESSOR ROOM
53 - FLUSH COLOR
54 - DYE & FLUSH COLOR
56 - DYE
57 - DYE & FLUSH COLOR
58 - DYE
59 - FLUSH COLOR
60 - ELECTRIC SUBSTATION
61 - DYE
63 - DYE
64 - PHENOL EXTRACTION
65 - PHENOL EXTRACTION
66 - STORAGE
66A - PHENOL EXTRACTION
68 - CONTROL BUILDING
69 - REFRIGERATION
70 - MIDPLANT DOCK
71 - BOILER HOUSE
72 - CARPENTER SHOP
73 - ELECTRIC SUBSTATION
74 - COOLING TOWER
75 - HAZARDOUS MATERIAL PAD
76 - WASTE TREATMENT
77 - WASTE TREATMENT
78 - HAZARDOUS MATERIAL PAD
79 - FIRE TRUCK GARAGE
80 - CAUSTIC, FORMALDEHYDE TANK FARM
81 - ANILINE TANK FARM
82 - ACID TANK FARM
83 - ANILINE TANK FARM
84 - MID PLANT TANK FARM
85 - SEPARATOR TANK FARM
86 - WEST END TANK FARM
87 - PHENOL EXTRACTION
88 - SULFURIC ACID TANK FARM
89 - RAILCAR UNLOADING RACK
90 - WEST TRUCK LOADING PAD
91 - EAST UNLOADING PAD
92 - OPAL STORAGE AREA



0' 100' 200' 300'
SCALE: 1" = 100'

LEGEND OF SOIL VAPOR CONSTITUENTS		
Chemical Name	EPA VISL Soil Gas Screening Values - Commercial	EPA VISL Soil Gas Screening Values - Residential
Carbon tetrachloride	**68**	*16*
Tetrachloroethene	**1600**	*360*
Trichloroethene	100	*16*

Notes:
All concentrations are reported in micrograms per cubic meter (ug/m3).
Screening values are taken from the Vapor Intrusion Screening Level (VISL) Calculator Version 3.5.1 (May 2016 RSLs).
Target Risk for Carcinogens (TCR) = 1.00E-06.
Target Hazard Quotient for Non-Carcinogens (THQ) = 1.
Both Commercial and Industrial Soil Gas Screening Levels are provided although adjacent buildings to the North Parking Lot (AOC10) are residential.
Italicized value indicates the concentration exceeds the Residential Soil Gas Screening Level.
Bold value indicates the concentration exceeds the Commercial Soil Gas Screening Level.
U = Target analyte was not detected.

LINETYPE AND SYMBOL LEGEND

- BASF PROPERTY BOUNDARIES (APPROXIMATE)
- OUTLINE OF AREA OF CONCERN (AOC)
- AOC2 — AREA OF CONCERN NAME TAG
- BUILDING FOUNDATION / STRUCTURE OUTLINE
- 88 — BUILDING / STRUCTURE NUMBER KEY
- PROCESS WASTE WATER / STORMWATER PIPING
- FENCE LINE
- RAILROAD TRACKS
- OFFSITE PROPERTY LINES
- STREET EDGE OF PAVEMENT
- TMW-13V — VAPOR MONITORING WELL

GRID NORTH

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RALEIGH, NC 27624
Phone: (919) 792-3733

Figure 7- Data Gap Soil Gas Concentrations Former BASF Facility Huntington, West Virginia

JO	KW	RN
DESIGNED	DRAWN	CHECKED

HORIZONTAL SCALE 1" = 100'

DATE DECEMBER 2016

PROJECT NO.

Figure 7

SHEET NO.

APPENDICES

APPENDIX A

SOIL BORING LOGS

ELM Site Solutions, Inc.
P. O. Box 97607
Raleigh, NC 27624

BORING NUMBER AOC1-06

CLIENT BASF
PROJECT NAME Former BASF Huntington Works Facility
PROJECT NUMBER
PROJECT LOCATION Huntington, West Virginia
DATE STARTED 7/25/16 **COMPLETED** 7/25/16
TOC ELEVATION **HOLE SIZE** 3.5 IN
DRILLING CONTRACTOR EnviroProbe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING ---
LOGGED BY T. Taylor **CHECKED BY** J. Odom
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0	DP-1		PID = 0.1		0.7 (FILL) Grayish brown gravel, some fine sandy silt, dry (FILL) Reddish brown clayey silt, dry 3.0 (FILL) Reddish brown fine sandy silt, dry, increase in sand content with depth 4.5 (FILL) Yellowish brown fine sand, moist - trace clay from 8.3' to 9.3'	
5	DP-2		PID = 0.1 PID = 0.2		10.0	
10	DP-3		PID = 0.3 PID = 0.4		10.7 (FILL?) Brown fine sandy clay, moist, cohesive (SP) Yellowish brown find sand, little rounded fine gravel in upper 6", trace gravel throughout, moist (ALLUVIUM)	
15	DP-4		PID = 0.1 PID = 0.7		18.0 (GP) Yellowish brown fine sand and fine gravel, rounded, moist (ALLUVIUM) - yellowish red at 21'	
20	DP-5		PID = 0.6 PID = 0.1			
25	DP-6		PID = 0.3 PID = 1.5		30.0	
30						

Bottom of borehole at 30.0 feet.

ENVIRONMENTAL BH - GINT STD US.GDT - 12/19/16 20:33 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\BASF HUNTINGTON DATA GAP (SEPT. 2016) - TOM3.GPJ

ELM Site Solutions, Inc.
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Raleigh, NC 27624

BORING NUMBER AOC1-07

CLIENT BASF
PROJECT NAME Former BASF Huntington Works Facility
PROJECT NUMBER
PROJECT LOCATION Huntington, West Virginia
DATE STARTED 7/25/16 **COMPLETED** 7/25/16
TOC ELEVATION **HOLE SIZE** 3.5 IN
DRILLING CONTRACTOR EnviroProbe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING ---
LOGGED BY T. Taylor **CHECKED BY** J. Odom
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0						
	DP-1		PID = 0		0.7 (FILL) Dark reddish gray clayey silt, little fine gravel, root, moist (FILL) Strong brown plastic clay, moist	
5					5.0	
	DP-2		PID = 0.7 PID = 0.1		(FILL) Brown fine sand, trace clay, moist	
10					10.0	
	DP-3		PID = 0.8 PID = 0.1		(FILL?) Reddish brown fine sandy clay, very moist, cohesive 12.5 (SP) Yellowish red fine sand, trace medium sand and fine gravel, rounded, moist (ALLUVIUM)	
15						
	DP-4		PID = 0.5 PID = 0.2		18.0 (GP) Yellowish brown fine sand and fine gravel, rounded, moist (ALLUVIUM)	
20						
	DP-5		PID = 0.4 PID = 0.7			
25						
	DP-6		PID = 0.2 PID = 0.5			
30					30.0	

Bottom of borehole at 30.0 feet.

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BORING NUMBER AOC1-08

CLIENT BASF
PROJECT NAME Former BASF Huntington Works Facility
PROJECT NUMBER
PROJECT LOCATION Huntington, West Virginia
DATE STARTED 7/25/16 **COMPLETED** 7/25/16
TOC ELEVATION **HOLE SIZE** 3.5 IN
DRILLING CONTRACTOR EnviroProbe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING ---
LOGGED BY T. Taylor **CHECKED BY** J. Odom
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0						
	DP-1		PID = 0.3		0.5 (FILL) Dark gray silty clay and gravel, moist (FILL) Yellowish red plastic clay, moist	
5					5.0	
	DP-2		PID = 0.3 PID = 0.1		(FILL) Reddish brown fine sandy clay, moist, noncohesive 7.5 (SP) Yellowish red fine sand, moist - trace clay from 12' to 14.5'	
10						
	DP-3		PID = 0.1 PID = 0.1		14.5	
15					(SP) Yellowish red fine sand, trace to little fine gravel, rounded, moist (ALLUVIUM) - gravel absent from 17' to 18.5'	
	DP-4		PID = 0.5 PID = 0.6		18.5 (GP) Yellowish brown fine sand and fine gravel, rounded, moist (ALLUVIUM)	
20						
	DP-5		PID = 0.9 PID = 0.6			
25						
	DP-6		PID = 0.6 PID = 0.5			
30					30.0	

Bottom of borehole at 30.0 feet.

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BORING NUMBER AOC1-09

CLIENT BASF
PROJECT NAME Former BASF Huntington Works Facility
PROJECT NUMBER
PROJECT LOCATION Huntington, West Virginia
DATE STARTED 7/25/16 **COMPLETED** 7/25/16
TOC ELEVATION **HOLE SIZE** 3.5 IN
DRILLING CONTRACTOR EnviroProbe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING ---
LOGGED BY T. Taylor **CHECKED BY** J. Odom
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0						
	DP-1		PID = 0.4		0.5 (FILL) Grayish brown silt and gravel, dry (FILL) Brown plastic clay, dry	
5					4.5 (FILL) Brown fine sandy clay, moist	
	DP-2		PID = 0.2 PID = 0.4		8.5 (FILL?) Brown fine sand, moist	
10						
	DP-3		PID = 0.6 PID = 0.8		14.5 (SP) Yellowish red fine sand, trace to little fine gravel, rounded, moist (ALLUVIUM) - gravel absent from 17.5' to 18.5'	
15						
	DP-4		PID = 0.5 PID = 0.6		18.5 (GP) Yellowish brown fine sand and fine gravel, moist (ALLUVIUM)	
20						
	DP-5		PID = 0.5 PID = 0.6			
25						
	DP-6		PID = 0.6 PID = 0.6			
30					30.0	

Bottom of borehole at 30.0 feet.

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BORING NUMBER AOC1-10

CLIENT BASF
PROJECT NAME Former BASF Huntington Works Facility
PROJECT NUMBER
PROJECT LOCATION Huntington, West Virginia
DATE STARTED 7/26/16 **COMPLETED** 7/26/16
TOC ELEVATION **HOLE SIZE** 3.5 IN
DRILLING CONTRACTOR EnviroProbe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING ---
LOGGED BY T. Taylor **CHECKED BY** J. Odom
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0						
	DP-1		PID = 0.4		0.6 (FILL) Dark gray silt and gravel, dry (FILL) Brown plastic clay, trace gravel and roots, moist	
5					5.0	
	DP-2		PID = 0.2 PID = 0.5		(FILL) Strong brown fine sandy clay, moist 7.5 (FILL?) Strong brown fine sand, trace clay, moist - few clayey sand layers from 11.5' to 15'	
10						
	DP-3		PID = 0.5 PID = 0.8			
15					15.0	
	DP-4		PID = 0.4 PID = 1.2		(GP) Brown fine sand and fine gravel, rounded, moist (ALLUVIUM) - little medium to coarse rounded gravel at 21'	
20						
	DP-5		PID = 0.8 PID = 1.5			
25						
	DP-6		PID = 1.6 PID = 0.8			
30					30.0	

Bottom of borehole at 30.0 feet.

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BORING NUMBER AOC1-11

CLIENT BASF
PROJECT NAME Former BASF Huntington Works Facility
PROJECT NUMBER
PROJECT LOCATION Huntington, West Virginia
DATE STARTED 7/26/16 **COMPLETED** 7/26/16
TOC ELEVATION **HOLE SIZE** 3.5 IN
DRILLING CONTRACTOR EnviroProbe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING ---
LOGGED BY T. Taylor **CHECKED BY** J. Odom
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0						
	DP-1		PID = 0.7		0.8 (FILL) Dark brown silt and gravel, dry (FILL) Yellowish brown plastic clay, trace coarse gravel, dry - Strong brown and moist from 4' to 5'	
5					5.0	
	DP-2		PID = 0.1 PID = 0.6		(FILL?) Reddish brown fine sand, trace clay, moist - clayey sand layers from 10.5' to 18'	
10						
	DP-3		PID = 0.7 PID = 0.7			
15						
	DP-4		PID = 0.7 PID = 0.4		18.0	
20					(GP) Reddish brown fine sand and fine gravel, rounded, moist (ALLUVIUM) - trace medium to coarse gravel at 21.5'	
	DP-5		PID = 0.3 PID = 0.7			
25						
	DP-6		PID = 0.5 PID = 0.4			
30					30.0	

Bottom of borehole at 30.0 feet.

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BORING NUMBER AOC1-12

CLIENT BASF
PROJECT NAME Former BASF Huntington Works Facility
PROJECT NUMBER
PROJECT LOCATION Huntington, West Virginia
DATE STARTED 7/26/16 **COMPLETED** 7/26/16
TOC ELEVATION **HOLE SIZE** 3.5 IN
DRILLING CONTRACTOR EnviroProbe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING ---
LOGGED BY T. Taylor **CHECKED BY** J. Odom
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0						
	DP-1		PID = 0.5		0.8 (FILL) Brown and gray silt and gravel, dry (FILL) Brown clayey silt, trace fine to medium gravel, angular, dry	
5					5.0	
	DP-2		PID = 0.1 PID = 0.2		5.4 (FILL) Yellowish brown fine sand and gravel, moist (FILL) Dark gray (stained) clay, moist - Reddish brown from 8.5' to 10'	
10					10.0	
	DP-3		PID = 0.2 PID = 0.3		(CH) Strong brown plastic clay, moist (POSSIBLE FILL)	
15						
	DP-4		PID = 0.2 PID = 0.3			
20						
	DP-5		PID = 0.5 PID = 0.6			
25					24.0 (GP) Strong brown fine sand and fine gravel, rounded, moist	
	DP-6		PID = 0.6 PID = 1			
30					30.0	

Bottom of borehole at 30.0 feet.

ENVIRONMENTAL BH - GINT STD US.GDT - 12/19/16 20:33 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\BASF HUNTINGTON DATA GAP (SEPT. 2016) - TOM3.GPJ

ELM Site Solutions, Inc.
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BORING NUMBER AOC1-13

CLIENT BASF
PROJECT NAME Former BASF Huntington Works Facility
PROJECT NUMBER
PROJECT LOCATION Huntington, West Virginia
DATE STARTED 7/27/16 **COMPLETED** 7/27/16
TOC ELEVATION **HOLE SIZE** 3.5 IN
DRILLING CONTRACTOR EnviroProbe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING ---
LOGGED BY T. Taylor **CHECKED BY** J. Odom
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0					0.7 (FILL) Dark grayish brown silt and gravel, dry	
	DP-1		PID = 0.2		(FILL) Yellowish brown silty clay, trace fine to coarse gravel, angular, moist	
5						
	DP-2		PID = 0.3 PID = 0.3		7.5 (CH) Strong brown plastic clay, moist (POSSIBLE FILL) - gray staining from 7.5' to 8' - strong brown and pale gray from 14' to 16.5'	
10						
	DP-3		PID = 0 PID = 0			
15						
	DP-4		PID = 0 PID = 0.5		20.0	
20						
	DP-5		PID = 0.5 PID = 0.4		(CL-ML) Strong brown silty clay, trace mica, moist, cohesive, with thin layers of silty very fine sand (SM), (ALLUVIUM?) - pale gray from 27' to 28'	
25						
	DP-6		PID = 0.3 PID = 0.1		28.0 (GW) Brown fine sand and fine to medium gravel, rounded, moist (ALLUVIUM)	
30					30.0	

Bottom of borehole at 30.0 feet.

ENVIRONMENTAL BH - GINT STD US.GDT - 12/19/16 20:33 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\BASF HUNTINGTON DATA GAP (SEPT. 2016) - TOM3.GPJ

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BORING NUMBER AOC2-04B

CLIENT BASF
PROJECT NAME Former BASF Huntington Works Facility
PROJECT NUMBER
PROJECT LOCATION Huntington, West Virginia
DATE STARTED 8/22/16 **COMPLETED** 8/22/16
TOC ELEVATION **HOLE SIZE** 3.5 IN
DRILLING CONTRACTOR EnviroProbe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING ---
LOGGED BY T. Taylor **CHECKED BY** J. Odom
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0					0.8 Asphalt and subbase	
5	DP-1				(FILL) Black fine to medium sand/cinders?, moist to wet	
10	DP-2		PID = 1.7 PID = 1		7.5 (CH) Light gray and brownish yellow plastic clay, moist - black and dark purple fom 7.5' to 8'	
15	DP-3		PID = 4 PID = 4.8		12.5 (CL-ML) Gray silty clay, moist - wet at 16' to 20'	
20	DP-4		PID = 8.6 PID = 4.5			
25	DP-5		PID = 3.4 PID = 4.7		23.0 (SP) Brownish yellow fine sand, moist (ALLUVIUM)	
30	DP-6		PID = 7.6 PID = 4		28.0 (SW) Brown fine to coarse sand, little fine to coarse gravel, rounded, wet (ALLUVIUM) 30.0 Bottom of borehole at 30.0 feet.	

(Continued Next Page)

ENVIRONMENTAL BH - GINT STD US.GDT - 12/19/16 20:33 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\BASF HUNTINGTON DATA GAP (SEPT. 2016) - TOM3.GPJ

ELM Site Solutions, Inc.
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Raleigh, NC 27624

BORING NUMBER AOC2-04B

CLIENT BASF

PROJECT NAME Former BASF Huntington Works Facility

PROJECT NUMBER

PROJECT LOCATION Huntington, West Virginia

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
			PID = 11.1			

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ELM Site Solutions, Inc.
P. O. Box 97607
Raleigh, NC 27624

BORING NUMBER AOC2-16

CLIENT BASF
PROJECT NAME Former BASF Huntington Works Facility
PROJECT NUMBER
PROJECT LOCATION Huntington, West Virginia
DATE STARTED 8/3/16 **COMPLETED** 8/3/16
TOC ELEVATION **HOLE SIZE** 3.5 IN
DRILLING CONTRACTOR EnviroProbe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING ---
LOGGED BY T. Taylor **CHECKED BY** J. Odom
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0						
0.2					(FILL) Grass surface, dark brown silt, roots	
	DP-1				(FILL) Brown silty clay, trace fine gravel, moist	
5				5.0		
	DP-2				(CH) Gray plastic clay, moist, purple staining and powdery substance intermittently encountered (POSSIBLE FILL)	
10						
	DP-3		PID = 0.7 PID = 2	14.0		
15					(CL) Yellowish red very fine sandy clay, moist	
	DP-4		PID = 0.3 PID = 0.2	20.0		
20						
	DP-5		PID = 0.2		(SP) Yellowish red to light brown fine sand, wet - thin layer of gray clay at 24'	
25				25.0		

Bottom of borehole at 25.0 feet.

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BORING NUMBER AOC2-17

CLIENT BASF
PROJECT NAME Former BASF Huntington Works Facility
PROJECT NUMBER
PROJECT LOCATION Huntington, West Virginia
DATE STARTED 8/4/16 **COMPLETED** 8/4/16
TOC ELEVATION **HOLE SIZE** 3.5 IN
DRILLING CONTRACTOR EnviroProbe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING ---
LOGGED BY J. Odom **CHECKED BY** T. Taylor
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0	DP-1			0.4	(FILL) Grass surface, dark brown clayey silt, roots	
				4.0	(FILL) Dark brown silty clay, some fine sand and fine to coarse gravel, moist	
5				6.0	(SP) Brown fine sand, moist	
	DP-2		PID = 0.4	9.0	(CH) Gray plastic clay with layers of fine sand (SP), wet	
10			PID = 1.1	11.0	(GW-GC) Gray clayey gravel with sand, wet	
	DP-3		PID = 7.8	17.5	(CH) Gray plastic clay, moist	
15			PID = 1.5			
	DP-4		PID = 0.9	20.0	(CL) Gray very fine sandy clay, moist	
20			PID = 0.6		Bottom of borehole at 20.0 feet.	

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BORING NUMBER AOC2-18

CLIENT BASF
PROJECT NAME Former BASF Huntington Works Facility
PROJECT NUMBER
PROJECT LOCATION Huntington, West Virginia
DATE STARTED 8/8/16 **COMPLETED** 8/8/16
TOC ELEVATION **HOLE SIZE** 3.5 IN
DRILLING CONTRACTOR EnviroProbe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING ---
LOGGED BY T. Taylor **CHECKED BY** J. Odom
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0	DP-1				(FILL) Dark brown clayey silt with varying amounts of sand, gravel, and concrete	
5	DP-2		PID = 0 PID = 0.2			
8.5					(FILL) Dark gray clay with gravel, some wood - wet at 8.5' - strong solvent odor with purple staining from 10' to 15'	
10	DP-3		PID = 0.2 PID = 10.2			
15.0					(CH) Dark gray plastic clay, little wood, moist (POSSIBLE FILL) - strong solvent odor from 15' to 20'	
15	DP-4		PID = 246 PID = 45			
20.0					(SC) Dark gray clayey very fine sand, moist (ALLUVIUM)	
20	DP-5		PID = 17.6 PID = 11.4			
24.0					(SP) Light brown find sand, moist	
25	DP-6		PID = 10.7			
28.5					(SP) Dark reddish brown to light brown fine sand, some fine to medium gravel, wet	
30.0						

Bottom of borehole at 30.0 feet.

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ELM Site Solutions, Inc.
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Raleigh, NC 27624

BORING NUMBER AOC2-20

CLIENT BASF
PROJECT NAME Former BASF Huntington Works Facility
PROJECT NUMBER
PROJECT LOCATION Huntington, West Virginia
DATE STARTED 8/4/16 **COMPLETED** 8/4/16
TOC ELEVATION **HOLE SIZE** 3.5 IN
DRILLING CONTRACTOR EnviroProbe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING ---
LOGGED BY J. Odom **CHECKED BY** T. Taylor
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0					0.5 Asphalt and subbase	
	DP-1				(FILL) Dark brown silty clay and coarse gravel, moist	
5					5.0	
	DP-2				(FILL) Brown fine sandy clay, trace gravel, wet (perched water)	
10			PID = 0.2			
	DP-3		PID = 0.7		14.0	
15			PID = 1.5		(CH) Gray plastic clay, wet	
	DP-4		PID = 0.5		16.5 (CL) Gray very fine sandy clay, wet	
20			PID = 0.4		20.0 Bottom of borehole at 20.0 feet.	

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BORING NUMBER AOC2-21

CLIENT BASF
PROJECT NAME Former BASF Huntington Works Facility
PROJECT NUMBER
PROJECT LOCATION Huntington, West Virginia
DATE STARTED 8/3/16 **COMPLETED** 8/3/16
TOC ELEVATION **HOLE SIZE** 3.5 IN
DRILLING CONTRACTOR EnviroProbe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING ---
LOGGED BY T. Taylor **CHECKED BY** J. Odom
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0	DP-1				0.4 (FILL) Dark brown silt and gravel (FILL) Brown and gray mixed sand and clay 5.0	
5	DP-2		PID = 0.2 PID = 0.4		(CH) Gray plastic clay, wet (perched water) - slight purple staining at 8.5' - dark olive gray at 9.5' 11.0	
10	DP-3		PID = 6		(CL) Strong brown very fine sandy clay, moist, cohesive - slight purple staining at 11'	
15	DP-4		PID = 0.6 PID = 0.4		19.5	
20			PID = 0.4		20.0 (SP) Reddish brown fine sand, wet Bottom of borehole at 20.0 feet.	

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BORING NUMBER AOC2-22

CLIENT BASF
PROJECT NAME Former BASF Huntington Works Facility
PROJECT NUMBER
PROJECT LOCATION Huntington, West Virginia
DATE STARTED 8/3/16 **COMPLETED** 8/3/16
TOC ELEVATION **HOLE SIZE** 3.5 IN
DRILLING CONTRACTOR EnviroProbe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING ---
LOGGED BY T. Taylor **CHECKED BY** J. Odom
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0	DP-1				(FILL) Dark to light brown silt with gravel (1.0); (FILL) Light brown clay, little gravel and construction debris (4.0); (FILL) Brownish gray fine sand, moist (5.0)	
5	DP-2		PID = 5		(CH) Gray plastic clay, moist (7.5); (CH) Reddish yellow and pale gray plastic clay - amber oily staining and strong odor from 12' to 13'	
10	DP-3		PID = 1.5; PID = 65.7; PID = 108		(14.5); (SP) Yellowish red fine sand, trace to little clay (16.0); (CL) Strong brown very fine sandy clay, few layer of very fine sand, moist	
15	DP-4		PID = 8.2; PID = 1.6		(24.0); (SP) Light brown fine sand, trace medium gravel, rounded, wet	
20	DP-5		PID = 0.7		(29.0); (GW) Light brown fine sand and fine to coarse gravel, wet (30.0)	
25	DP-6					
30						

Bottom of borehole at 30.0 feet.

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BORING NUMBER AOC2-27

CLIENT BASF
PROJECT NAME Former BASF Huntington Works Facility
PROJECT NUMBER
PROJECT LOCATION Huntington, West Virginia
DATE STARTED 8/4/16 **COMPLETED** 8/4/16
TOC ELEVATION **HOLE SIZE** 3.5 IN
DRILLING CONTRACTOR EnviroProbe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING ---
LOGGED BY J. Odom **CHECKED BY** T. Taylor
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0					0.5 Asphalt and subbase	
	DP-1				(FILL) Dark brown silty clay and coarse gravel, moist	
5					5.0	
	DP-2		PID = 3 PID = 7		(FILL) Brown fine sandy clay, trace gravel, wet (perched water)	
10						
	DP-3		PID = 1.8 PID = 0.5		14.0	
15					(CH) Gray plastic clay, wet	
	DP-4		PID = 0.3 PID = 0.4		16.5 (CL) Gray very fine sandy clay, wet	
20					20.0	
			PID = 0.2		Bottom of borehole at 20.0 feet.	

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BORING NUMBER AOC2-28

CLIENT BASF
PROJECT NAME Former BASF Huntington Works Facility
PROJECT NUMBER
PROJECT LOCATION Huntington, West Virginia
DATE STARTED 8/4/16 **COMPLETED** 8/4/16
TOC ELEVATION **HOLE SIZE** 3.5 IN
DRILLING CONTRACTOR EnviroProbe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING ---
LOGGED BY J. Odom **CHECKED BY** T. Taylor
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0					0.5 Asphalt and subbase	
	DP-1				(FILL) Dark brown silty clay and coarse gravel, moist - purple staining from 4' to 5'	
5					5.0 (FILL) Brown fine sandy clay, trace gravel, wet (perched water)	
	DP-2					
10			PID = 0.5			
	DP-3		PID = 0.4		14.0 (CH) Gray plastic clay, wet	
15			PID = 0.5		16.5 (CL) Gray very fine sandy clay, wet	
	DP-4		PID = 0.2			
20			PID = 0.3		20.0 Bottom of borehole at 20.0 feet.	

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BORING NUMBER AOC2-29

CLIENT BASF
PROJECT NAME Former BASF Huntington Works Facility
PROJECT NUMBER
PROJECT LOCATION Huntington, West Virginia
DATE STARTED 8/4/16 **COMPLETED** 8/4/16
TOC ELEVATION **HOLE SIZE** 3.5 IN
DRILLING CONTRACTOR EnviroProbe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING ---
LOGGED BY J. Odom **CHECKED BY** T. Taylor
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0					0.5 Asphalt and subbase	
	DP-1				(FILL) Dark brown silty clay and coarse gravel, moist	
5					5.0	
	DP-2		PID = 0.7		(FILL) Brown fine sandy clay, trace gravel, wet (perched water)	
10			PID = 1.2			
	DP-3		PID = 1		14.0	
15			PID = 0.6		(CH) Gray plastic clay, wet	
	DP-4		PID = 0.5		16.5 (CL) Gray very fine sandy clay, wet	
20			PID = 0.4		20.0 Bottom of borehole at 20.0 feet.	

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BORING NUMBER AOC2-30

CLIENT BASF
PROJECT NAME Former BASF Huntington Works Facility
PROJECT NUMBER
PROJECT LOCATION Huntington, West Virginia
DATE STARTED 8/8/16 **COMPLETED** 8/8/16
TOC ELEVATION **HOLE SIZE** 3.5 IN
DRILLING CONTRACTOR EnviroProbe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING ---
LOGGED BY T. Taylor **CHECKED BY** J. Odom
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0	DP-1			0.4	(FILL) Grass surface, dark brown clayey silt, roots	
				4.0	(FILL) Dark brown silty clay, some fine sand and fine to coarse gravel, moist	
5			PID = 0	6.0	(SP) Brown fine sand, moist	
	DP-2		PID = 0.1	9.0	(CH) Gray plastic clay with layers of fine sand (SP), wet	
10			PID = 0.1	11.0	(GW-GC) Gray clayey gravel with sand, wet	
	DP-3		PID = 0.9	17.5	(CH) Gray plastic clay, moist	
15			PID = 10.4			
	DP-4		PID = 10.3	20.0	(CL) Gray very fine sandy clay, moist	
20			PID = 0.6		Bottom of borehole at 20.0 feet.	

ENVIRONMENTAL BH - GINT STD US.GDT - 12/19/16 20:34 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\BASF HUNTINGTON DATA GAP (SEPT. 2016) - TOM3.GPJ

ELM Site Solutions, Inc.
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BORING NUMBER AOC2-31

CLIENT BASF
PROJECT NAME Former BASF Huntington Works Facility
PROJECT NUMBER
PROJECT LOCATION Huntington, West Virginia
DATE STARTED 8/8/16 **COMPLETED** 8/8/16
TOC ELEVATION **HOLE SIZE** 3.5 IN
DRILLING CONTRACTOR EnviroProbe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING ---
LOGGED BY T. Taylor **CHECKED BY** J. Odom
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0	DP-1				0.4 (FILL) Grass surface, dark brown clayey silt, roots (FILL) Dark brown silty clay, some fine sand and fine to coarse gravel, moist 4.0	
5					(SP) Brown fine sand, moist 6.0	
	DP-2		PID = 1.8		(CH) Gray plastic clay with layers of fine sand (SP), wet - deep blue liquid in gravelly zone from 6' to 6.5' 9.0	
10			PID = 4.8		(GW-GC) Gray clayey gravel with sand, wet 11.0	
	DP-3		PID = 2.5		(CH) Gray plastic clay, moist	
15			PID = 0		17.5	
	DP-4		PID = 0.3		(CL) Gray very fine sandy clay, moist	
20			PID = 0.2		20.0 Bottom of borehole at 20.0 feet.	

ENVIRONMENTAL BH - GINT STD US.GDT - 12/19/16 20:34 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\BASF HUNTINGTON DATA GAP (SEPT. 2016) - TOM3.GPJ

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BORING NUMBER AOC2-32

CLIENT BASF
PROJECT NAME Former BASF Huntington Works Facility
PROJECT NUMBER
PROJECT LOCATION Huntington, West Virginia
DATE STARTED 8/8/16 **COMPLETED** 8/8/16
TOC ELEVATION **HOLE SIZE** 3.5 IN
DRILLING CONTRACTOR EnviroProbe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING ---
LOGGED BY T. Taylor **CHECKED BY** J. Odom
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0	DP-1				0.4 (FILL) Grass surface, dark brown clayey silt, roots (FILL) Dark brown silty clay, some fine sand and fine to coarse gravel, moist 4.0	
5			PID = 0.3		(SP) Brown fine sand, moist 6.0	
	DP-2		PID = 0.1		(CH) Gray plastic clay with layers of fine sand (SP), wet 9.0	
10			PID = 0.1		(GW-GC) Gray clayey gravel with sand, wet 11.0	
	DP-3		PID = 0.4		(CH) Gray plastic clay, moist	
15			PID = 0.4			
	DP-4		PID = 0.3		17.5 (CL) Gray very fine sandy clay, moist	
20			PID = 0.4		20.0 Bottom of borehole at 20.0 feet.	

ENVIRONMENTAL BH - GINT STD US.GDT - 12/19/16 20:34 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\BASF HUNTINGTON DATA GAP (SEPT. 2016) - TOM3.GPJ

ELM Site Solutions, Inc.
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BORING NUMBER AOC2-33

CLIENT BASF
PROJECT NAME Former BASF Huntington Works Facility
PROJECT NUMBER
PROJECT LOCATION Huntington, West Virginia
DATE STARTED 8/8/16 **COMPLETED** 8/8/16
TOC ELEVATION **HOLE SIZE** 3.5 IN
DRILLING CONTRACTOR EnviroProbe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING ---
LOGGED BY T. Taylor **CHECKED BY** J. Odom
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0	DP-1			0.4 – 4.0	(FILL) Grass surface, dark brown clayey silt, roots (FILL) Dark brown silty clay, some fine sand and fine to coarse gravel, moist	
5			PID = 0.6	4.0 – 6.0	(SP) Brown fine sand, moist	
	DP-2		PID = 0.7	6.0 – 9.0	(CH) Gray plastic clay with layers of fine sand (SP), wet	
10			PID = 3	9.0 – 11.0	(GW-GC) Gray clayey gravel with sand, wet	
	DP-3		PID = 7.7	11.0 – 17.5	(CH) Gray plastic clay, moist	
15			PID = 3.7			
	DP-4		PID = 0.7	17.5 – 20.0	(CL) Gray very fine sandy clay, moist	
20			PID = 0.5		Bottom of borehole at 20.0 feet.	

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BORING NUMBER AOC2-34

CLIENT BASF
PROJECT NAME Former BASF Huntington Works Facility
PROJECT NUMBER
PROJECT LOCATION Huntington, West Virginia
DATE STARTED 8/8/16 **COMPLETED** 8/8/16
TOC ELEVATION **HOLE SIZE** 3.5 IN
DRILLING CONTRACTOR EnviroProbe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING ---
LOGGED BY T. Taylor **CHECKED BY** J. Odom
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0	DP-1				0.4 (FILL) Grass surface, dark brown clayey silt, roots (FILL) Dark brown silty clay, some fine sand and fine to coarse gravel, moist 4.0	
5			PID = 0.5		(SP) Brown fine sand, moist 6.0	
	DP-2		PID = 0.9		(CH) Gray plastic clay with layers of fine sand (SP), wet 9.0	
10			PID = 7.4		(GW-GC) Gray clayey gravel with sand, wet 11.0	
	DP-3		PID = 9.1		(CH) Gray plastic clay, moist 17.5	
15			PID = 0.7			
	DP-4		PID = 0.3		(CL) Gray very fine sandy clay, moist 20.0	
20			PID = 0.2		Bottom of borehole at 20.0 feet.	

ENVIRONMENTAL BH - GINT STD US.GDT - 12/19/16 20:34 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\BASF HUNTINGTON DATA GAP (SEPT. 2016) - TOM3.GPJ

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BORING NUMBER AOC2-35

CLIENT BASF
PROJECT NAME Former BASF Huntington Works Facility
PROJECT NUMBER
PROJECT LOCATION Huntington, West Virginia
DATE STARTED 8/9/16 **COMPLETED** 8/9/16
TOC ELEVATION **HOLE SIZE** 3.5 IN
DRILLING CONTRACTOR EnviroProbe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING ---
LOGGED BY T. Taylor **CHECKED BY** J. Odom
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0	DP-1				(FILL) Dark brown clayey silt with varying amounts of sand, gravel, and concrete	
5	DP-2		PID = 0.5 PID = 0.5			
8.5					(FILL) Dark gray clay with gravel, some wood - wet at 8.5'	
10	DP-3		PID = 0.5 PID = 1.3			
15	DP-4		PID = 1.2 PID = 0.9		(CH) Dark gray plastic clay, little wood, moist (POSSIBLE FILL)	
20			PID = 0.7		Bottom of borehole at 20.0 feet.	

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ELM Site Solutions, Inc.
P. O. Box 97607
Raleigh, NC 27624

BORING NUMBER AOC2-36

CLIENT BASF
PROJECT NAME Former BASF Huntington Works Facility
PROJECT NUMBER
PROJECT LOCATION Huntington, West Virginia
DATE STARTED 8/9/16 **COMPLETED** 8/9/16
TOC ELEVATION **HOLE SIZE** 3.5 IN
DRILLING CONTRACTOR EnviroProbe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING ---
LOGGED BY T. Taylor **CHECKED BY** J. Odom
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0	DP-1				(FILL) Dark brown clayey silt with varying amounts of sand, gravel, and concrete	
5	DP-2		PID = 0.8 PID = 0.8			
8.5					(FILL) Dark gray clay with gravel, some wood - wet at 8.5' - strong solvent odor with purple staining from 10' to 15'	
10	DP-3		PID = 91.4 PID = 80			
15.0						
15	DP-4		PID = 45.2 PID = 23.9		(CH) Dark gray plastic clay, little wood, moist (POSSIBLE FILL) - strong solvent odor from 15' to 20'	
20.0						
			PID = 6.2		Bottom of borehole at 20.0 feet.	

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BORING NUMBER AOC2-37

CLIENT BASF
PROJECT NAME Former BASF Huntington Works Facility
PROJECT NUMBER
PROJECT LOCATION Huntington, West Virginia
DATE STARTED 8/9/16 **COMPLETED** 8/9/16
TOC ELEVATION **HOLE SIZE** 3.5 IN
DRILLING CONTRACTOR EnviroProbe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING ---
LOGGED BY T. Taylor **CHECKED BY** J. Odom
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0						
	DP-1				(FILL) Dark brown clayey silt with varying amounts of sand, gravel, and concrete	
5						
	DP-2		PID = 0.2 PID = 0.7			
8.5					(FILL) Dark gray clay with gravel, some wood - wet at 8.5' - strong solvent odor with purple staining from 10' to 15'	
10						
	DP-3		PID = 16.3 PID = 49.2			
15						
15.0					(CH) Dark gray plastic clay, little wood, moist (POSSIBLE FILL)	
	DP-4		PID = 27.1 PID = 8.4			
20						
			PID = 2.3		Bottom of borehole at 20.0 feet.	

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Raleigh, NC 27624

BORING NUMBER AOC2-38

CLIENT BASF
PROJECT NAME Former BASF Huntington Works Facility
PROJECT NUMBER
PROJECT LOCATION Huntington, West Virginia
DATE STARTED 8/9/16 **COMPLETED** 8/9/16
TOC ELEVATION **HOLE SIZE** 3.5 IN
DRILLING CONTRACTOR EnviroProbe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING ---
LOGGED BY J. Odom **CHECKED BY** T. Taylor
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0						
	DP-1				(FILL) Dark brown clayey silt with varying amounts of sand, gravel, and concrete	
5			PID = 0.2			
	DP-2		PID = 0.4			
				8.5	(FILL) Dark gray clay with gravel, some wood - wet at 8.5'	
10			PID = 0.3			
	DP-3		PID = 0.6			
15			PID = 0.6	15.0	(CH) Dark gray plastic clay, little wood, moist (POSSIBLE FILL)	
	DP-4		PID = 0.7			
20			PID = 0.5	20.0	Bottom of borehole at 20.0 feet.	

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Raleigh, NC 27624

BORING NUMBER AOC2-39

CLIENT BASF
PROJECT NAME Former BASF Huntington Works Facility
PROJECT NUMBER
PROJECT LOCATION Huntington, West Virginia
DATE STARTED 8/9/16 **COMPLETED** 8/9/16
TOC ELEVATION **HOLE SIZE** 3.5 IN
DRILLING CONTRACTOR EnviroProbe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING ---
LOGGED BY T. Taylor **CHECKED BY** J. Odom
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0						
	DP-1				(FILL) Dark brown clayey silt with varying amounts of sand, gravel, and concrete	
5			PID = 0.1			
	DP-2					
				8.5	(FILL) Dark gray clay with gravel, some wood - wet at 8.5'	
10			PID = 1.1			
	DP-3		PID = 0.9			
15				15.0		
			PID = 1.5		(CH) Dark gray plastic clay, little wood, moist (POSSIBLE FILL)	
	DP-4					
20				20.0		
			PID = 0.6		Bottom of borehole at 20.0 feet.	

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BORING NUMBER AOC2-40

CLIENT BASF
PROJECT NAME Former BASF Huntington Works Facility
PROJECT NUMBER
PROJECT LOCATION Huntington, West Virginia
DATE STARTED 8/22/16 **COMPLETED** 8/22/16
TOC ELEVATION **HOLE SIZE** 3.5 IN
DRILLING CONTRACTOR EnviroProbe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING ---
LOGGED BY T. Taylor **CHECKED BY** J. Odom
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0					Asphalt and subbase (0.8)	
5	DP-1		PID = 5.9		(FILL) Black fine to medium sand/cinders?, moist to wet (7.5)	
10	DP-2		PID = 4.6 PID = 22.4		(CH) Light gray and brownish yellow plastic clay, moist - black and dark purple fom 7.5' to 8' (12.5)	
15	DP-3		PID = 48.6 PID = 19.2		(CL-ML) Gray silty clay, moist - wet at 16' to 20'; solvent odor from 15' to 20' (23.0)	
20	DP-4		PID = 17 PID = 267			
25	DP-5		PID = 65.2 PID = 7.8		(SP) Brownish yellow fine sand, moist (ALLUVIUM) (25.0)	
			PID = 11.1		Bottom of borehole at 25.0 feet.	

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BORING NUMBER AOC2-41

CLIENT BASF
PROJECT NAME Former BASF Huntington Works Facility
PROJECT NUMBER
PROJECT LOCATION Huntington, West Virginia
DATE STARTED 8/22/16 **COMPLETED** 8/22/16
TOC ELEVATION **HOLE SIZE** 3.5 IN
DRILLING CONTRACTOR EnviroProbe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING ---
LOGGED BY T. Taylor **CHECKED BY** J. Odom
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0					Asphalt and subbase (0.8)	
5	DP-1				(FILL) Black fine to medium sand/cinders?, moist to wet (7.5)	
10	DP-2		PID = 6.8 PID = 11.9		(CH) Light gray and brownish yellow plastic clay, moist - black and dark purple fom 7.5' to 8' (12.5)	
15	DP-3		PID = 9.3 PID = 30.5		(CL-ML) Gray silty clay, moist - wet at 16' to 20' (23.0)	
20	DP-4		PID = 38 PID = 17			
25	DP-5		PID = 103 PID = 7.6		(SP) Brownish yellow fine sand, moist (ALLUVIUM) (25.0)	

PID = 10.7

Bottom of borehole at 25.0 feet.

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BORING NUMBER AOC6-07

CLIENT BASF
PROJECT NAME Former BASF Huntington Works Facility
PROJECT NUMBER
PROJECT LOCATION Huntington, West Virginia
DATE STARTED 8/16/16 **COMPLETED** 8/16/16
TOC ELEVATION **HOLE SIZE** 3.5 IN
DRILLING CONTRACTOR EnviroProbe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING ---
LOGGED BY T. Taylor **CHECKED BY** J. Odom
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0					0.5 Asphalt and subbase	
	DP-1		PID = 895		(ML) Dark purple/black sandy silt, oily (wet) - strong petroleum odor at 5' to 7.5'	
5					7.5	
	DP-2		PID = 4196 PID = 6740		(CL) Gray fine sandy clay, wet 9.0	
10					(CH) Light gray and reddish yellow plastic clay, moist	
	DP-3		PID = 450 PID = 174		13.0	
15					(SC) Dark gray to yellowish red clayey fine sand and gravel, moist (ALLUVIUM) - strong diesel(?) odor with green staining at 13' 16.0	
	DP-4		PID = 2880 PID = 2322		(GW) Yellowish red fine sand and fine to coarse gravel, rounded, moist (ALLUVIUM) - strong diesel(?) odor with green staining at 17' - strong odor and dark staining at 28.5' and 30'	
20						
	DP-5		PID = 3850 PID = 4022			
25						
	DP-6		PID = 3711			
30					30.0	

Bottom of borehole at 30.0 feet.

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BORING NUMBER AOC6-08

CLIENT BASF
PROJECT NAME Former BASF Huntington Works Facility
PROJECT NUMBER
PROJECT LOCATION Huntington, West Virginia
DATE STARTED 8/19/16 **COMPLETED** 8/19/16
TOC ELEVATION **HOLE SIZE** 3.5 IN
DRILLING CONTRACTOR EnviroProbe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING ---
LOGGED BY T. Taylor **CHECKED BY** J. Odom
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0					0.7 Ashalt and subbase	
5	DP-1				(FILL) stained black sand, gravel, contruction debris, slag, wet 5.0	
10	DP-2		PID = 984 PID = 230		(ML) Black, purple, dark blue silt, wet - sewage odor from 5' to 8' 8.0 (CH) Gray plastic clay, moist - strong odor (analine product?) at 14' to 15'	
15	DP-3		PID = 62.2 PID = 17.4		15.0	
20	DP-4		PID = 444 PID = 869		(CL-ML) Gray silty clay, moist 19.5	
25	DP-5		PID = 390 PID = 10.1		(CL) Gray very fine sandy clay 25.0	
30	DP-6		PID = 6.1		(GW) Gray fine sand and fine to medium gravel, trace to some clay, wet (ALLUVIUM) 30.0	

Bottom of borehole at 30.0 feet.

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BORING NUMBER AOC6-09

CLIENT BASF
PROJECT NAME Former BASF Huntington Works Facility
PROJECT NUMBER
PROJECT LOCATION Huntington, West Virginia
DATE STARTED 8/17/16 **COMPLETED** 8/17/16
TOC ELEVATION **HOLE SIZE** 3.5 IN
DRILLING CONTRACTOR EnviroProbe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING ---
LOGGED BY T. Taylor **CHECKED BY** J. Odom
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0					0.3 Concrete slab No recovery / no resistance (void)	
5	DP-1				5.0	
10	DP-2		PID = 9.3		(CH) Gray plastic clay with black liquid on top surface, moist	
15	DP-3		PID = 193 PID = 15		13.5 (CH) Gray plastic clay, trace to little fine sand, few wood pieces, moist	
20	DP-4		PID = 7.2 PID = 6.3		- no sand below 16'	
25	DP-5		PID = 2.4 PID = 7.7		22.0 (CL) Gray very fine sandy clay, moist 25.0	
			PID = 7.9		Bottom of borehole at 25.0 feet.	

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ELM Site Solutions, Inc.
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BORING NUMBER AOC6-10

CLIENT BASF
PROJECT NAME Former BASF Huntington Works Facility
PROJECT NUMBER
PROJECT LOCATION Huntington, West Virginia
DATE STARTED 8/17/16 **COMPLETED** 8/17/16
TOC ELEVATION **HOLE SIZE** 3.5 IN
DRILLING CONTRACTOR EnviroProbe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING ---
LOGGED BY T. Taylor **CHECKED BY** J. Odom
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0					0.5 Asphalt and subbase	
	DP-1				(FILL) light gray, black, dark blue, and purple silt, sand and slag(?), oily	
5			PID = 201		6.0	
	DP-2		PID = 384		(CH) Gray plastic clay, moist - black liquid at 5' to 7' - sewage odor at 8' to 10' - few wood pieces at 14' to 20'	
10			PID = 75.7			
	DP-3		PID = 27.1			
15			PID = 74			
	DP-4		PID = 22.1			
20			PID = 41.2		20.0 (SP) Gray fine sand, trace clay, moist (ALLUVIUM)	
	DP-5		PID = 29.4		23.5 (SP) Yellowish brown fine sand, trace fine gravel, rounded, moist	
25			PID = 34.9			
	DP-6					
30					30.0	

Bottom of borehole at 30.0 feet.

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ELM Site Solutions, Inc.
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Raleigh, NC 27624

BORING NUMBER AOC6-17

CLIENT BASF
PROJECT NAME Former BASF Huntington Works Facility
PROJECT NUMBER
PROJECT LOCATION Huntington, West Virginia
DATE STARTED 8/16/16 **COMPLETED** 8/16/16
TOC ELEVATION **HOLE SIZE** 3.5 IN
DRILLING CONTRACTOR EnviroProbe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING ---
LOGGED BY J. Odom **CHECKED BY** T. Taylor
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0						
	DP-1			0.5	Asphalt and subbase	
					(ML) Stained dark gray to black fine sandy silt, moist	
5				5.0		
	DP-2		PID = 57.5 PID = 97.4		(SP) Stained black and light brown fine sand, trace to little clay, moist - strong odor at 5' to 15'	
10						
	DP-3		PID = 15000 PID = 15000	11.0	(GW) Stained black and light brown fine to coarse sand and gravel, trace clay, oily(?) (ALLUVIUM) - light brown, moist at 16'	
15						
	DP-4		PID = 7629 PID = 8546			
20						
	DP-5		PID = 1768 PID = 1154			
25				25.0		
			PID = 4251		Bottom of borehole at 25.0 feet.	

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ELM Site Solutions, Inc.
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Raleigh, NC 27624

BORING NUMBER AOC6-18

CLIENT BASF
PROJECT NAME Former BASF Huntington Works Facility
PROJECT NUMBER
PROJECT LOCATION Huntington, West Virginia
DATE STARTED 8/16/16 **COMPLETED** 8/16/16
TOC ELEVATION **HOLE SIZE** 3.5 IN
DRILLING CONTRACTOR EnviroProbe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING ---
LOGGED BY J. Odom **CHECKED BY** T. Taylor
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0					0.5 Asphalt and subbase	
	DP-1				(FILL) Stained dark gray to black fine sandy silt, trace gravel and slag(?) 4.5	
5			PID = 48.5		(CL-ML) Yellowish red silty clay, moist 7.5	
	DP-2		PID = 22.7		(SP) Strong brown to gray fine sand, moist - black staining at 8'	
10			PID = 25.3		11.5	
	DP-3		PID = 13.4		(GW) Stained black fine to coarse sand and gravel, trace clay, oily(?) (ALLUVIUM) - yellowish red at 18.5' - strong petroleum odor at 20' to 25'	
15			PID = 108			
	DP-4		PID = 182			
20			PID = 1601			
	DP-5		PID = 7300			
25			PID = 12300		25.0 Bottom of borehole at 25.0 feet.	

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ELM Site Solutions, Inc.
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Raleigh, NC 27624

BORING NUMBER AOC6-19

CLIENT BASF
PROJECT NAME Former BASF Huntington Works Facility
PROJECT NUMBER
PROJECT LOCATION Huntington, West Virginia
DATE STARTED 8/17/16 **COMPLETED** 8/17/16
TOC ELEVATION **HOLE SIZE** 3.5 IN
DRILLING CONTRACTOR EnviroProbe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING ---
LOGGED BY T. Taylor **CHECKED BY** J. Odom
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0					0.7 Asphalt and subbase	
	DP-1		PID = 19.2		(SP) Strong brown fine sand, moist (POSSIBLE FILL)	
5						
	DP-2		PID = 169 PID = 21.8			
10						
	DP-3		PID = 14.4 PID = 5046		11.0 (GW) Yellowish red fine to coarse sand and gravel (ALLUVIUM) - strong petroleum odor from 12.5' to 20'	
15						
	DP-4		PID = 1753 PID = 15000			
20					20.0	
			PID = 15000		Bottom of borehole at 20.0 feet.	

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ELM Site Solutions, Inc.
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BORING NUMBER AOC6-20

CLIENT BASF
PROJECT NAME Former BASF Huntington Works Facility
PROJECT NUMBER
PROJECT LOCATION Huntington, West Virginia
DATE STARTED 8/18/16 **COMPLETED** 8/18/16
TOC ELEVATION **HOLE SIZE** 3.5 IN
DRILLING CONTRACTOR EnviroProbe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING ---
LOGGED BY T. Taylor **CHECKED BY** J. Odom
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0					0.8 Asphalt and subbase	
5	HA-1		PID = 8.5		(SP) Yellowish red fine sand, moist (POSSIBLE FILL)	
10	DP-1		PID = 9.7 PID = 10			
15	DP-2		PID = 12.7 PID = 10.6		12.0 (GW) Yellowish red fine to coarse sand and gravel, trace clay, moist (ALLUVIUM) - brown with layer of black staining from 14' to 15' - strong petroleum odor from 15' to 20'	
20	DP-3		PID = 15000 PID = 389		20.0	
			PID = 3039		Bottom of borehole at 20.0 feet.	

ENVIRONMENTAL BH - GINT STD US.GDT - 12/19/16 20:34 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\BASF HUNTINGTON DATA GAP (SEPT. 2016) - TOM3.GPJ

ELM Site Solutions, Inc.
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Raleigh, NC 27624

BORING NUMBER AOC6-21

CLIENT BASF
PROJECT NAME Former BASF Huntington Works Facility
PROJECT NUMBER
PROJECT LOCATION Huntington, West Virginia
DATE STARTED 8/18/16 **COMPLETED** 8/18/16
TOC ELEVATION **HOLE SIZE** 3.5 IN
DRILLING CONTRACTOR EnviroProbe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING ---
LOGGED BY T. Taylor **CHECKED BY** J. Odom
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0					0.8 Asphalt and subbase	
5	HA-1		PID = 11.1		(SP) Brown fine sand, moist (POSSIBLE FILL) - yellowish red at 6' with a few thin layers of dark grayish green staining	
10	DP-1		PID = 10.4 PID = 8.6			
15	DP-2		PID = 18.7 PID = 20.4		12.5 (GW) Yellowish red fine sand and fine to medium gravel, trace clay, moist (ALLUVIUM) - brown fine to coarse sand and gravel at 16' - gray staining at 19' to 20' - dark gray staining at 28.5' to 30', wet	
20	DP-3		PID = 15.2 PID = 9.7			
25	DP-4		PID = 11.6 PID = 9.6			
30	DP-5		PID = 11.9		30.0	

Bottom of borehole at 30.0 feet.

ENVIRONMENTAL BH - GINT STD US.GDT - 12/19/16 20:34 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\BASF HUNTINGTON DATA GAP (SEPT. 2016) - TOM3.GPJ

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BORING NUMBER AOC6-22

CLIENT BASF
PROJECT NAME Former BASF Huntington Works Facility
PROJECT NUMBER
PROJECT LOCATION Huntington, West Virginia
DATE STARTED 8/19/16 **COMPLETED** 8/19/16
TOC ELEVATION **HOLE SIZE** 3.5 IN
DRILLING CONTRACTOR EnviroProbe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING ---
LOGGED BY T. Taylor **CHECKED BY** J. Odom
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0					Asphalt and subbase (1.0)	
	DP-1				(FILL) brown fine sand and gravel, moist - purple staining with odor at 1' (5.0)	
5			PID = 362		(FILL) dark purple powder and silt, wet	
	DP-2		PID = 15000		(9.5)	
10			PID = 15000		(CH) Gray and light brown plastic clay, moist (12.0)	
	DP-3		PID = 329		(CL-ML) Gray very fine sandy silty clay, moist - few thin fine sand layers from 17' to 20' - wet at 19'	
15			PID = 144			
	DP-4		PID = 98.5			
20			PID = 112		(20.0) Bottom of borehole at 20.0 feet.	

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Raleigh, NC 27624

BORING NUMBER AOC6-23

CLIENT BASF
PROJECT NAME Former BASF Huntington Works Facility
PROJECT NUMBER
PROJECT LOCATION Huntington, West Virginia
DATE STARTED 8/19/16 **COMPLETED** 8/19/16
TOC ELEVATION **HOLE SIZE** 3.5 IN
DRILLING CONTRACTOR EnviroProbe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING ---
LOGGED BY T. Taylor **CHECKED BY** J. Odom
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0					0.8 Asphalt and subbase	
5	DP-1				(FILL) dark purple silt with construction debris, moist	
			PID = 50.5		6.0	
10	DP-2		PID = 29.8		(CL-ML) Stained black and dark purple silty clay, trace to little fine sand, wet 8.5 (CH) Gray and light brown plastic clay, moist 10.0	
15	DP-3		PID = 6 PID = 7.1		(GW) Stained black and dark purple fine to coarse sand and gravel, rounded, moist (ALLUVIUM) - brown from 16.5' to 20'	
20	DP-4		PID = 32.6 PID = 23.8		20.0	
			PID = 15.9		Bottom of borehole at 20.0 feet.	

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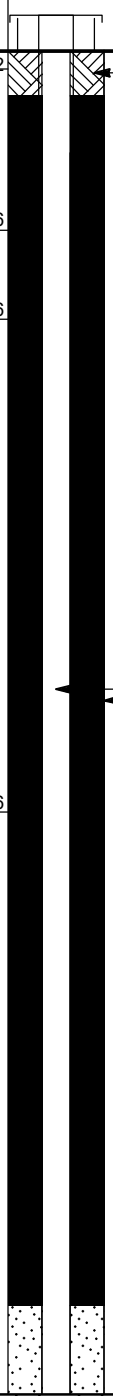
BORING NUMBER TMW-13

CLIENT BASF
PROJECT NAME Former BASF Huntington Works Facility
PROJECT NUMBER
PROJECT LOCATION Huntington, West Virginia
DATE STARTED 7/27/16 **COMPLETED** 7/27/16
TOC ELEVATION 558.61 ft **HOLE SIZE** 6.0 IN
DRILLING CONTRACTOR EnviroProbe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING ---
LOGGED BY T. Taylor **CHECKED BY** J. Odom
AT END OF DRILLING ---
NOTES
AFTER DRILLING 35.81 ft / Elev 522.80 ft TOC (08/29/2016)

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	
0					0.4 (OL) Dark brown silt and gravel, roots, dry.	558.2
					(CH) Yellowish red plastic clay, moist.	
					4.0	554.6
5					(SC) Yellowish red clayey fine sand, moist.	
					6.0	552.6
					(SP) Yellowish red fine sand, trace clay, moist.	
10						
15						
					17.0	541.6
					(GW) Reddish brown fine sand and fine to medium rounded gravel, moist (ALLUVIUM).	
20						
25						
30						

WELL DIAGRAM



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BORING NUMBER TMW-13

CLIENT BASF

PROJECT NAME Former BASF Huntington Works Facility

PROJECT NUMBER

PROJECT LOCATION Huntington, West Virginia

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
30						
					(GW) Reddish brown fine sand and fine to medium rounded gravel, moist (ALLUVIUM). *(continued)*	
35					35.0 523.6	
					(GW) Dark brown fine sand and fine to medium rounded gravel, moist (ALLUVIUM).	Sand Pack 2" pre-packed well screen
40					40.0 518.6	
					Bottom of borehole at 40.0 feet.	

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BORING NUMBER TMW-14

CLIENT BASF
PROJECT NAME Former BASF Huntington Works Facility
PROJECT NUMBER
PROJECT LOCATION Huntington, West Virginia
DATE STARTED 7/29/16 **COMPLETED** 7/29/16
TOC ELEVATION 549.75 ft **HOLE SIZE** 6.0 IN
DRILLING CONTRACTOR EnviroProbe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING ---
LOGGED BY T. Taylor **CHECKED BY** J. Odom
AT END OF DRILLING ---
NOTES
AFTER DRILLING 26.99 ft / Elev 522.76 ft TOC (08-29-2016)

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0						Protective steel casing with locking cap.
					0.5 (ML) Dark brown silt, little gravel, moist. 549.3	Grout
					(CL) Strong brown and light brown silty clay, moist, manganese staining with a few layers of fine sand starting at 9.5'.	
5						
10						2" Sch. 40 PVC riser Bentonite Seal
15					15.0 534.8	
					(GP) Yellowish red fine to coarse sand and fine to coarse gravel, trace to little clay, moist (ALLUVIUM).	
20						
25						
					28.0 521.8	Sand Pack
					(SP) Yellowish red fine sand, wet (ALLUVIUM).	2" pre-packed well screen
30						
35					35.0 514.8	

Bottom of borehole at 35.0 feet.

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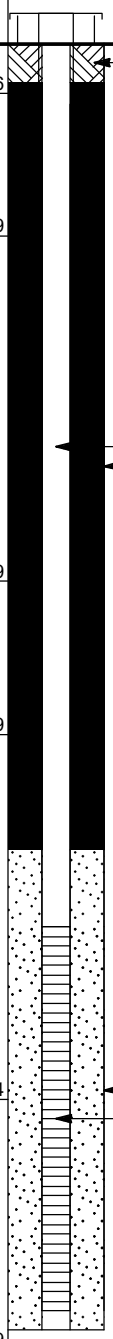
BORING NUMBER TMW-15

CLIENT BASF
PROJECT NAME Former BASF Huntington Works Facility
PROJECT NUMBER
PROJECT LOCATION Huntington, West Virginia
DATE STARTED 7/29/16 **COMPLETED** 7/29/16
TOC ELEVATION 550.89 ft **HOLE SIZE** 6.0 IN
DRILLING CONTRACTOR EnviroProbe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING ---
LOGGED BY T. Taylor **CHECKED BY** J. Odom
AT END OF DRILLING ---
NOTES
AFTER DRILLING 28.17 ft / Elev 522.72 ft TOC (08/29/2016)

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	
0						
					(OL) Dark brown, black and yellowish red silt, roots and glass fragments, dry (FILL).	1.3 / 549.6
					(ML) Brown to strong brown silt and silty clay (CL), dry.	5.0 / 545.9
5						
					(CH) Strong brown and light brown plastic clay, moist.	14.0 / 536.9
10						
					(CL) Strong brown very fine sandy and silty clay, wet, cohesive. Wet at 14.5'.	18.0 / 532.9
15						
					(CL) Dark gray very fine sandy clay, wet, cohesive. Fine gravel layer at 26.0' (approx. 0.3' thick).	27.5 / 523.4
20						
25						
					(GC) Yellowish red fine to coarse coarse sand and fine to coarse rounded gravel, little to some clay, wet (ALLUVIUM). Gray plastic clay layer at 32.0' (approx. 0.4' thick).	34.0 / 516.9
30						
					(SP) Light brown fine sand, wet.	35.0 / 515.9
35						

WELL DIAGRAM



Bottom of borehole at 35.0 feet.

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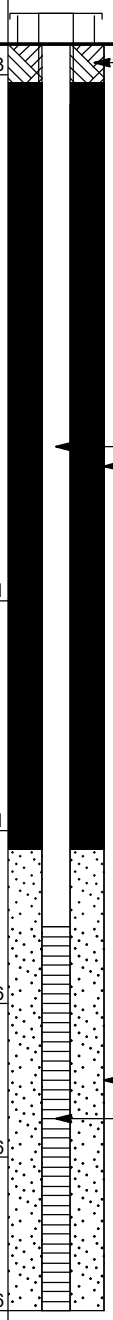
BORING NUMBER TMW-16

CLIENT BASF
PROJECT NAME Former BASF Huntington Works Facility
PROJECT NUMBER
PROJECT LOCATION Huntington, West Virginia
DATE STARTED 7/28/16 **COMPLETED** 7/28/16
TOC ELEVATION 550.59 ft **HOLE SIZE** 6.0 IN
DRILLING CONTRACTOR EnviroProbe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING ---
LOGGED BY T. Taylor **CHECKED BY** J. Odom
AT END OF DRILLING ---
NOTES
AFTER DRILLING 27.96 ft / Elev 522.63 ft TOC (08/29/2016)

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	
0					0.8 Dark brown silt and gravel, grass, moist (FILL).	549.8
					14.5 (CH) Yellowish red plasitc clay, dark gray from 1.0 - 2.5', moist, cohesive.	536.1
					20.5 (CL) Reddish brown layers of very fine sandy/silty clay and clayey very fine sand (SC), wet (ALLUVIUM).	530.1
					25.0 (CL) Gray very fine sandy/silty clay, wet, cohesive (ALLUVIUM).	525.6
					29.0 (CH) Dark gray plastic clay, wet, cohesive.	521.6
					33.0 (SP) Pale brown fine to coarse sand, with a few layers of rounded fine to coarse gravel, wet (ALLUVIUM).	517.6
					35.0 (SW) Yellowish red fine to coarse sand and fine to coarse gravel (GW), trace to little clay, with thin layers of gray plastic clay (ALLUVIUM).	515.6

5 10 15 20 25 30 35

WELL DIAGRAM



Bottom of borehole at 35.0 feet.

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BORING NUMBER TMW-17

CLIENT BASF
PROJECT NAME Former BASF Huntington Works Facility
PROJECT NUMBER
PROJECT LOCATION Huntington, West Virginia
DATE STARTED 7/27/16 **COMPLETED** 7/27/16
TOC ELEVATION 559.62 ft **HOLE SIZE** 6.0 IN
DRILLING CONTRACTOR EnviroProbe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING ---
LOGGED BY T. Taylor **CHECKED BY** J. Odom
AT END OF DRILLING ---
NOTES
AFTER DRILLING 36.97 ft / Elev 522.65 ft TOC (08/29/2016)

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION		WELL DIAGRAM
0							Protective steel casing with locking cap
					0.5 (ML) Dark brown clayey silt, little gravel.	559.1	Grout
					(ML) Strong brown clayey silt and silty clay (CL), trace to little angular gravel and fine sand, dry (FILL).		
5							
					9.0	550.6	
					(CH) Gray plastic clay, trace angular gravel, moist (FILL).		
10					10.0	549.6	
					(CH) Strong brown and pale gray plastic clay, moist.		
15							2" Sch. 40 threaded PVC riser Bentonite Seal
20							
25					25.0	534.6	
					(SP) Strong brown fine sand, trace to some clay, wet (ALLUVIUM).		
					29.5	530.1	
30					(CL) Gray silty to very fine sandy clay, wet (ALLUVIUM).		

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BORING NUMBER TMW-17

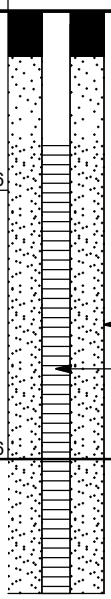
CLIENT BASF

PROJECT NAME Former BASF Huntington Works Facility

PROJECT NUMBER

PROJECT LOCATION Huntington, West Virginia

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
30					(CL) Gray silty to very fine sandy clay, wet (ALLUVIUM). *(continued)*	
					34.0 525.6	
35					(SP) Brown fine to coarse sand fine to coarse gravel, wet (ALLUVIUM).	Sand Pack; 2" pre-packed well screen
40					40.0 519.6	
					Bottom of borehole at 40.0 feet.	



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ELM Site Solutions, Inc.
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Raleigh, NC 27624

BORING NUMBER TMW-19 / AOC11-01

CLIENT BASF
PROJECT NAME Former BASF Huntington Works Facility
PROJECT NUMBER
PROJECT LOCATION Huntington, West Virginia
DATE STARTED 8/1/16 **COMPLETED** 8/1/16
TOC ELEVATION 547.2 ft **HOLE SIZE** 3.5 IN
DRILLING CONTRACTOR EnviroProbe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING ---
LOGGED BY T. Taylor **CHECKED BY** J. Odom
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0.5					(OL) Dark brown and gray silt with slag (FILL) — 546.7	
					(CL) Reddish brown silty clay, moist, cohesive.	
14.0					533.2	
					(SP) Yellowish red to light brown fine sand with fine sandy clay layers, moist	
19.0					528.2	
					(SP) Dark gray very fine sand, trace to little clay, wood fragments, wet.	
21.0					526.2	
					Dark gray peat (Pt), moist.	
23.0					524.2	
					(SP) Light brown to grayish brown fine sand, trace to little fine to medium rounded gravel, moist (ALLUVIUM).	
29.0					518.2	
30.0					(GC) Light brownish gray clayey fine to coarse sand and gravel, wet — 517.2	

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ELM Site Solutions, Inc.
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Raleigh, NC 27624

BORING NUMBER TMW-19 / AOC11-01

CLIENT BASF

PROJECT NAME Former BASF Huntington Works Facility

PROJECT NUMBER

PROJECT LOCATION Huntington, West Virginia

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
					Bottom of borehole at 30.0 feet.	

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Raleigh, NC 27624

BORING NUMBER TMW-20 / AOC11-02

CLIENT BASF
PROJECT NAME Former BASF Huntington Works Facility
PROJECT NUMBER
PROJECT LOCATION Huntington, West Virginia
DATE STARTED 8/1/16 **COMPLETED** 8/1/16
TOC ELEVATION 547.51 ft **HOLE SIZE** 3.5 IN
DRILLING CONTRACTOR EnviroProbe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING ---
LOGGED BY T. Taylor **CHECKED BY** J. Odom
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0					0.5 (OL) Dark gray sandy silt and gravel (FILL) 547.0	
					(CH) Light brown to yellowish red plastic clay, moist, cohesive.	
5						
10						
15					16.0 531.5	
					(CL) Strong brown very fine sandy clay, wet, cohesive.	
					18.0 529.5	
					(SP) Strong brown fine sand, moist.	
					19.0 528.5	
20					(CL) Gray clay, trace to some very fine sand, few layers of peat, wet, cohesive.	
					24.0 523.5	
25					(SP) Reddish yellow fine sand, trace to little clay, wet. 25.0 522.5	

Bottom of borehole at 25.0 feet.

ENVIRONMENTAL BH - GINT STD US.GDT - 12/19/16 20:34 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\BASF HUNTINGTON DATA GAP (SEPT. 2016) - TOM3.GPJ

ELM Site Solutions, Inc.
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Raleigh, NC 27624

BORING NUMBER TMW-21 / AOC11-03

CLIENT BASF
PROJECT NAME Former BASF Huntington Works Facility
PROJECT NUMBER
PROJECT LOCATION Huntington, West Virginia
DATE STARTED 8/2/16 **COMPLETED** 8/2/16
TOC ELEVATION 548.58 ft **HOLE SIZE** 3.5 IN
DRILLING CONTRACTOR EnviroProbe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING ---
LOGGED BY T. Taylor **CHECKED BY** J. Odom
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0					0.5 548.1	
5						
10						
15						
20						
25						
30						

ENVIRONMENTAL BH - GINT STD US.GDT - 12/19/16 20:34 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\BASF HUNTINGTON DATA GAP (SEPT. 2016) - TOM3.GPJ

ELM Site Solutions, Inc.
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Raleigh, NC 27624

BORING NUMBER TMW-26

CLIENT BASF
PROJECT NAME Former BASF Huntington Works Facility
PROJECT NUMBER
PROJECT LOCATION Huntington, West Virginia
DATE STARTED 8/10/16 **COMPLETED** 8/12/16
TOC ELEVATION 547.64 ft **HOLE SIZE** 6.0 IN
DRILLING CONTRACTOR EnviroProbe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING ---
LOGGED BY T. Taylor **CHECKED BY** J. Odom
AT END OF DRILLING ---
NOTES
AFTER DRILLING 24.98 ft / Elev 522.66 ft TOC (08/29/2016)

Casing Top Elev: 547.64 (ft)
Casing Type: PVC

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	
0					0.4 Asphalt and subbase	547.2
	DP-1				(CH) Yellowish red plastic clay, moist	
5						
	DP-2		PID = 0.1 PID = 0.2			
					9.0 (CL-ML) Yellowish red silty clay, moist, cohesive	538.6
10						
	DP-3		PID = 0.3 PID = 0.4			
					14.0 (CL) Yellowish red very fine sandy clay, moist	533.6
15						
	DP-4		PID = 0.4 PID = 0.4			
					19.0 (SP) Yellowish red fine sand, trace to little clay, moist (ALLUVIUM)	528.6
20						
	DP-5		PID = 0.4 PID = 0.8		21.0 (CL) Light brown very fine sandy clay, wet (ALLUVIUM)	526.6
					23.5 (SP) Yellowish red fine sand, wet (ALLUVIUM)	524.1
25						
	DP-6		PID = 0.6			
					29.0 (GW) Yellowish red fine to coarse sand and gravel, rounded, trace clay, wet (ALLUVIUM)	518.6
30						
	DP-7					
35					35.0	512.6

WELL DIAGRAM

Bottom of borehole at 35.0 feet.

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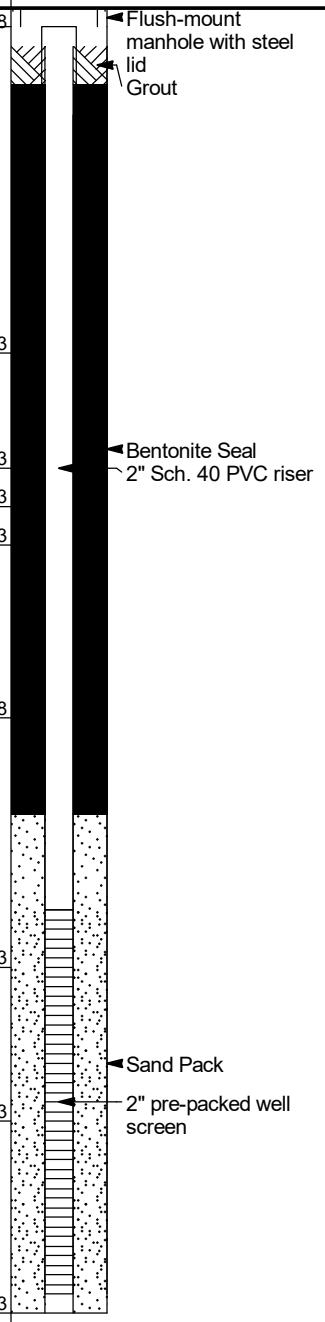
ELM Site Solutions, Inc.
P. O. Box 97607
Raleigh, NC 27624

BORING NUMBER TMW-27

CLIENT BASF
PROJECT NAME Former BASF Huntington Works Facility
PROJECT NUMBER
PROJECT LOCATION Huntington, West Virginia
DATE STARTED 8/10/16 **COMPLETED** 8/12/16
TOC ELEVATION 547.28 ft **HOLE SIZE** 6.0 IN
DRILLING CONTRACTOR EnviroProbe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING ---
LOGGED BY T. Taylor **CHECKED BY** J. Odom
AT END OF DRILLING ---
NOTES
AFTER DRILLING 24.64 ft / Elev 522.64 ft TOC (08/29/2016)

Casing Top Elev: 547.28 (ft)
Casing Type: PVC

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	
0						
	DP-1				0.5 Asphalt and subbase	546.8
					(CH) Yellowish red plastic clay, moist	
5						
	DP-2		PID = 0.4 PID = 0.1		9.0	538.3
10					(CL-ML) Yellowish red silty clay, moist, cohesive	
	DP-3		PID = 0.2 PID = 0.3		12.0	535.3
					13.0 (CL) Yellowish red very fine sandy clay, moist, cohesive	534.3
					14.0 (CL-ML) Yellowish red silty clay, moist, cohesive	533.3
15					(CL) Yellowish red very fine sandy clay, moist, cohesive	
	DP-4		PID = 0.3 PID = 0.1		18.5	528.8
20					(SP-SC) Yellowish red fine sand, trace to some clay, moist (ALLUVIUM)	
	DP-5		PID = 0.2 PID = 0.7		25.0	522.3
25						
	DP-6		PID = 0.6		(SP) Light brown fine sand, wet (ALLUVIUM)	
					29.0	518.3
30					(GW) Yellowish red fine to coarse sand and fine to medium gravel, rounded, wet (ALLUVIUM)	
	DP-7				34.0	513.3
35					35.0 (SP) Brown fine sand, trace fine to medium gravel, wet	512.3



Bottom of borehole at 35.0 feet.

ENVIRONMENTAL BH - GINT STD US.GDT - 12/19/16 20:34 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\BASF HUNTINGTON DATA GAP (SEPT. 2016) - TOM3.GPJ

ELM Site Solutions, Inc.
P. O. Box 97607
Raleigh, NC 27624

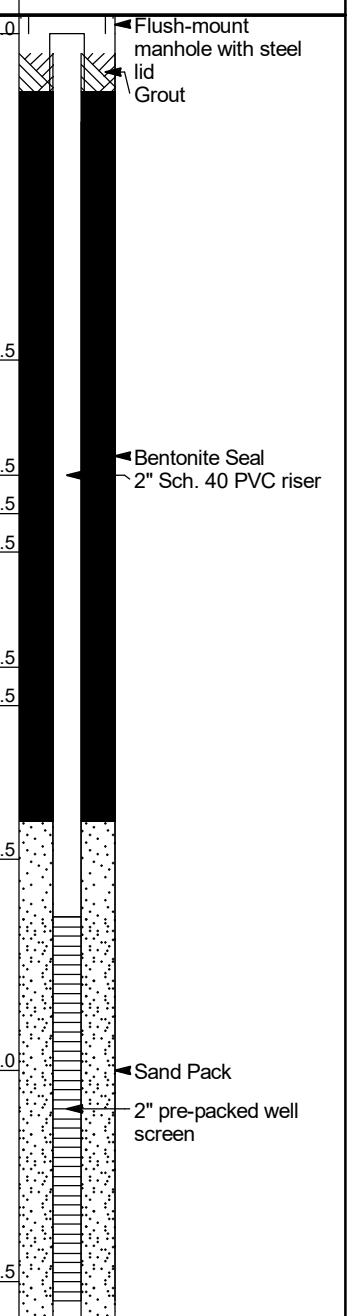
BORING NUMBER TMW-28

CLIENT BASF
PROJECT NAME Former BASF Huntington Works Facility
PROJECT NUMBER
PROJECT LOCATION Huntington, West Virginia
DATE STARTED 8/10/16 **COMPLETED** 8/15/16
TOC ELEVATION 547.45 ft **HOLE SIZE** 6.0 IN
DRILLING CONTRACTOR EnviroProbe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING ---
LOGGED BY J. Odom **CHECKED BY** T. Taylor
AT END OF DRILLING ---
NOTES
AFTER DRILLING 24.85 ft / Elev 522.60 ft TOC (08/29/2016)

Casing Top Elev: 547.45 (ft)
Casing Type: PVC

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	Elev.
0					Asphalt and subbase	547.0
	DP-1				(CH) Yellowish red plastic clay, moist	
5	DP-2		PID = 0.2 PID = 0.1			
9.0					(CL-ML) Yellowish red silty clay, moist	538.5
10	DP-3		PID = 0.1 PID = 0.3			
12.0					(CL) Yellowish red very fine sandy clay, moist, cohesive	535.5
13.0					(CL-ML) Yellowish red silty clay, moist	534.5
14.0					(CL) Yellowish red very fine sandy clay, moist, cohesive	533.5
15	DP-4		PID = 0.3 PID = 0.3			
17.0					(SP) Yellowish red fine sand, moist	530.5
18.0					(CL) Yellowish red fine sandy clay, moist, cohesive	529.5
20	DP-5		PID = 0.2 PID = 0.3			
22.0					(SP) Yellowish red fine sand, moist (ALLUVIUM)	525.5
25	DP-6		PID = 4.1			
27.5					(GW) Light brown fine sand and fine to medium gravel, rounded, wet (ALLUVIUM)	520.0
30	DP-7					
33.0					(SP) Brown fine sand, trace fine to medium gravel, wet (ALLUVIUM)	514.5
35.0						512.5

WELL DIAGRAM



Bottom of borehole at 35.0 feet.

ENVIRONMENTAL BH - GINT STD US.GDT - 12/19/16 20:34 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\BASF HUNTINGTON DATA GAP (SEPT. 2016) - TOM3.GPJ

ELM Site Solutions, Inc.
P. O. Box 97607
Raleigh, NC 27624

BORING NUMBER TMW-29

CLIENT BASF
PROJECT NAME Former BASF Huntington Works Facility
PROJECT NUMBER
PROJECT LOCATION Huntington, West Virginia
DATE STARTED 8/11/16 **COMPLETED** 8/15/16
TOC ELEVATION 547.47 ft **HOLE SIZE** 6.0 IN
DRILLING CONTRACTOR EnviroProbe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING ---
LOGGED BY T. Taylor **CHECKED BY** J. Odom
AT END OF DRILLING ---
NOTES
AFTER DRILLING 24.93 ft / Elev 522.54 ft TOC (08/29/2016)

Casing Top Elev: 547.47 (ft)
Casing Type: PVC

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	
0					Asphalt and subbase	547.0
0.5					(CH) Yellowish red plastic clay, moist	
5	DP-1					
	DP-2		PID = 4.5 PID = 4.6			
9.0						538.5
10					(CL-ML) Yellowish red silty clay, moist, cohesive	
	DP-3		PID = 4.4 PID = 4.2			
13.0						534.5
15					(CL) Yellowish red very fine sandy clay, few thin layers of clayey fine sand (SC), moist to wet,	
15.0						532.5
	DP-4		PID = 2.3 PID = 4.4		(SP) Yellowish red fine sand, trace to little clay, moist (ALLUVIUM)	
17.5						530.0
19.0					(CL) Yellowish red very fine sandy clay, moist (ALLUVIUM)	
						528.5
20					(CL) Gray very fine sandy clay, moist (ALLUVIUM)	
	DP-5		PID = 5.5 PID = 5.7			
23.0						524.5
25.0					(SP) Gray fine sand, moist (ALLUVIUM) -Yellowish red at 24'	
25						522.5
	DP-6		PID = 6.3		(GW) Brown and yellowish red fine to coarse sand and gravel, rounded, trace clay, wet (ALLUVIUM)	
30						
	DP-7					
35.0						512.5

WELL DIAGRAM

Bottom of borehole at 35.0 feet.

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ELM Site Solutions, Inc.
P. O. Box 97607
Raleigh, NC 27624

BORING NUMBER TMW-30

CLIENT BASF
PROJECT NAME Former BASF Huntington Works Facility
PROJECT NUMBER
PROJECT LOCATION Huntington, West Virginia
DATE STARTED 8/11/16 **COMPLETED** 8/15/16
TOC ELEVATION 547.37 ft **HOLE SIZE** 6.0 IN
DRILLING CONTRACTOR EnviroProbe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING ---
LOGGED BY T. Taylor **CHECKED BY** J. Odom
AT END OF DRILLING ---
NOTES
AFTER DRILLING 24.91 ft / Elev 522.46 ft TOC (08/29/2016)

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION (Casing Top Elev: 547.37 (ft); Casing Type: PVC)	WELL DIAGRAM
0					0.4 Asphalt and subbase (547.0)	Flush-mount manhole with steel lid; Grout
	DP-1				(CH) Yellowish red plastic clay, moist	
5						
	DP-2		PID = 3; PID = 4.5			
10					9.5 (537.9)	
	DP-3		PID = 12.5; PID = 7.2		(CL) Yellowish red very fine sandy clay, moist - wet in clayey sand zones (SC) between 10' and 14' - fine sand layers (SP) at 16.5' to 17' and 18.5' to 19', moist	Bentonite Seal; 2" Sch. 40 PVC riser
15						
	DP-4		PID = 13; PID = 3.2			
20					19.5 (527.9)	
	DP-5		PID = 6; PID = 5.9		(SP) Yellowish red fine sand, trace fine to medium gravel, rounded, moist (ALLUVIUM)	
25					25.0 (522.4)	
	DP-6		PID = 6.3		(GW) Yellowish red fine to medium sand and fine to coarse gravel, rounded, wet (ALLUVIUM)	Sand Pack; 2" pre-packed well screen
30						
	DP-7					
35					35.0 (512.4)	

Bottom of borehole at 35.0 feet.

ENVIRONMENTAL BH - GINT STD US.GDT - 12/19/16 20:34 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\BASF HUNTINGTON DATA GAP (SEPT. 2016) - TOM3.GPJ

ELM Site Solutions, Inc.
P. O. Box 97607
Raleigh, NC 27624

BORING NUMBER TMW-31

CLIENT BASF
PROJECT NAME Former BASF Huntington Works Facility
PROJECT NUMBER
PROJECT LOCATION Huntington, West Virginia
DATE STARTED 8/11/16 **COMPLETED** 8/15/16
TOC ELEVATION 546.9 ft **HOLE SIZE** 6.0 IN
DRILLING CONTRACTOR EnviroProbe
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING ---
LOGGED BY T. Taylor **CHECKED BY** J. Odom
AT END OF DRILLING ---
NOTES
AFTER DRILLING 24.41 ft / Elev 522.49 ft TOC (08/29/2016)

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION (Casing Top Elev: 546.9 (ft) Casing Type: PVC)	WELL DIAGRAM
0						
5	DP-1				0.5 Asphalt and subbase 546.4 (CH) Yellowish red plastic clay, moist	Flush-mount manhole with steel lid Grout
10	DP-2		PID = 1 PID = 2.8		9.5 537.4 (CL) Yellowish red very fine sandy clay, moist, cohesive	
15	DP-3		PID = 2.3 PID = 3.3		10.5 536.4 (CL-ML) Yellowish red silty clay, moist, cohesive 15.0 531.9	Bentonite Seal 2" Sch. 40 PVC riser
20	DP-4		PID = 2.1 PID = 4.5		(CL) Yellowish red very fine sandy clay with layers of fine sand (SP), moist (ALLUVIUM) 20.0 526.9	
25	DP-5		PID = 3.7		(SP) Yellowish red fine sand, moist (ALLUVIUM) - some fine to coarse gravel at 24' 25.0 521.9	
30	DP-6		PID = 3.5		(GW) Strong brown fine to medium sand and fine to coarse gravel, trace clay, wet (ALLUVIUM)	Sand Pack 2" pre-packed well screen
35	DP-7				35.0 511.9	

Bottom of borehole at 35.0 feet.

ENVIRONMENTAL BH - GINT STD US.GDT - 12/19/16 20:34 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\BASF HUNTINGTON DATA GAP (SEPT. 2016) - TOM3.GPJ

APPENDIX B

IDW DISPOSAL MANIFESTS

VEOLIA
ENVIRONMENTAL SERVICES

SHIPPING DOCUMENT	1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Shipping Document Tracking Number
	WVD000068601	1	(877) 818-0087	ZZ 00506661

5. Generator's Name and Mailing Address
BASF
2401 5TH AVENUE
HUNTINGTON, WV 25703
Generator's Phone 585 720-0362

Generator's Site Address (if different than mailing address): SAME

6. Transporter 1 Company Name: VEOLIA ES TECHNICAL SOLUTIONS — U.S. EPA ID Number: NJD080631369

7. Transporter 2 Company Name: VEOLIA ES INDUSTRIAL SERVICES — U.S. EPA ID Number: TXR000025791

8. Designated Facility Name and Site Address
VEOLIA ES TECHNICAL SOLUTIONS, L.L.C.
4301 INFIRMARY ROAD
WEST CARROLLTON, OH 45449
Facility's Phone: 937 859-6101
U.S. EPA ID Number: OHD093945293

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Codes
	1. NON RCRA AND DOT NON REGULATED LIQUID, (NON HAZARDOUS WATER)	1	DM	400	P	NONE
	2. NON RCRA AND DOT NON REGULATED SOLID, (NON HAZARDOUS WATER AND SOIL)	1	DM	400	P	NONE
	3.					
	4.					

14. Special Handling Instructions and Additional Information
2) W:29431 A:SRRLFSOLID-NH ER Service Contracted by VESTS BILL TO VEOLIA WV -|- 1) W:29422 A:SRRLFLIQ-NH

15. **GENERATOR S/OFFEROR S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offeror's Printed/Typed Name: JEREMY ODOM — Signature: [signature] — Month 09 Day 01 Year 16

INT'L
16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER
17. Transporter Acknowledgment of Receipt of Shipment
Transporter 1 Printed/Typed Name: Shane Bowen — Signature: [signature] — Month 09 Day 01 Year 16
Transporter 2 Printed/Typed Name: Eugene Scott Jr. — Signature: [signature] — Month 9 Day 6 Year 16

DESIGNATED FACILITY
18. Discrepancy
18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
18b. Alternate Facility (or Generator) — Shipping Document Tracking Number: — U.S. EPA ID Number
Facility's Phone:
18c. Signature of Alternate Facility (or Generator) — Month Day Year

19. Report Management Method Codes (i.e., codes for treatment, disposal, and recycling systems)
1. H141 2. H141 3. 4.

20. Designated Facility Owner or Operator: Certification of receipt of shipment except as noted in Item 18a
Printed/Typed Name: Brittany Blankenship — Signature: [signature] — Month 9 Day 6 Year 16

DESIGNATED FACILITY TO GENERATOR

785097

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: WVD000068601

2. Page 1 of 1 2

3. Emergency Response Phone: (877) 818-0087

4. Manifest Tracking Number: 001056958 VES

5. Generator's Name and Mailing Address: BASF, 2401 5TH AVENUE, HUNTINGTON, WV 25703

Generator's Site Address (if different than mailing address): SAME

Generator's Phone: 585 720-0362

6. Transporter 1 Company Name: VEOLIA ES TECHNICAL SOLUTIONS — U.S. EPA ID Number: NJD080631369

7. Transporter 2 Company Name: VEOLIA ES INDUSTRIAL SERVICES — U.S. EPA ID Number: TXR000025791

8. Designated Facility Name and Site Address: VEOLIA ES TECHNICAL SOLUTIONS, HIGHWAY 73, 3.5 MILES W. OF TAYLOR'S BAYOU, PORT ARTHUR, TX 77640 — U.S. EPA ID Number: TXD000838896

Facility's Phone: 409 736-2821

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
X	1. NA3077, HAZARDOUS WASTE, SOLID, n.o.s., (SOIL, PCB), 9, III	1	DM	400	P	D005 OUTS403H
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information: ER Service Contracted by VESTS BILL TO VEOLIA WV (+ 1) ERG:171 W:29468 A PTAVES071

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: X Jeremy Odom — Signature: X Jeremy Odom — Month 09 Day 01 Year 16

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Shane Bowen — Signature: Shane Bowen — Month 09 Day 01 Year 16

Transporter 2 Printed/Typed Name: Eugene Scott Jr. — Signature: Eugene Scott Jr. — Month 9 Day 6 Year 16

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator) — U.S. EPA ID Number

Facility's Phone:

18c. Signature of Alternate Facility (or Generator) — Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1. H040 2. 3. 4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name: Meghan Beevers — Signature: Meghan Beevers — Month 9 Day 14 Year 16

GENERATOR — INT'L — TRANSPORTER — DESIGNATED FACILITY

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO GENERATOR

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST (Continuation Sheet)	21. Generator ID Number WVD000068601	22. Page 2 of 2	23. Manifest Tracking Number 001056958VES

24. Generator's Name: Basf

25. Transporter ____ Company Name: Veolia ES Technical Solutions — U.S. EPA ID Number: NJD066-1369

26. Transporter 4 Company Name: Action Resources — U.S. EPA ID Number: ALR000007237

27a. HM	27b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	28. Containers No.	28. Containers Type	29. Total Quantity	30. Unit Wt./Vol.	31. Waste Codes
	Trans only					

32. Special Handling Instructions and Additional Information

GENERATOR

33. Transporter 3 Acknowledgment of Receipt of Materials

Printed/Typed Name: Brittany Blankenship — Signature: [signature] — Month 9 Day 6 Year 16

34. Transporter 4 Acknowledgment of Receipt of Materials

Printed/Typed Name: Richard Butts — Signature: [signature] — Month 9 Day 12 Year 16

TRANSPORTER

35. Discrepancy

36. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

DESIGNATED FACILITY

EPA Form 8700-22A (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO GENERATOR

APPENDIX C

DATA VALIDATION REPORTS

ALPHA
GEOSCIENCE
Geology
Hydrology
Remediation
Water Supply

September 9, 2016

Mr. Joe McKeon
Senior Scientist
ELM Site Solutions, Inc.
980 Macintosh Dr.
Rochester, New York 14626

Re: Data Validation Report
EPA Region III, Corrective Action
BASF Huntington, West Virginia
July-August 2016 Soil and Ground Water Sampling Events

Dear Mr. McKeon:

The data validation summaries for the BASF Huntington, West Virginia project are attached to this letter. The July-August 2016 soil and ground water sampling data for TestAmerica North Canton, job number 240-67605-1 were acceptable with some minor issues that are identified in the validation summaries. There were no data that were rejected (R) in the data pack.

A list of data validation acronyms and qualifiers is attached to assist you in interpreting the data validation reviews. If you have any questions concerning the work performed, please contact me at (518) 348-6995. Thank you for the opportunity to assist Environmental Liability Management, Inc.

Sincerely,
Alpha Geoscience

Donald Anné

Donald Anné
Senior Chemist

DCA:dca
attachments

Z:\projects\2009\09621 - 09640\09623-basf wv\2016\basf wv-161a.ltr.wpd

679 Plank Road ▪ Clifton Park, New York 12065 ▪ (518) 348-6995 ▪ FAX (518) 348-6966
www.alphageoscience.com

Data Validation Qualifiers Used in the QA/QC Reviews for USEPA Region III

U	=	Not detected. The associated number indicates the approximate sample concentration necessary to be detected.
B	=	Not detected substantially above the level reported in the laboratory or field blanks.
R	=	Unreliable result; data is rejected or unusable. Analyte may or may not be present in the sample. Supporting data is necessary to confirm the result.
N	=	Tentative identification. Analyte is considered present. Special methods may be needed to confirm its presence or absence during future sampling efforts.
J	=	Analyte is present. Reported value may not be accurate or precise.
K	=	Analyte is present. Reported value may be biased high. Actual value is expected to be lower.
L	=	Analyte is present. Reported value may be biased low. Actual value is expected to be higher.
UJ	=	Not detected, quantitation limit may be inaccurate or imprecise.
UL	=	Not detected, quantitation limit is probably higher.

Note: These qualifiers are used for data validation purposes. The data validation qualifiers may differ from the qualifiers that the laboratory assigns to the data. Refer to the laboratory analytical report for the definitions of the laboratory qualifiers.

Data Validation Acronyms

AA	Atomic absorption, flame technique
BHC	Hexachlorocyclohexane
BFB	Bromofluorobenzene
CCB	Continuing calibration blank
CCC	Calibration check compound
CCV	Continuing calibration verification
CN	Cyanide
CRDL	Contract required detection limit
CRQL	Contract required quantitation limit
CVAA	Atomic adsorption, cold vapor technique
DCAA	2,4-Dichlophenylacetic acid
DCB	Decachlorobiphenyl
DFTPP	Decafluorotriphenyl phosphine
ECD	Electron capture detector
FAA	Atomic absorption, furnace technique
FID	Flame ionization detector
FNP	1-Fluoronaphthalene
GC	Gas chromatography
GC/MS	Gas chromatography/mass spectrometry
GPC	Gel permeation chromatography
ICB	Initial calibration blank
ICP	Inductively coupled plasma-atomic emission spectrometer
ICV	Initial calibration verification
IDL	Instrument detection limit
IS	Internal standard
LCS	Laboratory control sample
LCS/LCSD	Laboratory control sample/laboratory control sample duplicate
MSA	Method of standard additions
MS/MSD	Matrix spike/matrix spike duplicate
PID	Photo ionization detector
PCB	Polychlorinated biphenyl
PCDD	Polychlorinated dibenzodioxins
PCDF	Polychlorinated dibenzofurans
QA	Quality assurance
QC	Quality control
RF	Response factor
RPD	Relative percent difference
RRF	Relative response factor
RRF(number)	Relative response factor at concentration of the number following
RT	Retention time
RRT	Relative retention time
SDG	Sample delivery group
SPCC	System performance check compound
TCX	Tetrachloro-m-xylene
%D	Percent difference
%R	Percent recovery
%RSD	Percent relative standard deviation

ALPHA GEOSCIENCE
Geology
Hydrology
Remediation
Water Supply

M-2 QA/QC Review of Method 8260B Volatiles Data for TestAmerica North Canton, Job No: 240-67605-1

19 Soil Samples, 4 Ground Water Samples, 2 Field Duplicates, 5 Equipment Blanks, and 3 Trip Blanks Collected on July 25-August 1, 2016

Prepared by: Donald Anné
September 9, 2016

Holding Times: Samples were analyzed within USEPA Region III holding times.

GC/MS Tuning and Mass Calibration: The BFB tuning criteria were within control limits.

Initial Calibration: The SPCCs and CCCs were within control limits, per method 8260B.

The average RRFs for target compounds were above the allowable minimum (0.010) and the %RSDs were below the allowable maximum (30%), as required.

Continuing Calibration: The SPCCs and CCCs were within control limits, per method 8260B.

The RRFs for target compounds were above the allowable minimum (0.010), as required.

The %D for methyl tert-butyl ether was above the allowable maximum (25%) on 07-27-16 (185427.D). The %Ds for methyl acetate and 2-butanone were above the allowable maximum (25%) on 07-29-16 (UX85080.D). The %D for chloroethane was above the allowable maximum (25%) on 08-03-16 (UXM6996.D). The %Ds for acetone, methyl acetate, 2-butanone, 4-methyl-2-pentanone, and 2-hexanone were above the allowable maximum (25%) on 08-04-16 (UX85174.D). The %Ds for chloromethane, bromomethane, trichlorofluoromethane, carbon tetrachloride, and bromoform were above the allowable maximum (25%) on 08-08-16 (UXR3706.D). The %Ds for chloromethane, bromomethane, trichlorofluoromethane, bromoform, 1,2-dibromo-3-chloropropne, and 1,2,4-trichlorobenzene were above the allowable maximum (25%) on 08-09-16 (UXX7411.D). Positive results for these compounds should be considered estimated (J) in associated samples.

Blanks: Method blank MB 240-240053/6 contained a trace of 2-butanone (1.35 ug/kg). Method blank MB 240-240998/7 contained a trace of methylene chloride (0.422 ug/L). Method blank MB 240-241810/7 contained a trace of methylene chloride (0.358 ug/L). Equipment blank EB-01 contained a trace of acetone(1.3 ug/L). Equipment blank EB-02 contained a trace of acetone (2.9 ug/L). Equipment blank EB-03 contained a trace of acetone (4.0 ug/L). Equipment blank EB-04 contained a trace of acetone (2.6 ug/L). Equipment blank EB-05

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contained a trace of acetone (4.0 ug/L). TRIP BLANK-01 contained a trace of acetone (4.2 ug/L). TRIP BLANK-02 contained a trace of acetone (4.8 ug/L). TRIP BLANK-03 contained a trace of acetone (5.9 ug/L). Positive results for acetone that are less than ten times the highest blank level should be qualified 'B' in associated samples.

Internal Standard Area Summary: The internal standard areas and retention times were within control limits.

Surrogate Recovery: The surrogate recoveries were within control limits for the soil samples, ground water samples, equipment blanks, and trip blanks.

Matrix Spike/Matrix Spike Duplicate: The relative percent differences for target compounds were below the allowable maximum, but 1 or 2 percent recoveries for 16 compounds (circled red on attached MS/MSD form) were below QC limits for soil MS/MSD sample AOC1-12-20. The "not detected" results for these compounds should be considered estimated, biased low (UL) in sample AOC1-12-20.

Laboratory Control Sample: The percent recoveries (%Rs) for target compounds were within QC limits for soil samples LCS 240-240053/5, LCS 240-240314/6, and LCS 240-241104/6. The %Rs for target compounds were within QC limits for aqueous samples LCS 240-240998/5 and LCS 240-241810/4.

The %Rs for bromoform, bromomethane, carbon tetrachkloride, and trichlorofluoromethane were above QC limits for aqueous sample LCS 240-241624/4. Positive results for these compounds should be considered estimated, biased high (K) in associated aqueous samples.

Field Duplicates: The analyses of soil field duplicate pair AOC1-12-27.5/DUP-1 reported target compounds as either not detected or below the lowest standard; therefore, valid relative percent differences could not be calculated. The analyses for the soil field duplicate pair were acceptable.

The relative percent difference for trichloroethene was below the allowable maximum (20%) for aqueous field duplicate pair TMW-19/TMW-23 (attached table), as required.

Compound ID: Checked compounds and surrogates were within GC quantitation limits. The mass spectra for detected compounds contained the primary and secondary ions, as outlined in the method.

Action Level Notification: The detected results were below the action level for ground water samples in this data pack.

FORM III
GC/MS VOA MATRIX SPIKE RECOVERY

Lab Name: TestAmerica Canton Job No.: 240-67605-1

SDG No.:

Matrix: Solid Level: Low Lab File ID: UX85101.D

Lab ID: 240-67605-14 MS Client ID: AOC1-12-20 MS

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC	QC LIMITS REC	#
Acetone	93.9	ND	30.6	33	24-140	
Benzene	47.0	ND	17.7	38	53-120	F1
Dichlorobromomethane	47.0	ND	17.5	37	35-132	
Bromoform	47.0	ND	19.6	42	18-129	
Bromomethane	23.5	ND	17.5	74	33-130	
2-Butanone (MEK)	93.9	ND	27.5	29	30-143	F1
Carbon disulfide	47.0	ND	17.2	37	20-151	
Carbon tetrachloride	47.0	ND	20.3	43	32-137	
Chlorobenzene	47.0	ND	17.6	38	37-120	
Chloroethane	23.5	ND	17.3	74	45-120	
Chloroform	47.0	ND	17.1	36	53-120	F1
Chloromethane	23.5	ND	12.8	54	34-120	
1,1-Dichloroethane	47.0	ND	15.9	34	54-122	F1
1,2-Dichloroethane	47.0	ND	17.2	37	49-123	F1
1,1-Dichloroethene	47.0	ND	18.9	40	49-157	F1
1,2-Dichloropropane	47.0	ND	17.5	37	61-120	F1
cis-1,3-Dichloropropene	47.0	ND	16.7	36	27-133	
trans-1,3-Dichloropropene	47.0	ND	17.2	37	28-137	
Ethylbenzene	47.0	ND	17.7	38	30-131	
2-Hexanone	93.9	ND	32.8	35	37-147	F1
Methylene Chloride	47.0	ND	18.8	40	54-120	F1
4-Methyl-2-pentanone (MIBK)	93.9	ND	35.5	38	43-147	F1
Styrene	47.0	ND	18.2	39	27-127	
1,1,2,2-Tetrachloroethane	47.0	ND	20.0	43	16-179	
Tetrachloroethene	47.0	ND	18.6	40	31-135	
Toluene	47.0	ND	17.0	36	39-129	F1
Trichloroethene	47.0	ND	18.3	39	10-177	
Vinyl chloride	23.5	ND	15.3	65	42-120	
Xylenes, Total	93.9	ND	34.7	37	30-131	
1,1,1-Trichloroethane	47.0	ND	19.1	41	51-128	F1
1,1,2-Trichloroethane	47.0	ND	19.7	42	10-166	
Cyclohexane	47.0	ND	16.9	36	28-120	
1,2-Dibromo-3-Chloropropane	47.0	ND	20.0	43	10-153	
Ethylene Dibromide	47.0	ND	21.5	46	45-127	
Dichlorodifluoromethane	23.5	ND	11.5	49	17-120	
cis-1,2-Dichloroethene	47.0	ND	19.2	41	50-120	F1
trans-1,2-Dichloroethene	47.0	ND	19.1	41	50-123	F1
Isopropylbenzene	47.0	ND	18.2	39	21-134	
Methyl acetate	235	ND	78.8	34	33-165	
Methyl tert-butyl ether	47.0	ND	19.4	41	51-157	F1
1,1,2-Trichloro-1,2,2-trifluoroethane	47.0	ND	19.7	42	50-147	F1

Column to be used to flag recovery and RPD values

FORM III 8260B

FORM III
GC/MS VOA MATRIX SPIKE RECOVERY

Lab Name: TestAmerica Canton Job No.: 240-67605-1

SDG No.:

Matrix: Solid Level: Low Lab File ID: UX85101.D

Lab ID: 240-67605-14 MS Client ID: AOC1-12-20 MS

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC	QC LIMITS REC	#
1,2,4-Trichlorobenzene	47.0	ND	13.4	28	10-120	
1,2-Dichlorobenzene	47.0	ND	16.2	34	17-122	
1,3-Dichlorobenzene	47.0	ND	15.8	34	16-126	
1,4-Dichlorobenzene	47.0	ND	16.0	34	15-121	
Trichlorofluoromethane	23.5	ND	18.6	79	36-142	
Methylcyclohexane	47.0	ND	18.5	39	20-132	
m-Xylene & p-Xylene	47.0	ND	17.6	37	29-131	
o-Xylene	47.0	ND	17.1	36	29-134	

Column to be used to flag recovery and RPD values

FORM III 8260B

FORM III
GC/MS VOA MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Canton Job No.: 240-67605-1

SDG No.:

Matrix: Solid Level: Low Lab File ID: UX85102.D

Lab ID: 240-67605-14 MSD Client ID: AOC1-12-20 MSD

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC	#
Acetone	95.7	33.7	35	10	30	24-140	
Benzene	47.8	18.8	39	6	30	53-120	F1
Dichlorobromomethane	47.8	19.7	41	12	30	35-132	
Bromoform	47.8	20.4	43	4	30	18-129	
Bromomethane	23.9	17.6	73	1	30	33-130	
2-Butanone (MEK)	95.7	29.6	31	7	30	30-143	
Carbon disulfide	47.8	18.8	39	9	30	20-151	
Carbon tetrachloride	47.8	21.7	45	6	30	32-137	
Chlorobenzene	47.8	19.5	41	10	30	37-120	
Chloroethane	23.9	18.2	76	5	30	45-120	
Chloroform	47.8	18.3	38	7	30	53-120	F1
Chloromethane	23.9	13.8	58	8	30	34-120	
1,1-Dichloroethane	47.8	17.1	36	7	30	54-122	F1
1,2-Dichloroethane	47.8	17.7	37	3	30	49-123	F1
1,1-Dichloroethene	47.8	19.8	41	5	30	49-157	F1
1,2-Dichloropropane	47.8	19.2	40	9	30	61-120	F1
cis-1,3-Dichloropropene	47.8	18.4	38	9	30	27-133	
trans-1,3-Dichloropropene	47.8	18.3	38	6	30	28-137	
Ethylbenzene	47.8	19.6	41	10	30	30-131	
2-Hexanone	95.7	36.2	38	10	30	37-147	
Methylene Chloride	47.8	20.8	43	10	30	54-120	F1
4-Methyl-2-pentanone (MIBK)	95.7	39.4	41	10	30	43-147	F1
Styrene	47.8	20.3	42	11	30	27-127	
1,1,2,2-Tetrachloroethane	47.8	21.2	44	6	30	16-179	
Tetrachloroethene	47.8	21.0	44	12	30	31-135	
Toluene	47.8	18.8	39	10	30	39-129	
Trichloroethene	47.8	20.2	42	10	30	10-177	
Vinyl chloride	23.9	16.1	68	5	30	42-120	
Xylenes, Total	95.7	39.1	41	12	30	30-131	
1,1,1-Trichloroethane	47.8	20.0	42	4	30	51-128	F1
1,1,2-Trichloroethane	47.8	20.6	43	4	30	10-166	
Cyclohexane	47.8	17.1	36	1	30	28-120	
1,2-Dibromo-3-Chloropropane	47.8	23.0	48	14	30	10-153	
Ethylene Dibromide	47.8	22.4	47	4	30	45-127	
Dichlorodifluoromethane	23.9	11.0	46	5	30	17-120	
cis-1,2-Dichloroethene	47.8	20.1	42	4	30	50-120	F1
trans-1,2-Dichloroethene	47.8	21.2	44	11	30	50-123	F1
Isopropylbenzene	47.8	20.5	43	12	30	21-134	
Methyl acetate	239	88.5	37	12	30	33-165	
Methyl tert-butyl ether	47.8	20.9	44	8	30	51-157	F1
1,1,2-Trichloro-1,2,2-trifluoroethane	47.8	20.4	43	3	30	50-147	F1

Column to be used to flag recovery and RPD values

FORM III 8260B

FORM III
GC/MS VOA MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Canton Job No.: 240-67605-1

SDG No.:

Matrix: Solid Level: Low Lab File ID: UX85102.D

Lab ID: 240-67605-14 MSD Client ID: AOC1-12-20 MSD

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC	#
1,2,4-Trichlorobenzene	47.8	15.5	32	15	30	10-120	
1,2-Dichlorobenzene	47.8	19.3	40	17	30	17-122	
1,3-Dichlorobenzene	47.8	18.3	38	15	30	16-126	
1,4-Dichlorobenzene	47.8	18.3	38	14	30	15-121	
Trichlorofluoromethane	23.9	19.2	80	3	30	36-142	
Methylcyclohexane	47.8	19.9	42	7	30	20-132	
m-Xylene & p-Xylene	47.8	19.1	40	8	30	29-131	
o-Xylene	47.8	20.0	42	16	30	29-134	

Column to be used to flag recovery and RPD values

FORM III 8260B

Volatiles

Calculations for Field Duplicate Relative Percent Difference (RPD)
SDG No. 240-67605-1

S1= TMW-19 **S2=** TMW-23

Analyte	S1	S2	RPD (%)
chloroform	**0.62**	**0.76**	NC
trichloroethene	2.8	3.0	7%
1,1,2,2-tetrachloroethane	1.2	**0.74**	NC
tetrachloroethene	1.1	**0.99**	NC

* RPD is above the allowable maximum (20%)

All results are in ug/L

Bold numbers were values that below the CRQL or above the high standard.
ND - Not detected.
NC - Not calculated, both results must be within the linear range for valid RPDs to be calculated.

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M-2 QA/QC Review of Method 8270D Semi-Volatiles Data for TestAmerica North Canton, Job No: 240-67605-1

19 Soil Samples, 4 Ground Water Samples, and 2 Field Duplicates Collected on July 25-August 1, 2016

Prepared by: Donald Anné
September 9, 2016

Holding Times: Samples were extracted and analyzed within USEPA Region III holding times.

GC/MS Tuning and Mass Calibration: The DFTPP tuning criteria were within control limits.

Initial Calibration: The average RRFs for applicable compounds were above the method minimums and %RSDs were below the method maximum, as required.

The average RRFs for target compounds were above the allowable minimum (0.050) and the %RSDs were below the allowable maximum (30%), as required.

Continuing Calibration: The RRFs for applicable compounds were above the method minimums, as required. The %D for hexachlorocyclopentadiene was above the method maximums on 08-02-16 (CCV240-240798/2). The %D for benzidine was above the method maximum on 08-02-16 (CCV 240-240823/2). The %Ds for anthracene, carbazole, and benzidine were above the method maximum on 08-05-16 (CCV 240-241361/2D). The %Ds for hexachlorocyclopentadiene, 2,4-dinitrophenol, and benzidine were above the method maximums on 08-11-16 (CCV240-242104/2). No action is taken on fewer than 20% of the compounds with method criteria outside control limits per calibration.

The RRFs for target compounds were above the allowable minimum (0.050), as required.

The %Ds for anthracene and benzidine were above the allowable maximum (25%) on 08-05-16 (CCV 240-241361/2.D). The %D for hexachlorocyclopentadiene was above the allowable maximum (25%) on 08-11-16 (CCV 242104/2). Positive results for these compounds should be considered estimated (J) in associated samples.

Blanks: Method blank MB 240-240368/23-A contained a trace of bis(2-ethyhexyl)phthalate (21.9 ug/kg). Method blank MB 240-241145/23-A contained traces of bis(2-ethylhexyl)phthalate

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(35.0 ug/kg) and di-n-butyl phthalate (15.7 ug/kg). Method blank MB 240-241156/6-A contained traces of bis(2-ethylhexyl)phthalate (1.75 ug/L) and di-n-butyl phthalate (0.745 ug/L). Method blank MB 240-241745/17-A contained traces of bis(2-ethylhexyl)phthalate (53.1 ug/kg) and di-n-butyl phthalate (20.4 ug/kg). Positive results for bis(2-ethylhexyl)phthalate and di-n-butyl phthalate that are less than ten times the highest blank level should be qualified 'B' in associated samples.

Surrogate Recovery: Three of three base/neutral and 2 of 3 acid extractable surrogate recoveries for sample AOC11-03-20 were below control limits, but not below 10%. Positive and "not detected" results for sample AOC11-03-20 should be considered estimated, biased low (L or UL).

Two of three base/neutral surrogate recoveries for sample AOC11-03-20 RE were below control limits, but not below 10%. Positive and "not detected" results for base/neutral compounds should be considered estimated, biased low (L or UL) in sample AOC11-03-20.

Internal Standard Area Summary: The internal standard areas and retention times were within control limits.

Matrix Spike/Matrix Spike Duplicate: The relative percent differences for target compounds were below the allowable maximum and the percent recoveries were within QC limits for soil MS/MSD sample AOC1-12-20.

Laboratory Control Sample: The percent recoveries for target compounds were within QC limits for soil samples LCS 240-240182/24-A, LCS 240-240368/24-A, LCS 240-240982/14-A, LCS 240-241145/24-A, and LCS 240-241745/18-A, and aqueous sample LCS 240-241156/7-A.

Field Duplicate: The analyses of soil field duplicate pair AOC1-12-27.5/DUP-1 and aqueous field duplicate pair TMW-19/TMW-23 reported target compounds as either not detected or below the lowest standard; therefore, valid relative percent differences could not be calculated. The analyses for the soil field duplicate pair were acceptable.

Compound ID: Checked compounds were within GC quantitation limits. The mass spectra for detected compounds contained the primary and secondary ions, as outlined in the method.

Action Level Notification: The detected results for compounds with action levels were below the those levels for ground water samples in this data pack.

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M-2 QA/QC Review of Method 8082 PCB Data for TestAmerica North Canton, Job No: 240-67605-1

16 Soil Samples and 1 Field Duplicate Collected July 25-27, 2016

Prepared by: Donald Anné
September 9, 2016

Holding Times: Samples were extracted and analyzed within USEPA SW-846 holding times.

Blanks: The analysis of the method blank reported target aroclors as not detected.

Surrogate Recovery: The surrogate recoveries were within QC limits for the soil samples for both columns.

Matrix Spike/Matrix Spike Duplicate: The relative percent differences for aroclor-1016 and aroclor-1260 were below the allowable maximum and the percent recoveries were within QC limits for soil MS/MSD sample AOC1-12-20

Laboratory Control Sample: The relative percent differences for aroclor-1016 and aroclor-1260 were below the allowable maximum and the percent recoveries were within QC limits for soil samples LCS 240-240206/22-A and LCS 240-240386/13-A

Field Duplicates: The analyses of soil field duplicate pair AOC1-12-27.5/DUP-1 reported target aroclors as not detected; therefore, valid relative percent differences could not be calculated. The analyses for the soil field duplicate pair were acceptable.

Initial Calibration: The R-squared for target aroclors were above the allowable minimum (0.9900), as required.

Continuing Calibration: The average %Ds for target aroclors were below the allowable maximum (20%), as required.

Internal Standard Area Summary: The internal standard areas and retention times were within control limits.

PCB Identification Summary: Checked surrogates were within GC quantitation limits. The analyses of soil samples in this data pack reported target aroclors as not detected.

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IM-1 QA/QC Review of Metals Data for for TestAmerica North Canton, Job No: 240-67605-1

16 Soil Samples and 1 Field Duplicate Collected July 25-27, 2016

Prepared by: Donald Anné
September 9, 2016

Holding Times: Samples were analyzed within USEPA Region III holding times.

Initial and Continuing Calibration Verification: The percent recoveries for thallium were above control limits (90-110%), but not above 150%. Positive results for thallium should be considered estimated, biased high (K) in associated samples.

CRDL Standard: The percent recoveries for applicable metals were within laboratory QC limits (70-130% for all metals except 50-150% for Hg) in CRQL samples.

Blanks: The analyses of initial and continuing calibration, and method blanks reported target metals as below reporting limits.

ICP Interference Check Sample: The percent recoveries for target metals were within control limits (80-120%).

Spike Sample Recovery: Two of two percent recoveries (%Rs) for antimony were below control limits (75-125%), but not below 10% for soil MS/MSD samples AOC1-12-20 and AOC1-13-17.5. Positive and "not detected" results for antimony should be considered estimated, biased low (L) in associated soil samples.

One of two %Rs for manganese was below control limits (75-125%), but not below 10% and 1 of 2 %Rs for manganese was above control limits, but not above 200% for soil MS/MSD sample AOC1-13-17.5. Positive and "not detected" results for manganese should be considered estimated (J) in associated soil samples.

Duplicates: The relative percent differences for applicable compounds were below the allowable maximum (35%) for soil MS/MSD samples AOC1-12-20 and AOC1-13-17.5, as required.

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Field Duplicate: The relative percent differences for barium, chromium, iron, and manganese were above the allowable maximum (35%) for soil field duplicate pair AOC1-12-27.5/DUP-1 (attached table). Positive results for these metals should be considered estimated (J) in samples AOC1-12-27.5 and DUP-1.

Laboratory Control Sample: The percent recoveries for target metals were within control limits (80-120%) for aqueous samples LCS 240-240266/2-A, LCS 240-240266/3-A, 240-240434/3-A, LCS 240240282/2-A, and LCS 240-240459/2-A.

ICP Serial Dilution: The %Ds for applicable compounds were below the allowable maximum (10%) for soil serial dilution sample AOC1-13-17.5, as required.

The %Ds for aluminum, iron, and manganese wer above the allowable maximum (20%) for soil serial dilution sample AOC1-12-20. Positive results for these metals above the reporting limits should be considered estimated (J) in associated soil samples.

Instrument Detection Limits: The IDLs for target metals were at or below the reporting limits, as required.

Percent Solids (%S): The %S for soils were greater than 50%.

Action Level Notification: The detected results for lead were below the action level for soil samples in this data pack.

TAL Metals

Calculations for Field Duplicate Relative Percent Difference (RPD)
SDG No. 240-67605-1

S1= AOC1-12-27.5 **S2=** DUP-1

Analyte	S1	S2	RPD (%)	
aluminum	3100	3300	6%	
antimony	**0.072**	**0.064**	NC	
arsenic	5.1	4.4	15%	
barium	110	45	84%	*
beryllium	0.30	0.22	31%	
cadmium	**0.11**	**0.067**	NC	
calcium	350	340	3%	
chromium	5.9	11	60%	*
cobalt	5.7	4.3	28%	
copper	6.4	6.3	2%	
iron	16000	11000	37%	*
lead	4	4.4	7%	
magnesium	740	1000	30%	
manganese	910	340	91%	*
mercury	ND	ND	NC	
nickel	9.8	8.5	14%	
potassium	240	260	8%	
selenium	**0.73**	**0.51**	NC	
silver	**0.059**	**0.043**	NC	
sodium	**37**	**32**	NC	
thallium	**0.051**	**0.041**	NC	
vanadium	7.6	8.0	5%	
zinc	23	23	0%	

* RPD is above the allowable maximum (35%)

All results are in units of mg/kg.

Bold numbers were values that below the CRDL.
ND - Not detected.

NC - Not calculated, both results must be above the CRDL for valid RPDs to be calculated.

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September 21, 2016

Mr. Joe McKeon
Senior Scientist
ELM Site Solutions, Inc.
980 Macintosh Dr.
Rochester, New York 14626

Re: Data Validation Report
EPA Region III, Corrective Action
BASF Huntington, West Virginia
August 2016 Soil and Ground Water Sampling Events

Dear Mr. McKeon:

The data validation summaries for the BASF Huntington, West Virginia project are attached to this letter. The August 2016 soil and ground water sampling data for TestAmerica North Canton, job number 240-67954-1 were acceptable with some issues that are identified in the validation summaries. There were semi-volatile data that were rejected (R) in the data pack. This was due to compounds with low percent recoveries in MS/MSD samples. The data is rejected based solely on the validation guidance criteria. The rejected data may be determined to be acceptable to the user based on additional information that is not contained in the data validation criteria.

A list of data validation acronyms and qualifiers is attached to assist you in interpreting the data validation reviews. If you have any questions concerning the work performed, please contact me at (518) 348-6995. Thank you for the opportunity to assist Environmental Liability Management, Inc.

Sincerely,
Alpha Geoscience

Donald Anné

Donald Anné
Senior Chemist

DCA:dca
attachments

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Data Validation Acronyms

AA	Atomic absorption, flame technique
BHC	Hexachlorocyclohexane
BFB	Bromofluorobenzene
CCB	Continuing calibration blank
CCC	Calibration check compound
CCV	Continuing calibration verification
CN	Cyanide
CRDL	Contract required detection limit
CRQL	Contract required quantitation limit
CVAA	Atomic adsorption, cold vapor technique
DCAA	2,4-Dichlophenylacetic acid
DCB	Decachlorobiphenyl
DFTPP	Decafluorotriphenyl phosphine
ECD	Electron capture detector
FAA	Atomic absorption, furnace technique
FID	Flame ionization detector
FNP	1-Fluoronaphthalene
GC	Gas chromatography
GC/MS	Gas chromatography/mass spectrometry
GPC	Gel permeation chromatography
ICB	Initial calibration blank
ICP	Inductively coupled plasma-atomic emission spectrometer
ICV	Initial calibration verification
IDL	Instrument detection limit
IS	Internal standard
LCS	Laboratory control sample
LCS/LCSD	Laboratory control sample/laboratory control sample duplicate
MSA	Method of standard additions
MS/MSD	Matrix spike/matrix spike duplicate
PID	Photo ionization detector
PCB	Polychlorinated biphenyl
PCDD	Polychlorinated dibenzodioxins
PCDF	Polychlorinated dibenzofurans
QA	Quality assurance
QC	Quality control
RF	Response factor
RPD	Relative percent difference
RRF	Relative response factor
RRF(number)	Relative response factor at concentration of the number following
RT	Retention time
RRT	Relative retention time
SDG	Sample delivery group
SPCC	System performance check compound
TCX	Tetrachloro-m-xylene
%D	Percent difference
%R	Percent recovery
%RSD	Percent relative standard deviation

Data Validation Qualifiers Used in the QA/QC Reviews for USEPA Region III

U	=	Not detected. The associated number indicates the approximate sample concentration necessary to be detected.
B	=	Not detected substantially above the level reported in the laboratory or field blanks.
R	=	Unreliable result; data is rejected or unusable. Analyte may or may not be present in the sample. Supporting data is necessary to confirm the result.
N	=	Tentative identification. Analyte is considered present. Special methods may be needed to confirm its presence or absence during future sampling efforts.
J	=	Analyte is present. Reported value may not be accurate or precise.
K	=	Analyte is present. Reported value may be biased high. Actual value is expected to be lower.
L	=	Analyte is present. Reported value may be biased low. Actual value is expected to be higher.
UJ	=	Not detected, quantitation limit may be inaccurate or imprecise.
UL	=	Not detected, quantitation limit is probably higher.

Note: These qualifiers are used for data validation purposes. The data validation qualifiers may differ from the qualifiers that the laboratory assigns to the data. Refer to the laboratory analytical report for the definitions of the laboratory qualifiers.

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M-2 QA/QC Review of Method 8260B Volatiles Data for TestAmerica North Canton, Job No: 240-67954-1

36 Soil Samples, 3 Ground Water Samples, 1 Field Duplicate, 5 Equipment Blanks, and 6 Trip Blanks Collected on August 3-22, 2016

Prepared by: Donald Anné
September 21, 2016

Holding Times: Samples were analyzed within USEPA Region III holding times.

GC/MS Tuning and Mass Calibration: The BFB tuning criteria were within control limits.

Initial Calibration: The SPCCs and CCCs were within control limits, per method 8260B.

The average RRFs for target compounds were above the allowable minimum (0.010) and the %RSDs were below the allowable maximum (30%), as required.

Continuing Calibration: The SPCCs and CCCs were within control limits, per method 8260B.

The RRFs for target compounds were above the allowable minimum (0.010), as required.

The %Ds for chloromethane, bromomethane, chloroethane, trichlorofluoromethane, bromoform, 1,1,2,2-tetrachloroethane, and 1,2,4-trichlorobenzene were above the allowable maximum (25%) on 08-09-16 (UXR3733.D). The %Ds for chloromethane, acetone, methyl acetate, and 2-butanone were above the allowable maximum (25%) on 08-09-16 (UX85258.D). The %D for 2-butanone was above the allowable maximum (25%) on 08-11-16 (UX85321.D). The %Ds for methyl acetate and 2-butanone were above the allowable maximum (25%) on 08-12-16 (UX85356.D). The %Ds for methyl acetate and 2-butanone were above the allowable maximum (25%) on 08-13-16 (UX85379.D). The %Ds for acetone, methyl acetate, and 2-butanone were above the allowable maximum (25%) on 08-14-16 (UX85414.D). The %Ds for chloromethane, bromomethane, acetone, methyl acetate, 2-butanone, 4-methyl-2-pentanone, and 2-hexanone were above the allowable maximum (25%) on 08-16-16 (UXX7551.D). The %Ds for bromomethane and chloroethane were above the allowable maximum (25%) on 08-16-16 (UXC7330.D). The %Ds for trichlorofluoromethane and 1,2,4-trichlorobenzene were above the allowable maximum (25%) on 08-16-16 (UXC7376.D). The %Ds for chloromethane, bromomethane, trichlorofluoromethane, 1,1,2-trichloro-1,2,2-trifluoroethane, 1,1,1-trichloroethane, carbon tetrachloride, and bromoform were above the allowable maximum (25%) on 08-18-16 (UXR3932.D). The %Ds for bromomethane, chloroethane, and 1,2-dibromo-3-chloropropane were above the allowable maximum (25%) on 08-26-16 (UXX7742.D). The

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%Ds for acetone and 2-butanone were above the allowable maximum (25%) on 08-31-16 (UX85783.D). Positive results for these compounds should be considered estimated (J) in associated samples.

Blanks: Method blank MB 240-241828/1-A contained a trace of 2-butanone (73.5 ug/kg). Method blank MB 240-241854/2-A contained a trace of 1,2,4-trichlorobenzene (1.02 ug/kg). Method blank MB 240-24500/6 contained a trace of 1,2,4-trichlorobenzene (0.546 ug/kg). Equipment blank EB-06 contained traces of acetone (3.0 ug/L), bromomethane (0.50 ug/L), and 1,2,4-trichlorobenzene (0.47 ug/L). Equipment blank EB-08 contained a trace of acetone (1.8 ug/L). Equipment blank EB-09 contained traces of acetone (4.8 ug/L) and chloromethane (0.58 ug/L). TRIP BLANK-04 contained a trace of acetone (4.8 ug/L) and 1,2,4-trichlorobenzene (1.6 ug/L). TRIP BLANK (8/4) contained a trace of acetone (2.8 ug/L). TRIP BLANK-06 contained a trace of acetone (1.5 ug/L). TRIP BLANK (TB-07) contained a trace of acetone (7.4 ug/L). TRIP BLANK (TB-08) contained a trace of acetone (4.8 ug/L). TRIP BLANK-13 contained a trace of acetone (5.8 ug/L). Positive results for acetone and 2-butanone that are less than ten times the highest blank level should be qualified 'B' in associated samples. Positive results for all other compounds that are less than five times the highest blank level should be qualified 'B' in associated samples.

Internal Standard Area Summary: The internal standard areas and retention times were within control limits.

Surrogate Recovery: The surrogates for samples AOC2-22-13.5, AOC2-25-15, AOC2-18B-15, AOC2-36-10, AOC2-40-17.5, and AOC2-41-20 were diluted beyond quantitation limits. No action is taken on surrogates diluted beyond quantitation limits.

Four of four surrogate recoveries for sample AOC2-17B-11.5 and AOC2-31-10 were above control limits. Three of four surrogate recoveries for sample AOC2-34-12.5 were above control limits. One of four surrogate recoveries for samples AOC2-33-12.5, DUP-02, and AOC2-40-10 was above control limits. Positive results for these samples should be considered estimated, high (K).

Matrix Spike/Matrix Spike Duplicate: The relative percent differences (RPDs) for target compounds were below the allowable maximum and the percent recoveries were within QC limits for soil MS/MSD sample AOC2-32-12.5.

The RPD for bromomethane was above the allowable maximum and 2 of 2 %Rs for acetone and 1 of 2 %Rs for 2-hexanone, 2-butanone, and methyl acetate were above QC limits for aquoeus MS/MSD sample TMW-25. Positive results for these compounds should be considered estimated or estimated, biased high (J or K). Sample TMW-25 reported these compounds as "not detected"; therefore, no action is taken.

The RPDs for target compounds were below the allowable maximum, but 2 of 2 %Rs for 1,2,4-trichlorobenzene were above QC limits for soil MS/MSD sample AOC2-04B-25. The positive result for 1,2,4-trichlorobenzene should be considered estimated, biased high (K) in sample AOC2-04B-25.

Laboratory Control Sample: The percent recoveries (%Rs) for target compounds were within QC limits for soil samples LCS 240-241980/2-A, LCS 240-2420496/6, LCS 240-242101/2-A, LCS 240-242223/6, LCS 240-242410/6, LCS 240-242455/5, LCS 240-244167/2-A and LCS 240-245000/5. The %Rs for target compounds were within QC limits for aqueous samples LCS 240-242628/4 and LCS 240-244505/4.

The %R for 1,1,2,2-tetrachloroethane was above QC limits for soil sample LCS 240-241405/2-A. The %Rs for 1,2-dichloroethane and ethylene bromide were above QC limits for soil sample LCS 240-241828/2-A. Positive results for these compounds should be considered estimated, biased high (K) in associated soil samples.

The %Rs for bromoform, bromomethane, carbon tetrachloride, and trichlorofluoromethane were above QC limits for aqueous sample LCS 240-241809/4. The %Rs for 1,2-dichloroethane, acetone, 2-hexanone, 2-butanone, and methyl acetate were above QC limits for aqueous sample LCS 240-242662/4. The %R for 1,2,4-trichlorobenzene was above QC limits for aqueous sample LCS 240-242861/4. The %R for bromomethane was above QC limits for aqueous sample LCS 240-243233/4. Positive results for these compounds should be considered estimated, biased high (K) in associated aqueous samples.

Field Duplicates: The relative percent difference for trichloroethene was below the allowable maximum (35%) for soil field duplicate pair AOC2-33-12.5/DUP-02 (attached table), as required.

Compound ID: Checked compounds and surrogates were within GC quantitation limits. The mass spectra for detected compounds contained the primary and secondary ions, as outlined in the method.

Action Level Notification: The action levels for ethylbenzene, toluene, and xylenes were exceeded in samples TMW-32 and TMW-34.

Volatiles

Calculations for Field Duplicate Relative Percent Difference (RPD)
SDG No. 240-67954-1

S1= AOC2-33-12.5 **S2=** DUP-02

Analyte	S1	S2	RPD (%)
1,2-dichloroethane	ND	**12**	NC
benzene	**47**	**34**	NC
cis-1,2-dichloroethene	**47**	**53**	12%
methyl acetate	**78**	**72**	NC
trichloroethene	1800	1800	0%

* RPD is above the allowable maximum (35%)

All results are in ug/kg.

Bold numbers were values that below the CRQL or above the high standard.
ND - Not detected.
NC - Not calculated, both results must be above the CRDL for valid RPDs to be calculated.

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M-2 QA/QC Review of Method 8270D Semi-Volatiles Data for TestAmerica North Canton, Job No: 240-67954-1

57 Soil Samples, 3 Ground Water Samples, and 1 Field Duplicate Collected on August 3-22, 2016

Prepared by: Donald Anné
September 21, 2016

Holding Times: Sample TMW-37RE was re-extracted beyond within USEPA Region III holding times. The positive and "not detected" results for sample TMW-37RE should be considered estimated, biased low (L or UL).

GC/MS Tuning and Mass Calibration: The DFTPP tuning criteria were within control limits.

Initial Calibration: The average RRFs for applicable compounds were above the method minimums and %RSDs were below the method maximum, as required.

The average RRFs for target compounds were above the allowable minimum (0.050) and the %RSDs were below the allowable maximum (30%), as required.

Continuing Calibration: The RRFs for applicable compounds were above the method minimums, as required. The %D for 2,4-dinitrophenol was above the method maximum on 08-09-16 (CCV240-241849/2). The %D for hexachlorocyclopentadiene was above the method maximum on 08-12-16 (CCV 240-242278/2). The %Ds for 2,4-dinitrophenol and 4,6-dinitro-2-methylphenol were above the method maximum on 08-17-16 (CCV 240-242913/2). The %Ds for 2,4-dinitrophenol, hexachlorocyclopentadiene, and 4,6-dinitro-2-methylphenol were above the method maximum on 08-18-16 (CCV240-243170/2). The %Ds for 2,4-dinitrophenol and 4,6-dinitro-2-methylphenol were above the method maximum on 08-20-16 (STD6 240-243475/2). The %D for benzo(b)fluorathene was above the method maximum on 08-22-16 (CCV 240-243606/22). The %D for 2,4-dinitrophenol was above the method maximum on 08-29-16 (STD6 240-244606/22). The %D for 2,4-dinitrophenol was above the method maximum on 09-02-16 (STD6 240-2445301/2). No action is taken on fewer than 20% of the compounds with method criteria outside control limits per calibration.

The RRFs for target compounds were above the allowable minimum (0.050), as required.

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The %D for benzidine was above the allowable maximum (25%) on 08-17-16 (CCV 240-242913/2). The %Ds for 1,4-dioxane and 2,4-dinitrophenol were above the allowable maximum (25%) on 08-18-16 (CCV 240-243170/2.D). The %Ds for 4,6-dinitro-2-methylphenol and benzidine were above the allowable maximum (25%) on 08-20-16 (STD6 240-243475/2.D). The %D for 3,3'-dimethyloxybenzidine was above the allowable maximum (25%) on 08-20-16 (STD6240-243475/4). The %D for benzidine was above the allowable maximum (25%) on 08-22-16 (CCV 240-243606/2). The %D for benzidine was above the allowable maximum (25%) on 08-24-16 (ICV 240-243999/11). The %D for 2,4-dinitrophenol was above the allowable maximum (25%) on 08-29-16 (CCV 240-244208/2.D). The %D for 2,4-dinitrophenol were above the allowable maximum (25%) on 09-02-16 (STD6 240-245301/2). Positive results for these compounds should be considered estimated (J) in associated samples.

Blanks: Method blank MB 240-241374/23-A contained a trace of di-n-butyl phthalate (31.4 ug/kg). Method blank MB 240-241726/16-A contained traces of bis(2-ethylhexyl)phthalate (3.17 ug/L) and di-n-butyl phthalate (2.05 ug/L). Method blank MB 240-241738/13-A contained a trace of bis(2-ethylhexyl)phthalate (44.8 ug/kg). Method blank MB 240-242267/23-A contained traces of bis(2-ethylhexyl)phthalate (27.6 ug/kg) and di-n-butyl phthalate (15.1 ug/kg). Method blank MB 240-242732/2-A contained a trace of caprolactam (0.502 ug/L). Positive results for bis(2-ethylhexyl)phthalate and di-n-butyl phthalate that are less than ten times the highest blank level should be qualified 'B' in associated samples. Positive results for caprolactam that are less than five times the highest blank level should be qualified 'B' in associated samples.

Surrogate Recovery: Surrogates for sample AOC2-28-5 were diluted beyond detection limits. No action is taken on surrogate diluted beyond detection limits.

One of three base/neutral surrogate recoveries for sample AOC2-28-5 RA was below control limits, but not below 10%. One of three acid extractable surrogate recoveries for samples AOC2-36-10, AOC2-38-12.5, and TMW-37 was below control limits, but not below 10%. No action is taken on one surrogate recovery per fraction outside control limits, provided no recovery is less than 10%.

Three of three base/neutral surrogate recoveries for sample AOC2-38-12.5 were below control limits, but not below 10%. Positive and "not detected" base/neutral results for sample AOC2-38-12.5 should be considered estimated, biased low (L or UL).

Internal Standard Area Summary: The internal standard areas and retention times were within control limits.

Matrix Spike/Matrix Spike Duplicate: The relative percent differences (RPDs) for target compounds were below the allowable maximum; 1 of 2 percent recoveries (%Rs) for benzaldehyde was below QC limits, but not below 10%; and 2 of 2 %Rs for hexachlorocyclopentadiene were below QC limits and below 10% for soil MS/MSD sample AOC2-27-15. The "not detected" result for benzaldehyde should be considered estimated, biased low(UL) and the "not detected" result for hexachlorocylopentadiene rejected, unusable (R) in sample AOC2-27-15.

The RPDs for 2-methylphenol, 4,6-dinitro-2-methylphenol, 4-chlorophenyl phenyl ether, acenaphthylene, benzaldehyde, and hexachloroethane were above the allowable maximum; 1 of 2 %Rs for 2-chloronaphthalene, 2-nitrophenol, dibenzofuran, and 2,6-dinitrotoluene were below QC limits, but not below 10%; and 2 of 2 %Rs for hexachlorocyclopentadiene and 1 of 2 %Rs for 2,4-dinitrophenol and 4,6-dinitro-2-methylphenol were below QC limits and below 10% for soil MS/MSD sample AOC2-32-12.5. The "not detected" results for 2-chloronaphthalene, 2-nitrophenol, dibenzofuran, and 2,6-dinitrotoluene should be considered estimated, biased low(UL) and the "not detected" results for hexachlorocylopentadiene, 2,4-dinitrophenol, and 4,6-dinitro-2-methylphenol rejected, unusable (R) in sample AOC2-32-12.5.

The RPD for 3,3'-dichlorobenzidine was above the allowable maximum and 2 of 2 %Rs for hexachlorocyclopentadiene were below QC limits and below 10% for soil MS/MSD sample AOC2-38-20. The "not detected" result for hexachlorocylopentadiene should be considered rejected, unusable (R) in sample AOC2-38-20.

The RPDs for 9 compounds (circled on attached form III) were above the allowable maximum; 1 or 2 %Rs for 4 compounds were below QC limits, but not below 10%; and 1 or 2 %Rs for 2 compounds were below QC limits and below 10% for soil MS/MSD sample AOC2-04B-25. The "not detected" results for 3&4-methylphenol, 2-methylphenol, 4-nitrophenol, and phenol should be considered estimated, biased low(UL) and the "not detected" results for hexachlorocylopentadiene and 4-chloro-3-methylphenol rejected, unusable (R) in sample AOC2-04B-25.

Laboratory Control Sample: The relative percent differences for target compounds were below the allowable maximum and the percent recoveries were within QC limits for aqueous samples LCS 240-241726/17-A and LCSD 240-241726/18-A.

The %Rs for target compounds were within QC limits for soil samples LCS 240-241374/24-A, LCS 240-241738/14-A, LCS 240-242105/24-A, LCS 240-242106/24-A, LCS 240-242267/24-A, LCS 240-242566/17-A, and LCS 240-243989/16-A, and aqueous samples LCS 460-242732/7-A and LCS 240240-245146/12-A.

The %R for dimethyl phthalate was below QC limits, but not below 10% for aqueous sample LCS 240-244046/6-A. Positive and "not detected" results for dimethyl phthalate should be considered estimated, biased low (L or UL) in associated aqueous samples.

Field Duplicate: The analyses of soil field duplicate pair AOC2-33-12.5/DUP-02 reported target compounds as either not detected or below the lowest standard; therefore, valid relative percent differences could not be calculated. The analyses for the soil field duplicate pair were acceptable.

Compound ID: Checked compounds were within GC quantitation limits. The mass spectra for detected compounds contained the primary and secondary ions, as outlined in the method.

Action Level Notification: The detected results for compounds with action levels were below the those levels for ground water samples in this data pack.

FORM III
GC/MS SEMI VOA MATRIX SPIKE RECOVERY

Lab Name: TestAmerica Canton Job No.: 240-67954-1

SDG No.:

Matrix: Solid Level: Low Lab File ID: 60828029.D

Lab ID: 240-68618-2 MS Client ID: AOC2-04B-25 MS

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC	QC LIMITS REC	#
1,1'-Biphenyl	707	ND	490	69	42-120	
1,2-Diphenylhydrazine(as Azobenzene)	707	ND	485	69	10-120	
1,4-Dioxane	707	ND	251	36	10-120	
2,4,6-Trichlorophenol	707	ND	391	55	14-120	
2,4,5-Trichlorophenol	707	ND	173	24	19-120	
2,4-Dichlorophenol	707	ND	447	63	40-120	
2,4-Dimethylphenol	707	ND	275	39	21-120	
2,4-Dinitrophenol	1410	ND	757	54	10-120	
2,4-Dinitrotoluene	707	ND	552	78	49-120	
2-Chloronaphthalene	707	ND	495	70	42-120	
2-Chlorophenol	707	ND	417	59	35-120	
2-Methylnaphthalene	707	ND	497	70	29-120	
2-Methylphenol	707	ND	224	32	29-120	
2-Nitroaniline	707	ND	515	73	43-120	
2-Nitrophenol	707	ND	498	70	31-120	
3 & 4 Methylphenol	707	ND	230 J	33	35-120	F1
3,3'-Dichlorobenzidine	1410	ND	794	56	10-120	
3-Nitroaniline	707	ND	423	60	11-120	
4,6-Dinitro-2-methylphenol	1410	ND	828	59	10-120	
4-Bromophenyl phenyl ether	707	ND	529	75	41-120	
4-Chloro-3-methylphenol	707	ND	203	29	24-120	
4-Chloroaniline	707	ND	313	44	11-120	
4-Chlorophenyl phenyl ether	707	ND	529	75	49-120	
4-Nitroaniline	707	ND	467	66	21-121	
Acenaphthene	707	ND	497	70	42-120	
Acenaphthylene	707	ND	501	71	43-120	
Acetophenone	707	ND	434	61	37-120	
Aniline	707	ND	360	51	10-120	
Anthracene	707	ND	522	74	39-120	
Atrazine	1410	ND	1110	78	51-120	
Benzaldehyde	1410	ND	922	65	37-120	
Benzo[a]anthracene	707	ND	517	73	33-122	
Benzo[a]pyrene	707	ND	530	75	33-124	
Benzo[b]fluoranthene	707	ND	549	78	35-125	
Benzo[g,h,i]perylene	707	ND	326	46	10-135	
Benzo[k]fluoranthene	707	ND	582	82	33-128	
Bis(2-chloroethoxy)methane	707	ND	481	68	40-120	
Bis(2-chloroethyl)ether	707	ND	462	65	26-120	
Bis(2-ethylhexyl) phthalate	707	ND	526	74	43-123	
Butyl benzyl phthalate	707	ND	521	74	44-120	
Caprolactam	1410	ND	1070	76	52-120	

Column to be used to flag recovery and RPD values

FORM III 8270D

FORM III
GC/MS SEMI VOA MATRIX SPIKE RECOVERY

Lab Name: TestAmerica Canton Job No.: 240-67954-1

SDG No.:

Matrix: Solid Level: Low Lab File ID: 60828029.D

Lab ID: 240-68618-2 MS Client ID: AOC2-04B-25 MS

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC	QC LIMITS REC	#
Carbazole	707	ND	478	68	42-120	
Chrysene	707	ND	514	73	30-128	
Di-n-butyl phthalate	707	ND	540	76	47-120	
Di-n-octyl phthalate	707	ND	627	89	27-143	
Dibenz(a,h)anthracene	707	ND	375	53	29-121	
Dibenzofuran	707	ND	509	72	47-120	
Diethyl phthalate	707	ND	524	74	51-120	
Dimethyl phthalate	707	ND	530	75	51-120	
Fluoranthene	707	ND	535	76	35-125	
Fluorene	707	ND	515	73	45-120	
Hexachlorobenzene	707	ND	532	75	37-120	
Hexachlorobutadiene	707	ND	508	72	33-120	
Hexachlorocyclopentadiene	707	ND	33.6 J	5	10-120	F1
Hexachloroethane	707	ND	299	42	23-120	
Indeno[1,2,3-cd]pyrene	707	ND	373	53	20-128	
Isophorone	707	ND	476	67	39-120	
N-Nitrosodi-n-propylamine	707	ND	484	68	38-120	
N-Nitrosodiphenylamine	707	ND	499	71	45-120	
Naphthalene	707	ND	467	66	32-120	
Nitrobenzene	707	ND	481	68	38-120	
Pentachlorophenol	1410	ND	397	28	10-120	
Phenanthrene	707	ND	509	72	43-120	
Phenol	707	ND	213	30	30-120	
Pyrene	707	ND	509	72	41-122	
bis (2-chloroisopropyl) ether	707	ND	434	61	26-120	
2,6-Dinitrotoluene	707	ND	534	76	51-120	
4-Nitrophenol	1410	ND	635	45	29-120	

Column to be used to flag recovery and RPD values

FORM III 8270D

FORM III
GC/MS SEMI VOA MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Canton Job No.: 240-67954-1

SDG No.:

Matrix: Solid Level: Low Lab File ID: 60828030.D

Lab ID: 240-68618-2 MSD Client ID: AOC2-04B-25 MSD

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC	#
1,1'-Biphenyl	703	404	57	19	36	42-120	
1,2-Diphenylhydrazine(as Azobenzene)	703	380	54	24	40	10-120	
1,4-Dioxane	703	182	26	32	40	10-120	
2,4,6-Trichlorophenol	703	303	43	26	40	14-120	
2,4,5-Trichlorophenol	703	137 J	20	23	40	19-120	
2,4-Dichlorophenol	703	337	48	28	37	40-120	
2,4-Dimethylphenol	703	150 J	21	59	37	21-120	F2
2,4-Dinitrophenol	1410	676	48	11	40	10-120	
2,4-Dinitrotoluene	703	442	63	22	28	49-120	
2-Chloronaphthalene	703	405	58	20	36	42-120	
2-Chlorophenol	703	348	49	18	40	35-120	
2-Methylnaphthalene	703	407	58	20	40	29-120	
2-Methylphenol	703	138 J	20	48	40	29-120	F1 F2
2-Nitroaniline	703	409	58	23	33	43-120	
2-Nitrophenol	703	408	58	20	40	31-120	
3 & 4 Methylphenol	703	159 J	23	37	40	35-120	F1
3,3'-Dichlorobenzidine	1410	594	42	29	40	10-120	
3-Nitroaniline	703	355	51	17	40	11-120	
4,6-Dinitro-2-methylphenol	1410	709	50	15	40	10-120	
4-Bromophenyl phenyl ether	703	408	58	26	25	41-120	F2
4-Chloro-3-methylphenol	703	47.1 J	7	125	40	24-120	F1 F2
4-Chloroaniline	703	314	45	0	40	11-120	
4-Chlorophenyl phenyl ether	703	431	61	20	27	49-120	
4-Nitroaniline	703	351	50	28	36	21-121	
Acenaphthene	703	396	56	23	40	42-120	
Acenaphthylene	703	403	57	22	31	43-120	
Acetophenone	703	367	52	17	40	37-120	
Aniline	703	315 J	45	13	40	10-120	
Anthracene	703	399	57	27	40	39-120	
Atrazine	1410	842	60	27	25	51-120	F2
Benzaldehyde	1410	761	54	19	40	37-120	
Benzo[a]anthracene	703	395	56	27	40	33-122	
Benzo[a]pyrene	703	415	59	24	40	33-124	
Benzo[b]fluoranthene	703	446	63	21	40	35-125	
Benzo[g,h,i]perylene	703	230	33	35	40	10-135	
Benzo[k]fluoranthene	703	466	66	22	38	33-128	
Bis(2-chloroethoxy)methane	703	388	55	21	40	40-120	
Bis(2-chloroethyl)ether	703	382	54	19	40	26-120	
Bis(2-ethylhexyl) phthalate	703	389	55	30	27	43-123	F2
Butyl benzyl phthalate	703	401	57	26	25	44-120	F2
Caprolactam	1410	847	60	24	28	52-120	

Column to be used to flag recovery and RPD values

FORM III 8270D

FORM III
GC/MS SEMI VOA MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Canton Job No.: 240-67954-1

SDG No.:

Matrix: Solid Level: Low Lab File ID: 60828030.D

Lab ID: 240-68618-2 MSD Client ID: AOC2-04B-25 MSD

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC	#
Carbazole	703	379	54	23	38	42-120	
Chrysene	703	390	55	27	40	30-128	
Di-n-butyl phthalate	703	411	58	27	24	47-120	F2
Di-n-octyl phthalate	703	499	71	23	29	27-143	
Dibenz(a,h)anthracene	703	261	37	36	39	29-121	
Dibenzofuran	703	415	59	20	35	47-120	
Diethyl phthalate	703	412	59	24	26	51-120	
Dimethyl phthalate	703	423	60	22	29	51-120	
Fluoranthene	703	419	60	24	36	35-125	
Fluorene	703	412	59	22	39	45-120	
Hexachlorobenzene	703	420	60	24	25	37-120	
Hexachlorobutadiene	703	409	58	22	40	33-120	
Hexachlorocyclopentadiene	703	30.1 J	4	11	40	10-120	F1
Hexachloroethane	703	244	35	21	40	23-120	
Indeno[1,2,3-cd]pyrene	703	264	38	34	36	20-128	
Isophorone	703	383	54	22	40	39-120	
N-Nitrosodi-n-propylamine	703	398	57	19	40	38-120	
N-Nitrosodiphenylamine	703	387	55	25	24	45-120	F2
Naphthalene	703	383	54	20	40	32-120	
Nitrobenzene	703	385	55	22	40	38-120	
Pentachlorophenol	1410	362	26	9	40	10-120	
Phenanthrene	703	397	56	25	34	43-120	
Phenol	703	140	20	41	40	30-120	F1 F2
Pyrene	703	388	55	27	35	41-122	
bis (2-chloroisopropyl) ether	703	363	52	18	40	26-120	
2,6-Dinitrotoluene	703	435	62	20	30	51-120	
4-Nitrophenol	1410	340 J	24	61	40	29-120	F1 F2

Column to be used to flag recovery and RPD values

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M-2 QA/QC Review of Method 8082 PCB Data for TestAmerica North Canton, Job No: 240-67954-1

22 Soil Samples and 1 Ground Water Sample Collected August 8 and 9, 2016

Prepared by: Donald Anné
September 21, 2016

Holding Times: Samples were extracted and analyzed within USEPA SW-846 holding times.

Blanks: The analyses of the method blanks reported target aroclors as not detected.

Surrogate Recovery: One of two surrogate recoveries for samples AOC2-18B-15, AOC2-36-10, and TMW-25 was above QC limits. Positive results for these samples should be considered estimated, biased high (K).

Laboratory Control Sample: The percent recoveries for aroclor-1016 and aroclor-1260 were within QC limits for soil samples LCS 240-242121/24-A, LCS 242259/24-A, LCS 240-242297/24-A, and LCS 240-242733/24-A, and aqueous sample LCS 240-242224/12-A

Initial Calibration: The R-squared for target aroclors were above the allowable minimum (0.9900), as required.

Continuing Calibration: The average %Ds for target aroclors were below the allowable maximum (20%), as required.

Internal Standard Area Summary: The internal standard areas and retention times were within control limits.

PCB Identification Summary: Checked surrogates were within GC quantitation limits. The RPDs for dual column quantitation of detected arolcors were below the laboratory allowable maximum (50%), as required.

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IM-1 QA/QC Review of Metals Data for for TestAmerica North Canton, Job No: 240-67954-1

36 Soil Samples and 1 Ground Water Sample Collected August 4-22, 2016

Prepared by: Donald Anné
September 21, 2016

Holding Times: Samples were analyzed within USEPA Region III holding times.

Initial and Continuing Calibration Verification: The percent recoveries for target metals were within control limits (80-120% for Hg, 90-110% for all other metals).

CRDL Standard: The percent recoveries for applicable metals were within laboratory QC limits (70-130% for all metals except 50-150% for Hg) in CRQL samples.

Blanks: The analyses of initial and continuing calibration, and method blanks reported target metals as below reporting limits.

ICP Interference Check Sample: The percent recoveries for target metals were within control limits (80-120%).

Spike Sample Recovery: Two of two percent recoveries (%Rs) for antimony were below control limits (75-125%), but not below 10% for soil MS/MSD samples AOC2-18B-25, AOC2-39-10, and AOC2-04B-7.5. Positive and "not detected" results for antimony should be considered estimated, biased low (L) in associated soil samples.

Two of two %Rs for aluminum were above control limits (75-125%) for soil MS/MSD sample AOC2-18B-25. Two of two %Rs for aluminum and calcium were above control limits (75-125%) for soil MS/MSD sample AOC2-39-10. One of two %Rs for barium was above control limits (75-125%) for soil MS/MSD sample AOC2-04B-7.5. Positive results for aluminum should be considered estimated, biased high (K) in associated soil samples.

Duplicates: The relative percent differences (RPDs) for applicable compounds were below the allowable maximum (35%) for soil MS/MSD sample AOC2-18B-25, as required.

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The RPDs for barium were above the allowable maximum (35%) for soil MS/MSD samples AOC2-39-10 and AOC2-04B-7.5. Positive results for barium should be considered estimated (J) in associated soil samples.

Laboratory Control Sample: The percent recoveries for target metals were within control limits (80-120%) for aqueous samples LCS 240-242138/2-A and LCS 240-242144/2-A and the following soil samples.

LCS 240-241779/3-A	LCS 240-242266/2-A	LCS 240-242620/3-A
LCS 240-242802/3-A	LCS 240-244076/2-A	LCS 240-244076/3-A
LCS 240-241793/2-A	LCS 240-242283/2-A	LCS 240-242630/2-A
LCS 240-242817/2-A	LCS 240-244101/2-A	

ICP Serial Dilution: The %Ds for applicable compounds were below the allowable maximum (10%) for soil serial dilution samples AOC2-18B-25 AOC2-39-10, and AOC2-04B-7.5, as required.

Instrument Detection Limits: The IDLs for target metals were at or below the reporting limits, as required.

Percent Solids (%S): The %S for soils were greater than 50%.

Action Level Notification: The level of lead in sample AOC2-28-5 (1300 mg/kg) was above the action level (500 mg/kg).

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September 16, 2016

Mr. Joe McKeon
Senior Scientist
ELM Site Solutions, Inc.
980 Macintosh Dr.
Rochester, New York 14626

Re: Data Validation Report
EPA Region III, Corrective Action
BASF Huntington, West Virginia
August 2016 Soil and Ground Water Sampling Events

Dear Mr. McKeon:

The data validation summaries for the BASF Huntington, West Virginia project are attached to this letter. The August 2016 soil and ground water sampling data for TestAmerica North Canton, job number 240-68448-1 were acceptable with some minor issues that are identified in the validation summaries. There were semi-volatile data that were rejected (R) in the data pack. This was due to low surrogate recoveries. The data is rejected based solely on the validation guidance criteria. The rejected data may be determined to be acceptable to the user based on additional information that is not contained in the data validation criteria.

A list of data validation acronyms and qualifiers is attached to assist you in interpreting the data validation reviews. If you have any questions concerning the work performed, please contact me at (518) 348-6995. Thank you for the opportunity to assist Environmental Liability Management, Inc.

Sincerely,
Alpha Geoscience

Donald Anné

Donald Anné
Senior Chemist

DCA:dca
attachments

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Data Validation Acronyms

AA	Atomic absorption, flame technique
BHC	Hexachlorocyclohexane
BFB	Bromofluorobenzene
CCB	Continuing calibration blank
CCC	Calibration check compound
CCV	Continuing calibration verification
CN	Cyanide
CRDL	Contract required detection limit
CRQL	Contract required quantitation limit
CVAA	Atomic adsorption, cold vapor technique
DCAA	2,4-Dichlophenylacetic acid
DCB	Decachlorobiphenyl
DFTPP	Decafluorotriphenyl phosphine
ECD	Electron capture detector
FAA	Atomic absorption, furnace technique
FID	Flame ionization detector
FNP	1-Fluoronaphthalene
GC	Gas chromatography
GC/MS	Gas chromatography/mass spectrometry
GPC	Gel permeation chromatography
ICB	Initial calibration blank
ICP	Inductively coupled plasma-atomic emission spectrometer
ICV	Initial calibration verification
IDL	Instrument detection limit
IS	Internal standard
LCS	Laboratory control sample
LCS/LCSD	Laboratory control sample/laboratory control sample duplicate
MSA	Method of standard additions
MS/MSD	Matrix spike/matrix spike duplicate
PID	Photo ionization detector
PCB	Polychlorinated biphenyl
PCDD	Polychlorinated dibenzodioxins
PCDF	Polychlorinated dibenzofurans
QA	Quality assurance
QC	Quality control
RF	Response factor
RPD	Relative percent difference
RRF	Relative response factor
RRF(number)	Relative response factor at concentration of the number following
RT	Retention time
RRT	Relative retention time
SDG	Sample delivery group
SPCC	System performance check compound
TCX	Tetrachloro-m-xylene
%D	Percent difference
%R	Percent recovery
%RSD	Percent relative standard deviation

Data Validation Qualifiers Used in the QA/QC Reviews for USEPA Region III

U	=	Not detected. The associated number indicates the approximate sample concentration necessary to be detected.
B	=	Not detected substantially above the level reported in the laboratory or field blanks.
R	=	Unreliable result; data is rejected or unusable. Analyte may or may not be present in the sample. Supporting data is necessary to confirm the result.
N	=	Tentative identification. Analyte is considered present. Special methods may be needed to confirm its presence or absence during future sampling efforts.
J	=	Analyte is present. Reported value may not be accurate or precise.
K	=	Analyte is present. Reported value may be biased high. Actual value is expected to be lower.
L	=	Analyte is present. Reported value may be biased low. Actual value is expected to be higher.
UJ	=	Not detected, quantitation limit may be inaccurate or imprecise.
UL	=	Not detected, quantitation limit is probably higher.

Note: These qualifiers are used for data validation purposes. The data validation qualifiers may differ from the qualifiers that the laboratory assigns to the data. Refer to the laboratory analytical report for the definitions of the laboratory qualifiers.

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M-2 QA/QC Review of Method 8260B Volatiles Data for TestAmerica North Canton, Job No: 240-68448-1

24 Soil Samples, 5 Ground Water Samples, 2 Field Duplicates, 3 Equipment Blanks, and 4 Trip Blanks Collected on August 16-19, 2016

Prepared by: Donald Anné
September 16, 2016

Holding Times: Samples were analyzed within USEPA Region III holding times.

GC/MS Tuning and Mass Calibration: The BFB tuning criteria were within control limits.

Initial Calibration: The SPCCs and CCCs were within control limits, per method 8260B.

The average RRFs for target compounds were above the allowable minimum (0.010) and the %RSDs were below the allowable maximum (30%), as required.

Continuing Calibration: The SPCCs and CCCs were within control limits, per method 8260B.

The RRFs for target compounds were above the allowable minimum (0.010), as required.

The %Ds for acetone, methyl acetate, 2-butanone, and 4-methyl-2-pentanone were above the allowable maximum (25%) on 08-23-16 (UX85574.D). The %Ds for bromomethane, chloroethane, trichlorofluoromethane, carbon tetrachloride, bromoform, and 1,2,4-trichlorobenzene were above the allowable maximum (25%) on 08-24-16 (UXR4085.D). The %Ds for chloroethane, trichlorofluoromethane, carbon tetrachloride, bromoform, and 1,2,4-trichlorobenzene were above the allowable maximum (25%) on 08-25-16 (UXR4113.D). The %Ds for brommethane, chloroethane, acetone, and 2-hexanone were above the allowable maximum (25%) on 08-25-16 (UX7702.D). The %Ds for brommethane and chloroethane were above the allowable maximum (25%) on 08-25-16 (UXJ6803.D). The %Ds for bromomethane, chloroethane, trichlorofluoromethane, carbon tetrachloride, and bromoform were above the allowable maximum (25%) on 08-26-16 (UXR4142.D). The %Ds for bromomethane and trichlorofluoromethane were above the allowable maximum (25%) on 08-26-16 (UX85673.D). The %Ds for carbon disulfide and carbon tetrachloride were above the allowable maximum (25%) on 08-28-16 (185824.D). The %D for bromomethane was above the allowable maximum (25%) on 08-29-16 (UXJ6861.D). The %D for carbon disulfide was above the allowable maximum (25%) on 08-29-16 (185852.D). The %Ds for bromomethane and acetone were above the allowable maximum (25%) on 08-29-16 (UX85716.D). The %Ds for acetone, methyl acetate, and 2-butanone were above the allowable maximum (25%) on 08-30-16 (UX85749.D). The %Ds for acetone and 2-

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butanone were above the allowable maximum (25%) on 08-31-16 (UX85749.D). Positive results for these compounds should be considered estimated (J) in associated samples.

Blanks: Method blank MB 240-243402/1-A contained a trace of toluene (14.9 ug/kg). Method blank MB 240-243851/7 contained a trace of 1,2,4-trichlorobenzene (0.725 ug/L). Method blank MB 240-244103/1-A contained a trace of toluene (10.3 ug/L). Method blank MB 240-244415/6 contained a trace of 1,2,4-trichlorobenzene (0.493 ug/L). Method blank MB 240-244643/6 contained traces of methylene chloride (1.09 ug/kg) and 1,2,4-trichlorobenzene (0.530 ug/L). Equipment blank EB-10 contained traces of ethylbenzene (0.26 ug/L) and toluene (0.31 ug/L). Equipment blank EB-11 contained traces of acetone (3.8 ug/L) and chloromethane (0.46 ug/L). TRIP BLANK-12 contained a trace of acetone (4.6 ug/L). TRIP BLANK-11 contained a trace of acetone (4.7 ug/L). TRIP BLANK-10 contained a trace of acetone (3.9 ug/L). TRIP BLANK-09 contained a trace of acetone (4.8 ug/L). Positive results for acetone and methylene chloride that are less than ten times the highest blank level should be qualified 'B' in associated samples. Positive results for all other compounds that are less than five times the highest blank level should be qualified 'B' in associated samples.

Internal Standard Area Summary: The internal standard areas and retention times were within control limits.

Surrogate Recovery: The surrogates for samples AOC6-17-10, DUP-3, AOC6-07-7.5, AOC6-19-20, AOC6-20-15, AOC6-22-10, and DUP-4 were diluted beyond quantitation limits. No action is taken on surrogates diluted beyond quantitation limits.

Four of four surrogate recoveries for samples AOC6-07-2.5 were below control limits, but not below 10%. One of four surrogate recoveries for sample AOC6-10-5 was below control limits, but not below 10%. Positive and "not detected" results for these samples should be considered estimated, low (L or UL).

Four of four surrogate recoveries for sample AOC6-17-20, AOC6-18-20, AOC6-07-20, and AOC6-19-12.5 were above control limits. Three of four surrogate recoveries for sample AOC6-08-15 were above control limits. One of four surrogate recoveries for sample TRIP BLANK-12 was above control limits. Positive results for these samples should be considered estimated, high (K).

Matrix Spike/Matrix Spike Duplicate: The relative percent differences (RPDs) for target compounds were below the allowable maximum and the percent recoveries were within QC limits for aqueous MS/MSD sample TMW-34.

The %Rs for target compounds were within QC limits, but the RPDs for trichlorofluoromethane and methylcyclohexane were above the allowable maximum for soil MS/MSD sample AOC6-18-10. Positive results for these compounds should be considered estimated (J). Sample AOC6-18-10 reported these compounds as "not detected"; therefore, no action is taken.

Laboratory Control Sample: The relative percent differences for target compounds were below the allowable maximum and the percent recoveries (%Rs) were within QC limits for aqueous samples LCS 240-244031/4 and LCSD 240-244031/5. The %Rs for target compounds were within QC limits for soil samples LCS 240-243851/5, LCS 240-244036/2-A, LCS 240-24429/5, LCS 240-244415/5, LCS 240-244558/5, and LCS240-244643/5. The %Rs for target compounds were within QC limits for aqueous samples LCS 240-244226/4 and LCS 240-244432/4.

The %R for chloromethane was below QC limits, but not below 10% for soil samples LCS 240-243402/2-A and LCS 240-244103/2-A. Positive and "not detected" results for chloromethane should be considered estimated, biased low (L or UL) in associated soil samples.

The %R for 2-hexanone was above QC limits for aqueous sample LCS 240-244227/4. The %Rs for 2-butanone and trichloroethene were above QC limits for aqueous sample LCS 240-244641/4. Positive results for these compounds should be considered estimated, biased high (K) in associated aqueous samples.

The %Rs for cyclohexane, dichlorodifluoromethane, 1,1,2-trichloro-1,2,2-trifluorethane, and methylcyclohexane were below QC limits, but not below 10% for aqueous sample LCS 240-244219/4. The %R for dichlorodifluoromethane was below QC limits, but not below 10% for aqueous sample LCS 240-244641/4. Positive and "not detected" results for these compounds should be considered estimated, biased low (L or UL) in associated aqueous samples.

Field Duplicates: The relative percent differences (RPDs) for applicable compounds were below the allowable maximum (35%) for soil field duplicate pair AOC6-17-10/DUP-3 (attached table), as required.

The RPDs for ethylbenzene, toluene, and xylenes, total were above the allowable maximum (35%) for soil field duplicate pair AOC6-22-10/DUP-4 (attached table). Results for these compounds should be considered estimated (J) in samples AOC6-22-10 and DUP-4.

Compound ID: Checked compounds and surrogates were within GC quantitation limits. The mass spectra for detected compounds contained the primary and secondary ions, as outlined in the method.

Action Level Notification: The action levels for ethylbenzene, toluene, and xylenes were exceeded in samples TMW-32 and TMW-34.

Volatiles

Calculations for Field Duplicate Relative Percent Difference (RPD)
SDG No. 240-68448-1

S1= AOC6-17-10 **S2=** DUP-3

Analyte	S1	S2	RPD (%)
ethylbenzene	1500000	1300000	14%
isopropylbenzene	**64000**	**51000**	NC
toluene	1300000	990000	27%
xylenes, total	6800000	5700000	18%

S1= AOC6-22-10 **S2=** DUP-4

Analyte	S1	S2	RPD (%)	
1,2,4-trichlorobenzene	ND	**3500**	NC	
benzene	**7800**	**13000**	NC	
ethylbenzene	110000	610000	139%	*
isopropylbenzene	ND	**8200**	NC	
toluene	710000	3700000	136%	*
xylenes, total	380000	2600000	149%	*

* RPD is above the allowable maximum (35%)

All results are in ug/kg.

Bold numbers were values that below the CRQL or above the high standard.
ND - Not detected.
NC - Not calculated, both results must be above the CRDL for valid RPDs to be calculated.

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M-2 QA/QC Review of Method 8270D Semi-Volatiles Data for TestAmerica North Canton, Job No: 240-68448-1

28 Soil Samples, 5 Ground Water Samples, and 2 Field Duplicates Collected on August 16-19, 2016

Prepared by: Donald Anné
September 16, 2016

Holding Times: Samples TMW-35RE, TMW-36RE, and TMW-36RERA were re-extracted beyond within USEPA Region III holding times. The positive and "not detected" results for these samples should be considered estimated, biased low (L or UL).

GC/MS Tuning and Mass Calibration: The DFTPP tuning criteria were within control limits.

Initial Calibration: The average RRFs for applicable compounds were above the method minimums and %RSDs were below the method maximum, as required.

The average RRFs for target compounds were above the allowable minimum (0.050) and the %RSDs were below the allowable maximum (30%), as required.

Continuing Calibration: The RRFs for applicable compounds were above the method minimums, as required. The %Ds for 2,4-dinitrophenol and 4,6-dinitro-2-methylphenol were above the method maximum on 08-24-16 (CCV240-243994/2). The %D for 2,4-dinitrophenol was above the method maximum on 08-25-16 (CCV240-244208/2). The %Ds for 2,4-dinitrophenol and 4,6-dinitro-2-methylphenol were above the method maximum on 08-26-16 (CCV240-244410/2). The %Ds for 2,4-dinitrophenol and 4,6-dinitro-2-methylphenol were above the method maximum on 08-31-16 (CCV240-244960/2). The %D for 2,4-dinitrophenol was above the method maximum on 08-31-16 (CCV240-245133/2). No action is taken on fewer than 20% of the compounds with method criteria outside control limits per calibration.

The RRFs for target compounds were above the allowable minimum (0.050), as required.

The %Ds for 2,4-dinitrophenol and 4,6-dinitro-2-methylphenol were above the allowable maximum (25%) on 08-24-16 (CCV 240-243994/2). The %D for 2,4-dinitrophenol was above the allowable maximum (25%) on 08-25-16 (CCV 240-244208/2). The %Ds for

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2,4-dinitrophenol and 4,6-dinitro-2-methylphenol were above the allowable maximum (25%) on 08-26-16 (CCV 240-244410/2). The %Ds for 2,4-dinitrophenol and 4,6-dinitro-2-methylphenol were above the allowable maximum (25%) on 08-31-16 (CCV 240-244960/2). Positive results for these compounds should be considered estimated (J) in associated samples.

Blanks: Method blank MB 240-243593/21-A contained a trace of bis(2-ethyhexyl)phthalate (21.3 ug/kg). Method blank MB 240-243604/23-A contained a trace of aniline (45.2 ug/kg). Method blank MB 240-244614/6-A contained traces of aniline (0.342 ug/L), caprolactam (0.408 ug/L), and di-n-ethyl phthalate (0.624 ug/L). Positive results for bis(2-ethylhexyl)phthalate and di-n-ethyl phthalate that are less than ten times the highest blank level should be qualified 'B' in associated samples. Positive results for aniline and caprolactam that are less than five times the highest blank level should be qualified 'B' in associated samples.

Surrogate Recovery: Surrogates for the following samples were diluted beyond detection limits. No action is taken on surrogate diluted beyond detection limits.

AOC6-10-5	AOC6-10-10	AOC6-09-10	AOC6-09-10RA
AOC6-07-7.5	AOC6-08-20RA	AOC6-22-10	DUP-4
DUP-4RA	TNW-32	TMW-33	TMW-36
TMW-36RE	TMW-36RA	TMW-36RERA	

One of three base/neutral surrogate recoveries for sample AOC6-23-7.5 was below control limits, but not below 10%. No action is taken on one surrogate recovery per fraction outside control limits, provided no recovery is less than 10%.

Three of three base/neutral and 2 of 3 acid extractable surrogate recoveries for sample AOC6-08-5 were below control limits, but not below 10%. Positive and "not detected" results for sample AOC6-08-5 should be considered estimated, biased low (L or UL).

Two of three base/neutral surrogate recoveries for sample AOC6-08-15 were below control limits, but not below 10%. Positive and "not detected" results for base/neutral compounds should be considered estimated, biased low (L or UL) in sample AOC6-08-15.

Two of three acid extractable surrogate recoveries for sample TMW-34 were below control limits and below 10%. Positive results for base/neutral compounds should be considered estimated, biased low (L) and "not detected" results rejected, unusable (R) in sample TMW-34.

Internal Standard Area Summary: The internal standard areas and retention times were within control limits.

Matrix Spike/Matrix Spike Duplicate: The relative percent difference for 2,4-dinitrophenol was above the allowable maximum and 2 of 2 percent recoveries for hexachlorocyclopentadiene were below QC limits and below 10% for soil MS/MSD sample AOC6-18-10. The "not detected" result for hexachlorocylopentadiene should be considered rejected, unusable (R) in sample AOC6-18-10.

Laboratory Control Sample: The percent recoveries (%Rs) for target compounds were within QC limits for soil samples LCS 240-243593/22-A, LCS 240-243604/24-A, and LCS 240-243796/21-A, and aqueous samples LCS 240-2443600/10-A and LCS 460-244614/7-A.

The %Rs for 2,4,6-trichlorophenol, anthracene, atrazine, carbazole, fluoranthene, and phenanthrene were below QC limits, but not below 10% for aqueous sample LCS 240-244046/6-A. Positive and "not detected" results for these compounds should be considered estimated, biased low (L or UL) in associated samples.

Field Duplicate: The relative percent difference (RPD) for aniline was below the allowable maximum (35%) for soil field duplicate pair AOC6-17-10/DUP-3 (attached table). Results for aniline should be considered estimated (J) in samples AOC6-17-10 and DUP-3.

The RPDs for aniline, diphenylamine, and n-nitrosodiphenylamine were above the allowable maximum (35%) for soil field duplicate pair AOC6-22-10/DUP-4 (attached table). Results for these compounds should be considered estimated (J) in samples AOC6-22-10 and DUP-4.

Compound ID: Checked compounds were within GC quantitation limits. The mass spectra for detected compounds contained the primary and secondary ions, as outlined in the method.

Action Level Notification: The detected results for compounds with action levels were below the those levels for ground water samples in this data pack.

Semi-Volatiles

Calculations for Field Duplicate Relative Percent Difference (RPD)
SDG No. 240-68448-1

S1= AOC6-17-10 **S2=** DUP-3

Analyte	S1	S2	RPD (%)	
2,4-dimethylphenol	**1800**	**760**	NC	
2-methylphenol	**760**	**440**	NC	
aniline	61000	34000	57%	*
diphenylamine	**220**	**910**	122%	
n-nitrosodiphenylamine	**2600**	**1100**	81%	

S1= AOC6-22-10 **S2=** DUP-4

Analyte	S1	S2	RPD (%)	
aniline	430000	910000	72%	*
diphenylamine	330000	660000	67%	*
n-nitrosodiphenylamine	390000	780000	67%	*

* RPD is above the allowable maximum (35%)

Results are in units of ug/kg.

Bold numbers were values that below the CRQL.
ND - Not detected.
NC - Not calculated, both results must be above the CRDL for valid RPDs to be calculated.

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QA/QC Review of Method 8015D
Gasoline Range Organics (GRO) Data
for TestAmerica Canton, Job No: 240-68448-1

18 Soil Samples and 2 Field Duplicates
Collected August 16-19, 2016

Prepared by: Donald Anné
September 16, 2016

Holding Times: Samples AOC6-17-10 (diluted), DUP-3 (diluted), AOC6-07-7.5, AOC6-07-20, AOC19-12.5 (diluted), and AOC6-19-20 (diluted) were analyzed outside USEPA holding times. The results for GRO in these samples should be considered estimated, biased low (L).

Initial Calibration: The %RSDs for GRO were below the allowable maximum (20%), as required.

Continuing Calibration: The %Ds for GRO were below the allowable maximum (20%), as required.

Blanks: The analyses of the method blanks reported GRO as not detected.

Surrogate Recovery: The surrogates for samples AOC6-17-10 (diluted), DUP-3 (diluted), AOC6-07-2.5, AOC6-22-10, and DUP-4 were diluted beyond detection limits. No action is taken on surrogates diluted beyond detection limits.

The surrogate recovery for sample AOC6-23-7.5 was above QC limits. The result for GRO should be considered estimated, biased high (K) in sample AOC6-23-7.5.

Matrix Spike/Matrix Spike Duplicate: The relative percent difference for GRO was below the allowable maximum and the percent recoveries were within QC limits for soil MS/MSD sample AOC6-18-10.

Laboratory Control Sample: The percent recoveries for GRO were within QC limits for soil samples LCS 240-244784/2-A and LCS 240-244955/2-A.

Field Duplicate: The relative percent differences for GRO were above the allowable maximum (35%) for soil field duplicate pairs AOC6-17-10/DUP-3 and AOC6-22-10/DUP-4 (attached table). Positive results for GRO should be considered estimated (J) in samples AOC6-17-10/DUP-3, AOC6-22-10, and DUP-4.

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Compound Quantitation: Checked surrogates and GRO results were within GC quantitation limits.

The result for GRO in samplesAOC6-17-10, DUP-3, AOC6-19-12.5, and AOC6-19-20 were quantitated by extrapolating data above the highest calibration standard and marked 'E' by the laboratory. The samples were diluted by the laboratory and re-analyzed; therefore, the result that is flagged as 'E' in the undiluted samples should be considered estimated (J). The use of the diluted result for GRO is recommended for the samples.

Gasoline Range Organics (GRO)

Calculations for Field Duplicate Relative Percent Difference (RPD)
SDG No. 240-68448-1

S1= AOC6-17-10 **S2=** DUP-3

Analyte	S1	S2	RPD (%)	
GRO	1000000	6600000	147%	*

S1= AOC6-22-10 **S2=** DUP-4

Analyte	S1	S2	RPD (%)	
GRO	8700000	13000000	40%	*

* RPD is above the allowable maximum (35%)

Results are in units of ug/kg.

Bold numbers were values that below the CRQL.
ND - Not detected.
NC - Not calculated, both results must be above the CRDL for valid RPDs to be calculated.

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QA/QC Review of Method 8015D
Diesel Range Organics (DRO) Data
for TestAmerica Canton, Job No: 240-68448-1

18 Soil Samples and 2 Field Duplicates
Collected August 16-19, 2016

Prepared by: Donald Anné
September 16, 2016

Holding Times: Samples were extracted and analyzed within USEPA holding times.

Initial Calibration: The %RSDs for DRO were below the allowable maximum (20%), as required.

Continuing Calibration: The %Ds for dRO were below the allowable maximum (20%), as required.

Blanks: The analyses of the method blanks reported DRO as not detected.

Surrogate Recovery: The surrogate recoveries were within QC limits the soil samples.

Matrix Spike/Matrix Spike Duplicate: The relative percent difference for DRO was below the allowable maximum and the percent recoveries were within QC limits for soil MS/MSD sample AOC6-18-10.

Laboratory Control Sample: The percent recoveries for DRO were within QC limits for soil samples LCS 240-243589/2-A and LCS 240-243823/2-A.

Field Duplicate: The relative percent difference for DRO was below the allowable maximum (35%) for soil field duplicate pair AOC6-17-10/DUP-3 (attached table), as required.

The analyses of soil field duplicate pair AOC6-22-10/DUP-4 reported DRO as either not detected or below the lowest standard; therefore, valid relative percent differences could not be calculated. The analyses for the soil field duplicate pair were acceptable.

Compound Quantitation: Checked surrogates and DRO results were within GC quantitation limits.

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Diesel Range Organics (DRO)

Calculations for Field Duplicate Relative Percent Difference (RPD)
SDG No. 460-47315-1

S1= AOC6-17-10 **S2=** DUP-3

Analyte	S1	S2	RPD (%)
DRO	150	150	0%

S1= AOC6-22-10 **S2=** DUP-4

Analyte	S1	S2	RPD (%)
DRO	ND	**2600**	NC

* RPD is above the allowable maximum (35%)

Results are in units of mg/kg.

Bold numbers were values that below the CRQL.
ND - Not detected.
NC - Not calculated, both results must be above the CRDL for valid RPDs to be calculated.

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IM-1 QA/QC Review of Lead Data for
for TestAmerica North Canton, Job No: 240-68448-1

18 Soil Samples and 2 Field Duplicates
Collected August 16-19, 2016

Prepared by: Donald Anné
September 16, 2016

Holding Times: Samples were analyzed within USEPA Region III holding times.

Initial and Continuing Calibration Verification: The percent recoveries for lead were within control limits (90-110%).

CRDL Standard: The percent recoveries for lead were within laboratory QC limits (70-130%) in CRQL samples.

Blanks: The analyses of initial and continuing calibration, and method blanks reported lead as below reporting limits.

ICP Interference Check Sample: The percent recoveries for lead were within control limits (80-120%).

Spike Sample Recovery: The percent recoveries for lead were within control limits (75-125%) for soil MS/MSD samples AOC6-18-10 and AOC6-22-20.

Duplicates: The relative percent differences for lead were below the allowable maximum (35%) for soil MS/MSD samples AOC6-18-10 and AOC6-22-20, as required.

Field Duplicate: The relative percent differences for lead were below the allowable maximum (35%) for soil field duplicate pairs AOC6-17-20/DUP-3 and AOC6-22-10/DUP-4 (attached table), as required.

Laboratory Control Sample: The percent recoveries for target metals were within control limits (80-120%) for soil samples LCS 240-243641/2-A and LCS 240-243884/3-A.

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ICP Serial Dilution: The analyses of soil serial dilution samples AOC6-17-10 and AOC6-22-20 were acceptable.

Instrument Detection Limits: The IDLs for target metals were at or below the reporting limits, as required.

Percent Solids (%S): The %S for soils were greater than 50%.

Action Level Notification: The level of lead in sample AOC6-07-2.5 (790 mg/kg) was above the action level (500 mg/kg).

Lead

Calculations for Field Duplicate Relative Percent Difference (RPD)
SDG No. 240-68448-1

S1= AOC6-17-10 **S2=** DUP-3

Analyte	S1	S2	RPD (%)
lead	6.1	7.5	21%

S1= AOC6-22-10 **S2=** DUP-4

Analyte	S1	S2	RPD (%)
lead	95	120	23%

* RPD is above the allowable maximum (35%)

All results are in units of mg/kg.

Bold numbers were values that below the CRDL.
ND - Not detected.

NC - Not calculated, both results must be above the CRDL for valid RPDs to be calculated.

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September 22, 2016

Mr. Joe McKeon
Senior Scientist
ELM Site Solutions, Inc.
980 Macintosh Dr.
Rochester, New York 14626

Re: Data Validation Report
EPA Region III, Corrective Action
BASF Huntington, West Virginia
August-September 2016 Ground Water Sampling Events

Dear Mr. McKeon:

The data validation summaries for the BASF Huntington, West Virginia project are attached to this letter. The August-September 2016 ground water sampling data for TestAmerica North Canton, job numbers 240-68908-1and 240-69057-1 were acceptable with some issues that are identified in the validation summaries. There were semi-volatile data that were rejected (R) in data pack 240-68908-1. This was due to compounds with low percent recoveries in MS/MSD samples. The data is rejected based solely on the validation guidance criteria. The rejected data may be determined to be acceptable to the user based on additional information that is not contained in the data validation criteria.

A list of data validation acronyms and qualifiers is attached to assist you in interpreting the data validation reviews. If you have any questions concerning the work performed, please contact me at (518) 348-6995. Thank you for the opportunity to assist Environmental Liability Management, Inc.

Sincerely,
Alpha Geoscience

Donald Anné

Donald Anné
Senior Chemist

DCA:dca
attachments

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Data Validation Acronyms

AA	Atomic absorption, flame technique
BHC	Hexachlorocyclohexane
BFB	Bromofluorobenzene
CCB	Continuing calibration blank
CCC	Calibration check compound
CCV	Continuing calibration verification
CN	Cyanide
CRDL	Contract required detection limit
CRQL	Contract required quantitation limit
CVAA	Atomic adsorption, cold vapor technique
DCAA	2,4-Dichlophenylacetic acid
DCB	Decachlorobiphenyl
DFTPP	Decafluorotriphenyl phosphine
ECD	Electron capture detector
FAA	Atomic absorption, furnace technique
FID	Flame ionization detector
FNP	1-Fluoronaphthalene
GC	Gas chromatography
GC/MS	Gas chromatography/mass spectrometry
GPC	Gel permeation chromatography
ICB	Initial calibration blank
ICP	Inductively coupled plasma-atomic emission spectrometer
ICV	Initial calibration verification
IDL	Instrument detection limit
IS	Internal standard
LCS	Laboratory control sample
LCS/LCSD	Laboratory control sample/laboratory control sample duplicate
MSA	Method of standard additions
MS/MSD	Matrix spike/matrix spike duplicate
PID	Photo ionization detector
PCB	Polychlorinated biphenyl
PCDD	Polychlorinated dibenzodioxins
PCDF	Polychlorinated dibenzofurans
QA	Quality assurance
QC	Quality control
RF	Response factor
RPD	Relative percent difference
RRF	Relative response factor
RRF(number)	Relative response factor at concentration of the number following
RT	Retention time
RRT	Relative retention time
SDG	Sample delivery group
SPCC	System performance check compound
TCX	Tetrachloro-m-xylene
%D	Percent difference
%R	Percent recovery
%RSD	Percent relative standard deviation

Data Validation Qualifiers Used in the QA/QC Reviews for USEPA Region III

U	=	Not detected. The associated number indicates the approximate sample concentration necessary to be detected.
B	=	Not detected substantially above the level reported in the laboratory or field blanks.
R	=	Unreliable result; data is rejected or unusable. Analyte may or may not be present in the sample. Supporting data is necessary to confirm the result.
N	=	Tentative identification. Analyte is considered present. Special methods may be needed to confirm its presence or absence during future sampling efforts.
J	=	Analyte is present. Reported value may not be accurate or precise.
K	=	Analyte is present. Reported value may be biased high. Actual value is expected to be lower.
L	=	Analyte is present. Reported value may be biased low. Actual value is expected to be higher.
UJ	=	Not detected, quantitation limit may be inaccurate or imprecise.
UL	=	Not detected, quantitation limit is probably higher.

Note: These qualifiers are used for data validation purposes. The data validation qualifiers may differ from the qualifiers that the laboratory assigns to the data. Refer to the laboratory analytical report for the definitions of the laboratory qualifiers.

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M-2 QA/QC Review of Method 8260B Volatiles Data for TestAmerica North Canton, Job No: 240-68908-1

15 Ground Water Samples, 2 Field Duplicates, 1 Equipment Blank, and 2 Trip Blanks Collected on August 29-31, 2016

Prepared by: Donald Anné
September 22, 2016

Holding Times: Samples were analyzed within USEPA Region III holding times.

GC/MS Tuning and Mass Calibration: The BFB tuning criteria were within control limits.

Initial Calibration: The SPCCs and CCCs were within control limits, per method 8260B.

The average RRFs for target compounds were above the allowable minimum (0.010) and the %RSDs were below the allowable maximum (30%), as required.

Continuing Calibration: The SPCCs and CCCs were within control limits, per method 8260B.

The RRFs for target compounds were above the allowable minimum (0.010), as required.

The %Ds for bromomethane, chloroethane, and 1,2,4-trichlorobenzene were above the allowable maximum (25%) on 09-06-16 (UXX7881.D). The %Ds for bromomethane, chloroethane, 2-hexanone, 1,2-dibromo-3-chloropropane, and 1,2,4-trichlorobenzene were above the allowable maximum (25%) on 09-07-16 (UXX7903.D). The %Ds for bromomethane and chloroethane were above the allowable maximum (25%) on 09-08-16 (UXR4323.D). Positive results for these compounds should be considered estimated (J) in associated samples.

Blanks: The analyses of method blanks reported target compounds as not detected. Equipment blank EB-14 contained a trace of trans-1,2-dichloroethene (1.8 ug/L). TRIP BLANK-14 contained a trace of acetone (5.8 ug/L). TRIP BLANK-15 contained traces of acetone (5.1 ug/L) and carbon disulfide (0.40 ug/L). Positive results for acetone that are less than ten times the highest blank level should be qualified 'B' in associated samples. Positive results for all other compounds that are less than five times the highest blank level should be qualified 'B' in associated samples.

Internal Standard Area Summary: The internal standard areas and retention times were within control limits.

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Surrogate Recovery: The surrogate recoveries were within control limits for the ground water samples, equipment, and trip blanks.

Matrix Spike/Matrix Spike Duplicate: The relative percent differences for target compounds were below the allowable maximum and the percent recoveries were within QC limits for aqueous MS/MSD sample TMW-12D.

Laboratory Control Sample: The percent recoveries (%Rs) for target compounds were within QC limits for aqueous sample LCS 240-245622/4.

The %Rs for 2-hexanone was above QC limits for aqueous sample LCS 240-245859/4. The %Rs for bromomethane and chloroethane were above QC limits for aqueous sample LCS 240-245997/4. Positive results for these compounds should be considered estimated, biased high (K) in associated aqueous samples.

Field Duplicates: The relative percent differences for applicable compounds were below the allowable maximum (20%) for aqueous field duplicate pairs TMW-7D/TMW-18 and TMW-4D/TMW-10S (attached table), as required.

Compound ID: Checked compounds and surrogates were within GC quantitation limits. The mass spectra for detected compounds contained the primary and secondary ions, as outlined in the method.

Action Level Notification: The action levels for ethylbenzene and xylenes were exceeded in samples TMW-4D and TMW-10S.

Volatiles

Calculations for Field Duplicate Relative Percent Difference (RPD)
SDG No. 240-68908-1

S1= TMW-7D **S2=** TMW-18

Analyte	S1	S2	RPD (%)
acetone	**2.2**	**3.5**	46%
chloromethane	**0.68**	**0.66**	3%
tetrachloroethene	**0.67**	**0.62**	8%
trichloroethene	30	31	3%
cis-1,2-dichloroethene	5.3	5.2	2%

S1= TMW-4D **S2=** TMW-10S

Analyte	S1	S2	RPD (%)
carbon disulfide	**560**	**570**	2%
ethylbenzene	13000	14000	7%
toluene	**500**	**500**	0%
xylene (total)	45000	46000	2%

* RPD is above the allowable maximum (20%).

All results are in ug/L.

Bold numbers were values that below the CRQL or above the high standard.
ND - Not detected.
NC - Not calculated, both results must be within the linear range for valid RPDs to be calculated.

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M-2 QA/QC Review of Method 8270D Semi-Volatiles Data for TestAmerica North Canton, Job No: 240-68908-1

15 Ground Water Samples Collected on August 29-31, 2016

Prepared by: Donald Anné
September 22, 2016

Holding Times: Samples were extracted and analyzed within USEPA Region III holding times.

GC/MS Tuning and Mass Calibration: The DFTPP tuning criteria were within control limits.

Initial Calibration: The average RRFs for applicable compounds were above the method minimums and %RSDs were below the method maximum, as required.

The average RRFs for target compounds were above the allowable minimum (0.050) and the %RSDs were below the allowable maximum (30%), as required.

Continuing Calibration: The RRFs for applicable compounds were above the method minimums, as required. The %D for 2,4-dinitrophenol was above the method maximum on 09-02-16 (STD6 240-245301/2). No action is taken on fewer than 20% of the compounds with method criteria outside control limits per calibration.

The RRFs for target compounds were above the allowable minimum (0.050), as required.

The %D for 2,4-dinitrophenol was above the allowable maximum (25%) on 09-02-16 (STD6 240-245301/2). Positive results for 2,4-dinitrophenol should be considered estimated (J) in associated samples.

Blanks: The analyses of the method blanks reported target compounds as not detected.

Surrogate Recovery: The surrogate recoveries were within control limits for the ground water samples

Internal Standard Area Summary: The internal standard areas and retention times were within control limits.

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Matrix Spike/Matrix Spike Duplicate: The relative percent differences for 6 compounds (circled on attached form III) were below the allowable maximum; 2 of 2 percent recoveries (%Rs) for 7 compounds (circled on attached form III) were below QC limits, but not below 10%; and 2 of 2 %Rs for 2,4,6-trichlorophenol and 4-chloro-3-methylphenol were below QC limits and below 10% for aqueous MS/MSD sample TMW-12D. The "not detected" results for 2,4,5-trichlorophenol, 2,4-dichlorophenol, 2,4-dimethylphenol, 2-chlorophenol, 2-methylphenol, 3&4-methylphenol, and pentachlorophenol should be considered estimated, biased low(UL) and the "not detected" result for 2,4,6-trichlorophenol and 4-chloro-3-methylphenol rejected, unusable (R) in sample TMW-12D.

Laboratory Control Sample: The percent recoveries for target compounds were within QC limits for aqueous samples LCS 240-245146/12-A and LCS 240-245328/13-A.

Compound ID: Checked compounds were within GC quantitation limits. The mass spectra for detected compounds contained the primary and secondary ions, as outlined in the method.

Action Level Notification: The detected results for compounds with action levels were below the those levels for ground water samples in this data pack.

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M-2 QA/QC Review of Method 8082 PCB Data for TestAmerica North Canton, Job No: 240-68908-1

5 Ground Water Samples Collected August 29 and 30, 2016

Prepared by: Donald Anné
September 22, 2016

Holding Times: Samples were extracted and analyzed within USEPA SW-846 holding times.

Blanks: The analyses of the method blanks reported target aroclors as not detected.

Surrogate Recovery: One of two surrogate recoveries for samples AOC2-18B-15, AOC2-36-10, and TMW-25 was above QC limits. Positive results for these samples should be considered estimated, biased high (K).

Laboratory Control Sample: The percent recoveries for aroclor-1016 and aroclor-1260 were within QC limits for aqueous sample LCS 240-245126/9-A.

Initial Calibration: The R-squared for target aroclors were above the allowable minimum (0.9900), as required.

Continuing Calibration: The average %Ds for target aroclors were below the allowable maximum (20%), as required.

Internal Standard Area Summary: The internal standard areas and retention times were within control limits.

PCB Identification Summary: Checked surrogates were within GC quantitation limits. The analyses of ground water samples reported target aroclors as not detected.

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IM-1 QA/QC Review of Metals Data for
for TestAmerica North Canton, Job No: 240-68908-1

6 Ground Water Samples
Collected August 29 and 30, 2016

Prepared by: Donald Anné
September 22, 2016

Holding Times: Samples were analyzed within USEPA Region III holding times.

Initial and Continuing Calibration Verification: The percent recoveries for target metals were within control limits (80-120% for Hg, 90-110% for all other metals).

CRDL Standard: The percent recoveries for applicable metals were within laboratory QC limits (70-130% for all metals except 50-150% for Hg) in CRQL samples.

Blanks: The analyses of initial and continuing calibration, and method blanks reported target metals as below reporting limits.

ICP Interference Check Sample: The percent recoveries for target metals were within control limits (80-120%).

Spike Sample Recovery: The percent recoveries (%Rs) for target were withn control limits (75-125%) for aqueous batch MS/MSD samples 240-68956-F-8-B/C, 240-68956-F-8-E/F, and 240-68910-V-2-E/F.

Oneof two %Rs for potassium was below control limits (75-125%), but not below 30% for aqueous batch MS/MSD sample 240-68910-V-2-B/C. Positive and "not detected" results for potassium should be considered estimated, biased low (L or UL) in associated aqueous samples.

Duplicates: The relative percent differences for applicable compounds were below the allowable maximum (20%) for aqueous batch MS/MSD sample 240-68956-F-8-B/C, 240-68956-F-8-E/F, 240-68910-V-2-B/C, and 240-68910-V-2-E/F, as required.

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Laboratory Control Sample: The percent recoveries for target metals were within control limits (80-120%) for aqueous samples LCS 240-245168/2-A, LCS 240-245366/2-A, LCS 240-245175/2-A, and LCS 240-245377/2-A.

ICP Serial Dilution: The %Ds for applicable compounds were below the allowable maximum (10%) for aqueous batch serial dilution samples 240-68956-F-8-A and 240-68910-V-2-A, as required.

Instrument Detection Limits: The IDLs for target metals were at or below the reporting limits, as required.

Percent Solids (%S): The %S for soils were greater than 50%.

Action Level Notification: The detected results for metals with action levels were below the those levels for ground water samples in this data pack.

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M-2 QA/QC Review of Method 8260B Volatiles Data for TestAmerica North Canton, Job No: 240-69057-1

7 Ground Water Samples and 1 Trip Blank Collected on August 31 and September 1, 2016

Prepared by: Donald Anné
September 22, 2016

Holding Times: Samples were analyzed within USEPA Region III holding times.

GC/MS Tuning and Mass Calibration: The BFB tuning criteria were within control limits.

Initial Calibration: The SPCCs and CCCs were within control limits, per method 8260B.

The average RRFs for target compounds were above the allowable minimum (0.010) and the %RSDs were below the allowable maximum (30%), as required.

Continuing Calibration: The SPCCs and CCCs were within control limits, per method 8260B.

The RRFs for target compounds were above the allowable minimum (0.010), as required.

The %Ds for dichlorodifluoromethane, bromomethane, chloroethane, 2-hexanone, 1,2-dibromo-3-chloropropane, and 1,2,4-trichlorobenzene were above the allowable maximum (25%) on 09-08-16 (UXX7929.D). The %Ds for bromomethane and chloroethane were above the allowable maximum (25%) on 09-08-16 (UXR4323.D). The %Ds for bromomethane and chloroethane were above the allowable maximum (25%) on 09-09-16 (UXR4352.D). Positive results for these compounds should be considered estimated (J) in associated samples.

Blanks: The analyses of method blanks reported target compounds as not detected. TRIP BLANK-16 contained traces of acetone (5.1 ug/L) and carbon disulfide (0.40 ug/L). Positive results for acetone that are less than ten times the highest blank level should be qualified 'B' in associated samples.

Internal Standard Area Summary: The internal standard areas and retention times were within control limits.

Surrogate Recovery: The surrogate recoveries were within control limits for the ground water samples, equipment, and trip blanks.

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Matrix Spike/Matrix Spike Duplicate: The relative percent differences (RPDs) for target compounds were below the allowable maximum and the percent recoveries (%Rs) were within QC limits for aqueous MS/MSD sample TMW-30.

The RPDs for target compounds were below the allowable maximum, but 2 of 2 %Rs for chloroethane was above QC limits for aqueous MS/MSD sample TMW-31. Positive results for chloroethane should be considered estimated, biased high (K). Sample TMW-31 reported chloroethane as "not detected"; therefore, no action is taken.

Laboratory Control Sample: The percent recoveries (%Rs) for target compounds were within QC limits for aqueous sample LCS 240-246034/4.

The %Rs for bromomethane and chloroethane were above QC limits for aqueous samples LCS 240-243233/4 and LCS 240-246124/4. Positive results for these compounds should be considered estimated, biased high (K) in associated aqueous samples.

Compound ID: Checked compounds and surrogates were within GC quantitation limits. The mass spectra for detected compounds contained the primary and secondary ions, as outlined in the method.

Action Level Notification: The action levels for ethylbenzene and xylenes were exceeded in samples TMW-4D and TMW-10S.

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M-2 QA/QC Review of Method 8270D Semi-Volatiles Data for TestAmerica North Canton, Job No: 240-69057-1

7 Ground Water Samples Collected on August 31-September 1, 2016

Prepared by: Donald Anné
September 22, 2016

Holding Times: Samples were extracted and analyzed within USEPA Region III holding times.

GC/MS Tuning and Mass Calibration: The DFTPP tuning criteria were within control limits.

Initial Calibration: The average RRFs for applicable compounds were above the method minimums and %RSDs were below the method maximum, as required.

The average RRFs for target compounds were above the allowable minimum (0.050) and the %RSDs were below the allowable maximum (30%), as required.

Continuing Calibration: The RRFs for applicable compounds were above the method minimums and %Ds below the method maximums, as required.

The RRFs for target compounds were above the allowable minimum (0.050) and the %Ds were below the allowable maximum (25%), as required.

Blanks: The analysis of the method blank reported target compounds as not detected.

Surrogate Recovery: The surrogate recoveries were within control limits for the ground water samples

Internal Standard Area Summary: The internal standard areas and retention times were within control limits.

Laboratory Control Sample: The percent recoveries for target compounds were within QC limits for aqueous sample LCS 240-245548/9-A.

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Compound ID: Checked compounds were within GC quantitation limits. The mass spectra for detected compounds contained the primary and secondary ions, as outlined in the method.

Action Level Notification: The detected results for compounds with action levels were below the those levels for ground water samples in this data pack.

APPENDIX D

LABORATORY ANALYTICAL REPORTS

APPENDIX E

FIELD DATA SHEETS

Well/Piezo ID: TMW-1D

Ground Water Sample Collection Record

Client: BASF
Project Name: BASF HUNTINGTON
Site Location: HUNTINGTON, WV
Weather Conditions: 80°F Cloudy

Date: 9-1-16
Project Number:
Start: 3:00 am/pm
Finish: 1530 am/pm

WATER LEVEL DATA: *(measured from top of casing)*

a. Total Well Length: 53.50'
b. Water Table Depth: 24.94'
c. Casing Material: PVC
d. Casing Diameter: 2"
e. Water Column Length (a-b):
f. Calculated Well Volume:

WELL PURGING DATA:

a. Purge Method: PERI-PUMP
b. Acceptance Criteria:
- Minimum Required Purge Volume (@ LOW FLOW well volumes)
- Maximum Allowable Turbidity 10 NTUs
- Stabilization of Parameters 10 %

c. Field Testing Equipment Used
Make HORIBA Model U52 Serial Number
d. Field Testing Equipment Calibration Documentation

Time	Volume Removed (gal)	T° (C/F)	pH	Specific Conductivity	Turbidity (NTUs)	Dissolved Oxygen	Oxygen Reduction Potential	Color	Odor	Other
1515	1.0	22.80	5.88	0.316	12.0	0.17	91			
1520	1.5	23.11	5.88	0.318	10.3	0.13	84			
1525	2.0	22.86	5.90	0.319	10.0	0.08	78			
1528 ~~1530~~	2.5	22.86	6.14	0.324	9.8	0.07	75			
1531 ~~1535~~	3.0	22.90	6.10	0.324	9.7	0.07	74			

e. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	☐	☐	☑
Has required turbidity been reached	☑	☐	☐
Have parameters stabilized	☑	☐	☐

If No or N/A – Explain below

SAMPLE COLLECTION: Method: Peri Pump

Sample ID	Container Type	No. of Containers	Preservation	Analysis	Time
TMW-1D	40mL	3	HCl	TCL VOCs	1530
	1L	2	—	TCL SVOCs	

Additional Comments:

Signature: [signature] Date: 09/01/2016.

Well/Piezo ID: TMW-2D

Ground Water Sample Collection Record

Client: BASF
Project Name: BASF HUNTINGTON
Site Location: HUNTINGTON WV
Weather Conditions: 85°F sunny

Date: 08-31-2016
Project Number:
Start: 845 am/pm
Finish: 1000 am/pm

WATER LEVEL DATA: *(measured from top of casing)*

a. Total Well Length: 26.99'
b. Water Table Depth: 25.60'
c. Casing Material: PVC
d. Casing Diameter: 2"
e. Water Column Length (a-b):
f. Calculated Well Volume:

WELL PURGING DATA:

a. Purge Method: Peri-Pump (Low Flow)
b. Acceptance Criteria:
- Minimum Required Purge Volume (@ Low Flow well volumes)
- Maximum Allowable Turbidity 10 NTUs
- Stabilization of Parameters 10 %

c. Field Testing Equipment Used
Make Horiba Model U52 Serial Number

d. Field Testing Equipment Calibration Documentation

Time	Volume Removed (gal)	T° (C/F)	pH	Specific Conductivity	Turbidity (NTUs)	Dissolved Oxygen	Oxygen Reduction Potential	Color	Odor	Other
935	2.0	21.59	6.59	0.293	13.1	0.22	-88			
940	2.5	21.91	6.54	0.293	5.4	0.29	-87			
945	3.0	22.09	6.69	0.291	6.0	0.34	-81			
950	3.5	22.01	6.61	0.293	5.4	0.33	-87			
955	4.0	22.04	6.64	0.292	5.6	0.31	-84			

e. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	☐	☐	☑
Has required turbidity been reached	☑	☐	☐
Have parameters stabilized	☑	☐	☐

If No or N/A – Explain below

SAMPLE COLLECTION: Method: Peri-Pump

Sample ID	Container Type	No. of Containers	Preservation	Analysis	Time
TMW-2D	40mL	3	HCl	TCL VOCs	1000
	1L	2	—	TCL SVOCs	↓
	500mL	1	HNO_3	TAL METALS	↓

Additional Comments:

Signature: Jay Olson Date: 08/31/2016.

Well/Piezo ID: TMW-4S

Ground Water Sample Collection Record

(GOES DRY)

Client: BASF

Project Name: BASF HUNTINGTON

Site Location: HUNTINGTON WV

Weather Conditions: 90°F sunny

Date: 08-31-2016

Project Number:

Start: 1015 am/pm

Finish: 1100 am/pm

WATER LEVEL DATA: *(measured from top of casing)*

a. Total Well Length: 30.0

b. Water Table Depth: 26.56'

c. Casing Material: PVC

d. Casing Diameter: 2"

e. Water Column Length (a-b):

f. Calculated Well Volume:

WELL PURGING DATA:

a. Purge Method: Peri-Pump

b. Acceptance Criteria:

- Minimum Required Purge Volume (@ low flow well volumes)
- Maximum Allowable Turbidity 10 NTUs
- Stabilization of Parameters 10 %

c. Field Testing Equipment Used

Make Horiba Model U52 Serial Number

d. Field Testing Equipment Calibration Documentation

Time	Volume Removed (gal)	T° (C/F)	pH	Specific Conductivity	Turbidity (NTUs)	Dissolved Oxygen	Oxygen Reduction Potential	Color	Odor	Other
1030	1.0	25.95	6.04	0.741	16.3	3.39	-25			
1035	1.5	26.01	6.54	0.818	14.1	2.05	-59			
1040	2.0	25.89	6.48	0.835	14.3	2.37	-57			
1045	2.5	25.77	6.49	0.836	10.9	2.49	-57			
1050	3.0	25.79	6.47	0.835	5.7	2.45	-56			

e. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	☐	☐	☑
Has required turbidity been reached	☑	☐	☐
Have parameters stabilized	☑	☐	☐

If No or N/A – Explain below

SAMPLE COLLECTION: Method: Peri-Pump

Sample ID	Container Type	No. of Containers	Preservation	Analysis	Time
TMW-4S	40mL	3	HCl	TCL VOCs	1100
	1L	2	—	TCL SVOCs	
	~~500mL~~	~~0~~			
~~TMW-200~~	~~40mL~~	~~3~~	~~HCl~~	~~TCL VOCs~~	~~1000~~
	~~1L~~	~~2~~	~~—~~	~~TCL SVOCs~~	

Additional Comments:

Signature: [signature] Date: 08/31/2016

Well/Piezo ID: TMW-4D

Ground Water Sample Collection Record

Client: BASF
Project Name: BASF HUNTINGTON
Site Location: HUNTINGTON WV
Weather Conditions: 90° F sunny

Date: 8-31-16
Project Number:
Start: 1100 am/pm
Finish: 1200 am/pm

WATER LEVEL DATA: *(measured from top of casing)*

a. Total Well Length: 54.50
b. Water Table Depth: 26.75'
c. Casing Material: PVC
d. Casing Diameter: 2"
e. Water Column Length (a-b):
f. Calculated Well Volume:

WELL PURGING DATA:

a. Purge Method: Peri-Pump
b. Acceptance Criteria:
- Minimum Required Purge Volume (@ Low-Flow well volumes)
- Maximum Allowable Turbidity 10 NTUs
- Stabilization of Parameters 10 %

c. Field Testing Equipment Used
Make Horiba Model U52 Serial Number

d. Field Testing Equipment Calibration Documentation

Time	Volume Removed (gal)	T° (C/F)	pH	Specific Conductivity	Turbidity (NTUs)	Dissolved Oxygen	Oxygen Reduction Potential	Color	Odor	Other
1135	1.5	24.95	6.73	0.449	12.5	2.13	-126			
1140	2.0	24.41	6.68	0.439	11.1	0.71	-135			
1145	2.5	24.32	6.65	0.433	8.8	0.37	-145			
1150	3.0	24.36	6.64	0.433	6.4	0.31	-153			
1155	3.5	24.37	6.67	0.432	5.6	0.30	-154			

e. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	☐	☐	☑
Has required turbidity been reached	☑	☐	☐
Have parameters stabilized	☑	☐	☐

If No or N/A – Explain below

SAMPLE COLLECTION: Method: Peri-Pump

Sample ID	Container Type	No. of Containers	Preservation	Analysis	Time
TMW-4D	40mL	3	HCl	TCL VOCs	1200
	1L	2	—	TCL SVOCs	
(*) TMW-10S (duplicate)	40mL	3	HCl	TCL VOCs	1200

Additional Comments:

Signature: [signature] Date: 08/31/2016.

Well/Piezo ID: TMW - 5D

Ground Water Sample Collection Record

Client: BASF
Project Name:
Site Location: HUNTINGTON, WV
Weather Conditions:

Date: 8-29-16
Project Number:
Start: 1615 am/pm
Finish: 1645 am/pm

WATER LEVEL DATA: *(measured from top of casing)*

a. Total Well Length: 58.0'
b. Water Table Depth: 34.60'
c. Casing Material: PVC
d. Casing Diameter: 2"
e. Water Column Length (a-b):
f. Calculated Well Volume: 3.7 GAL.

WELL PURGING DATA:

a. Purge Method: LOW FLOW MONSOON SS PUMP
b. Acceptance Criteria:
- Minimum Required Purge Volume (@ _____ well volumes) NA
- Maximum Allowable Turbidity 10 NTUs
- Stabilization of Parameters 10 %

c. Field Testing Equipment Used
Make HORIBA Model U-52 Serial Number

d. Field Testing Equipment Calibration Documentation

Time	Volume Removed (gal)	T° (C/F)	pH	Specific Conductivity	Turbidity (NTUs)	Dissolved Oxygen	Oxygen Reduction Potential	Color	Odor	Other
1625	5.0	19.04	5.96	0.281	5.6	0.71	151			
1630	6.0	18.95	5.97	0.282	3.0	0.32	141			
1635	7.5	18.78	5.97	0.283	0.2	0.03	126			
1640	9.5	18.71	5.99	0.284	0.1	0.01	125			
1645	11.0	18.75	5.96	0.283	0.1	0.01	121			

e. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	☐	☐	☑
Has required turbidity been reached	☑	☐	☐
Have parameters stabilized	☑	☐	☐

If No or N/A – Explain below

SAMPLE COLLECTION: Method: MONSOON PUMP

Sample ID	Container Type	No. of Containers	Preservation	Analysis	Time
TMW-5D	40 ML	3	HCL	TCL VOCs	1645
	1L	2	NONE	TCL SVOCs	↓

Additional Comments:

Signature: [signature] Date: 08/29/2016.

Well/Piezo ID: TMW-6D

Ground Water Sample Collection Record

Client: _____
Project Name: BASF Huntington
Site Location: Huntington, WV
Weather Conditions: 90°F sunny

Date: 08/30/2016
Project Number: _____
Start: 1600 am/pm
Finish: 1700 am/pm

WATER LEVEL DATA: *(measured from top of casing)*

a. Total Well Length: 54.00'
b. Water Table Depth: 26.22' btoc
c. Casing Material: PVC
d. Casing Diameter: 2"
e. Water Column Length (a-b): _____
f. Calculated Well Volume: _____

WELL PURGING DATA:

a. Purge Method: Peri-Pump
b. Acceptance Criteria:
- Minimum Required Purge Volume (@ Low Flow well volumes) _____
- Maximum Allowable Turbidity 10 NTUs
- Stabilization of Parameters 10 %

c. Field Testing Equipment Used
Make Horiba Model U52 Serial Number _____

d. Field Testing Equipment Calibration Documentation

Time	Volume Removed (gal)	T° (C/F)	pH	Specific Conductivity	Turbidity (NTUs)	Dissolved Oxygen	Oxygen Reduction Potential	Color	Odor	Other
1640	1.5	23.39	5.53	0.502	4.2	3.44	229			
1645	2.0	22.04	5.50	0.517	0.2	0.67	232			
1650	2.5	22.19	5.52	0.513	0.6	0.26	234			
1655	3.0	22.19	5.53	0.512	0.4	0.13	235			
1700	3.5	22.18	5.53	0.512	0.8	0.10	236			

e. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	☐	☐	☑
Has required turbidity been reached	☑	☐	☐
Have parameters stabilized	☑	☐	☐

If No or N/A – Explain below

_____

SAMPLE COLLECTION: Method: _____

Sample ID	Container Type	No. of Containers	Preservation	Analysis	Time
TMW-6D	40mL	3	HCl	TCL VOCs	1700
	1L	2	—	TCL SVOCs	

Additional Comments: _____

Signature: [signature] Date: 08/30/2016.

Well/Piezo ID: TMW-7D

Ground Water Sample Collection Record

Client: _____
Project Name: BASF HUNTINGTON
Site Location: HUNTINGTON WV
Weather Conditions: 90°F sunny

Date: 08/30/2016
Project Number: _____
Start: 1500 am/pm
Finish: 1600 am/pm

WATER LEVEL DATA: *(measured from top of casing)*

a. Total Well Length: ~~27.48 btc~~
b. Water Table Depth: 27.48' btc
c. Casing Material: PVC
d. Casing Diameter: 2"
e. Water Column Length (a-b): _____
f. Calculated Well Volume: _____

WELL PURGING DATA:

a. Purge Method: Peri-Pump
b. Acceptance Criteria:
- Minimum Required Purge Volume (@ Low Flow well volumes) _____
- Maximum Allowable Turbidity 10 NTUs
- Stabilization of Parameters 10 %

c. Field Testing Equipment Used
Make Horiba Model U52 Serial Number _____

d. Field Testing Equipment Calibration Documentation

Time	Volume Removed (gal)	T° (C/F)	pH	Specific Conductivity	Turbidity (NTUs)	Dissolved Oxygen	Oxygen Reduction Potential	Color	Odor	Other
1530	1.0	21.96	5.57	0.258	3.5	0.15	185			
1535	2.0	21.89	5.58	0.256	4.0	0.05	173			
1540	2.5	21.79	5.59	0.256	2.9	0.01	167			
1545	3.0	21.74	5.57	0.256	2.8	0.01	159			
1550	3.5	21.72	5.57	0.253	2.8	0.01	157			

e. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	☐	☐	☑
Has required turbidity been reached	☑	☐	☐
Have parameters stabilized	☑	☐	☐

If No or N/A – Explain below

_____

SAMPLE COLLECTION: Method: Peri-Pump

Sample ID	Container Type	No. of Containers	Preservation	Analysis	Time
TMW-7D	40 mL	3	HCl	TCL VOCs	1600
	1L	2	—	TCL SVOCs	
DUP-1	~~40~~				
	~~1000~~				

Additional Comments: _____

Signature: [signature] Date: 08/30/2016.

Well/Piezo ID: TMW-8D

Ground Water Sample Collection Record

Client: BASF
Project Name:
Site Location: HUNTINGTON WV
Weather Conditions: 90°F Sunny

Date: 8-29-16
Project Number:
Start: 1110 am/pm
Finish: 1215 am/pm

WATER LEVEL DATA: *(measured from top of casing)*

a. Total Well Length: 58.5
b. Water Table Depth: 34.32
c. Casing Material: PVC
d. Casing Diameter: 2"
e. Water Column Length (a-b):
f. Calculated Well Volume: 3.8 gal.

WELL PURGING DATA:

a. Purge Method: LOW FLOW
b. Acceptance Criteria:
- Minimum Required Purge Volume (@ _____ well volumes) NA
- Maximum Allowable Turbidity 10 NTUs
- Stabilization of Parameters 10 %

c. Field Testing Equipment Used
Make HORIBA Model U-52 Serial Number

d. Field Testing Equipment Calibration Documentation

Time	Volume Removed (gal)	T° (C/F)	pH	Specific Conductivity (mS/cm)	Turbidity (NTUs)	Dissolved Oxygen (mg/L)	Oxygen Reduction Potential (mV)	Color	Odor	Other
1150	4.0	18.75	6.16	0.538	0.1	0.53	65			
1155	5.5	18.51	6.23	0.542	0.1	0.36	59			
1200	7.0	18.26	6.25	0.541	0.3	0.37	56			
1205	8.5	18.39	6.00	0.541	0.1	0.24	69			
1210	10.5	18.38	6.03	0.539	0.1	0.17	66			
1215	12.5	18.36	6.01	0.540	0.1	0.12	69			

e. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	☐	☐	☑
Has required turbidity been reached	☑	☐	☐
Have parameters stabilized	☑	☐	☐

If No or N/A – Explain below

SAMPLE COLLECTION: Method: Monsoon SS Pump

Sample ID	Container Type	No. of Containers	Preservation	Analysis	Time
TMW-8D	40 ML	3	HCL	TCL VOCs	1215
	1 L	2	NONE	TCL SVOCs	

Additional Comments:

Signature: [signature] Date: 08/29/2016

Well/Piezo ID: TMW-9D

Ground Water Sample Collection Record

Client: BASF
Project Name: BASF Huntington
Site Location: Huntington WV
Weather Conditions: 90° F Sunny

Date: 08/31/2016
Project Number:
Start: 1300 am/pm
Finish: 1415 am/pm

WATER LEVEL DATA: *(measured from top of casing)*

a. Total Well Length: 47.50'
b. Water Table Depth: 25.26'
c. Casing Material: PVC
d. Casing Diameter: 2"
e. Water Column Length (a-b):
f. Calculated Well Volume:

WELL PURGING DATA:

a. Purge Method: Peri-Pump
b. Acceptance Criteria:
- Minimum Required Purge Volume (@ Low Flow well volumes)
- Maximum Allowable Turbidity 10 NTUs
- Stabilization of Parameters 10 %

c. Field Testing Equipment Used
Make Horiba Model U52 Serial Number

d. Field Testing Equipment Calibration Documentation

Time	Volume Removed (gal)	T° (C/F)	pH	Specific Conductivity	Turbidity (NTUs)	Dissolved Oxygen	Oxygen Reduction Potential	Color	Odor	Other
1345	1.0	22.22	5.41	0.398	6.6	1.43	211			
1350	1.5	21.75	5.27	0.402	8.6	0.53	221			
1355	2.0	21.82	5.19	0.406	8.6	0.39	225			
1400	2.5	21.77	5.14	0.407	5.1	0.36	227			
1405	3.0	21.76	5.14	0.410	4.7	0.32	229			

e. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	☐	☐	☑
Has required turbidity been reached	☑	☐	☐
Have parameters stabilized	☑	☐	☐

If No or N/A – Explain below

SAMPLE COLLECTION: Method: Peri-Pump

Sample ID	Container Type	No. of Containers	Preservation	Analysis	Time
TMW-9D	40mL	3	HCl	TCL VOCs	1415
	1L	2	—	TCL SVOCs	

Additional Comments:

Signature: [signature] Date: 08/31/2016.

Well/Piezo ID: TMW-11S

Ground Water Sample Collection Record

Client: BASF
Project Name:
Site Location: HUNTINGTON, WV
Weather Conditions: 80s °F Sunny

Date: 8-30-16
Project Number:
Start: 0835 am/pm
Finish: 915 am/pm

WATER LEVEL DATA: *(measured from top of casing)*

a. Total Well Length: 35.0
b. Water Table Depth: 31.25
c. Casing Material: PVC
d. Casing Diameter: 2"
e. Water Column Length (a-b):
f. Calculated Well Volume: 0.6 gal.

WELL PURGING DATA:

a. Purge Method: LOW FLOW MONSOON SS PUMP
b. Acceptance Criteria:
- Minimum Required Purge Volume (@ _____ well volumes) NA
- Maximum Allowable Turbidity 10 NTUs
- Stabilization of Parameters 10 %

c. Field Testing Equipment Used
Make HORIBA Model U-52 Serial Number

d. Field Testing Equipment Calibration Documentation

Time	Volume Removed (gal)	T° (C/F)	pH	Specific Conductivity	Turbidity (NTUs)	Dissolved Oxygen	Oxygen Reduction Potential	Color	Odor	Other
855	4.5	20.37	5.80	0.509	0.1	2.13	-21			
900	5.5	20.50	5.76	0.501	0.0	1.93	-19			
905	6.5	20.41	6.07	0.512	0.1	1.58	-39			
910	7.5	20.44	6.14	0.500	0.1	1.54	-36			
915	8.5	20.46	6.12	0.501	0.1	1.52	-37			

e. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	☐	☐	☑
Has required turbidity been reached	☑	☐	☐
Have parameters stabilized	☑	☐	☐

If No or N/A – Explain below

SAMPLE COLLECTION: Method: MONSOON SS Pump

Sample ID	Container Type	No. of Containers	Preservation	Analysis	Time
TMW-11S	40 mL	3	HCL	TCL VOCs	915
	1L	2	NONE	TCL SVOCs	↓

Additional Comments:

Signature: [signature] Date: 08/30/2016.

Well/Piezo ID: TMW-12D

Ground Water Sample Collection Record

Client: BASF
Project Name: BASF Huntington
Site Location: Huntington WV
Weather Conditions: 90s Sunny

Date: 08/31/2016
Project Number:
Start: 1430 am/pm
Finish: 1535 am/pm

WATER LEVEL DATA: *(measured from top of casing)*

a. Total Well Length: 44.50'
b. Water Table Depth: 22.55'
c. Casing Material: PVC
d. Casing Diameter: 4"
e. Water Column Length (a-b):
f. Calculated Well Volume:

WELL PURGING DATA:

a. Purge Method: Peri-Pump
b. Acceptance Criteria:
- Minimum Required Purge Volume (@ Low Flow well volumes)
- Maximum Allowable Turbidity 10 NTUs
- Stabilization of Parameters 10 %

c. Field Testing Equipment Used
Make Horiba Model U52 Serial Number

d. Field Testing Equipment Calibration Documentation

Time	Volume Removed (gal)	T° (C/F)	pH	Specific Conductivity	Turbidity (NTUs)	Dissolved Oxygen	Oxygen Reduction Potential	Color	Odor	Other
1455	1.0	26.17	6.10	0.340	9.4	0.63	61			
1500	1.5	25.92	6.15	0.347	8.3	0.37	49			
1505	2.0	25.55	6.19	0.355	8.5	0.25	37			
1510	2.5	25.42	6.21	0.359	8.5	0.23	37			
1515	3.0	24.96	6.20	0.360	8.1	0.21	37			

e. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	☐	☐	☑
Has required turbidity been reached	☑	☐	☐
Have parameters stabilized	☑	☐	☐

If No or N/A – Explain below

SAMPLE COLLECTION: Method: Peri-Pump

Sample ID	Container Type	No. of Containers	Preservation	Analysis	Time
TMW-12D	40mL	3	HCl	TCL VOCs	1530
	1L	2	—	TCL SVOCs	
~~RGS~~					
MS (12D)	40mL	3	HCl	TCL VOCs	1535
MSD (12D)	40mL	3	HCl	TCL VOCs	

Additional Comments:

Signature: [signature] Date: 08/31/2016

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Well/Piezo ID: TMW-13

Ground Water Sample Collection Record

Client: BASF
Project Name:
Site Location: HUNTINGTON, WV
Weather Conditions: 90s sunny

Date: 8-29-16
Project Number:
Start: 1340 am/pm
Finish: 1430 am/pm

WATER LEVEL DATA: *(measured from top of casing)*

a. Total Well Length: 41.5
b. Water Table Depth: 35.81
c. Casing Material: PVC
d. Casing Diameter: 2"
e. Water Column Length (a-b):
f. Calculated Well Volume: 0.91 gal.

WELL PURGING DATA:

a. Purge Method: LOW FLOW
b. Acceptance Criteria:
- Minimum Required Purge Volume (@ _____ well volumes) NA
- Maximum Allowable Turbidity 10 NTUs
- Stabilization of Parameters 10 %

c. Field Testing Equipment Used
Make HORIBA Model U-52 Serial Number

d. Field Testing Equipment Calibration Documentation

Time	Volume Removed (gal)	T° (C/F)	pH	Specific Conductivity	Turbidity (NTUs)	Dissolved Oxygen	Oxygen Reduction Potential	Color	Odor	Other
1410	5.0	19.65	5.89	0.261	5.7	4.59	260	clear	none	
1415	6.0	19.61	5.90	0.262	3.2	2.80	257	" "	" "	
1420	7.5	19.57	5.92	0.263	0.6	1.67	249	" "	" "	
1425	9.0	19.55	5.95	0.263	0.2	1.61	242	" "	" "	
1430	10.5	19.53	5.96	0.262	0.1	1.59	239	" "	" "	

e. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	☐	☐	☑
Has required turbidity been reached	☑	☐	☐
Have parameters stabilized	☑	☐	☐

If No or N/A – Explain below

SAMPLE COLLECTION: Method: MONSOON SS PUMP

Sample ID	Container Type	No. of Containers	Preservation	Analysis	Time
TMW-13	40 mL	3	HCl	TCL VOCs + TICs	1430
	1L	2	NONE	TCL SVOCs + TICs	↓
	250mL	1	HNO_3	TAL METALS	
	1L	2	—	8082 PCBs	

Additional Comments:

Signature: [signature] Date: 08/29/2016.

Well/Piezo ID: TMW-14

Ground Water Sample Collection Record

Client: _____
Project Name: BASF HUNTINGTON
Site Location: HUNTINGTON, WV
Weather Conditions: 85°F sunny

Date: 8-30-16
Project Number: _____
Start: 1150 am/pm
Finish: 1230 am/pm

WATER LEVEL DATA: *(measured from top of casing)*

a. Total Well Length: 33.50'
b. Water Table Depth: 26.99'
c. Casing Material: PVC
d. Casing Diameter: 2"
e. Water Column Length (a-b): _____
f. Calculated Well Volume: _____

WELL PURGING DATA:

a. Purge Method: Peri-Pump
b. Acceptance Criteria:
- Minimum Required Purge Volume (@ Low Flow well volumes) _____
- Maximum Allowable Turbidity 10 NTUs
- Stabilization of Parameters 10 %

c. Field Testing Equipment Used
Make Horiba Model U-52 Serial Number _____

d. Field Testing Equipment Calibration Documentation

Time	Volume Removed (gal)	T° (C/F)	pH	Specific Conductivity	Turbidity (NTUs)	Dissolved Oxygen	Oxygen Reduction Potential	Color	Odor	Other
1210	1.0	19.20	5.69	0.291	4.7	2.62	212			
1215	1.5	19.13	5.48	0.296	2.2	2.14	224			
1220	2.0	18.88	5.48	0.299	1.9	2.03	227			
1225	2.5	19.19	5.49	0.300	1.3	1.97	229			
1230	3.0	19.21	5.49	0.300	1.0	1.95	229			

e. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	☐	☐	☐
Has required turbidity been reached	☐	☐	☐
Have parameters stabilized	☐	☐	☐

If No or N/A – Explain below

_____

SAMPLE COLLECTION: Method: Peri. Pump

Sample ID	Container Type	No. of Containers	Preservation	Analysis	Time
TMW-14	40mL	3	HCl	TCL VOCs + TICs	1230
	1L	2	—	TCL SVOC + TICs	↓
	1L	2	—	8082 PCBs	
	500mL	1	HNO_3	TAL METALS	

Additional Comments: _____

Signature: [signature] Date: 08/30/2016.

Well/Piezo ID: TMW-15

Ground Water Sample Collection Record

Client: BASF
Project Name:
Site Location: HUNTINGTON, WV
Weather Conditions:

Date: 8-30-16
Project Number:
Start: 1025 am/pm
Finish: 1100 am/pm

WATER LEVEL DATA: *(measured from top of casing)*

a. Total Well Length: 33.0'
b. Water Table Depth: 28.17
c. Casing Material: PVC
d. Casing Diameter: 2"
e. Water Column Length (a-b):
f. Calculated Well Volume:

WELL PURGING DATA:

a. Purge Method: LOW FLOW - PERISTALTIC PUMP
b. Acceptance Criteria:
- Minimum Required Purge Volume (@ _____ well volumes) NA
- Maximum Allowable Turbidity 10 NTUs
- Stabilization of Parameters 10 %

c. Field Testing Equipment Used
Make HORIBA Model U-52 Serial Number

d. Field Testing Equipment Calibration Documentation

Time	Volume Removed (gal)	T° (C/F)	pH	Specific Conductivity	Turbidity (NTUs)	Dissolved Oxygen	Oxygen Reduction Potential	Color	Odor	Other
1040	0.5	19.78	5.70	0.239	4.0	0.62	73			
1045	1.5	19.78	5.70	0.240	2.2	0.57	79			
1050	2.5	19.71	5.75	0.240	1.3	0.48	83			
1055	3.0	19.80	5.76	0.242	1.8	0.49	84			
1100	3.5	19.82	5.78	0.242	1.8	0.48	81			

e. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	☐	☐	☑
Has required turbidity been reached	☑	☐	☐
Have parameters stabilized	☑	☐	☐

If No or N/A – Explain below

SAMPLE COLLECTION: Method: PERISTALTIC PUMP

Sample ID	Container Type	No. of Containers	Preservation	Analysis	Time
TMW-15	40 ML	3	HCL	TCL VOC + TICs	1100
	1 L	2	NONE	TCL SVOC + TICs	↓
	1 L	2	NONE	8082 PCB	
	500 ML	1	HNO3	TAL METALS	

Additional Comments:

Signature: [signature] Date: 08/30/2016.

Well/Piezo ID: TMW-16

Ground Water Sample Collection Record

Client: _____
Project Name: BASF HUNTINGTON
Site Location: HUNTINGTON, WV
Weather Conditions: 90°F, SUNNY

Date: 8/30/2016
Project Number: _____
Start: ~~1350~~ 1350 am/pm
Finish: 1430 am/pm

WATER LEVEL DATA: *(measured from top of casing)*

a. Total Well Length: 33.0'
b. Water Table Depth: 27.96'
c. Casing Material: PVC
d. Casing Diameter: 2"
e. Water Column Length (a-b): _____
f. Calculated Well Volume: _____

WELL PURGING DATA:

a. Purge Method: LOW FLOW - PERISTALTIC PUMP
b. Acceptance Criteria:
- Minimum Required Purge Volume (@ _____ well volumes) _____
- Maximum Allowable Turbidity 10 NTUs
- Stabilization of Parameters 10 %

c. Field Testing Equipment Used
Make HORIBA Model U52 Serial Number _____
d. Field Testing Equipment Calibration Documentation

Time	Volume Removed (gal)	T° (C/F)	pH	Specific Conductivity	Turbidity (NTUs)	Dissolved Oxygen	Oxygen Reduction Potential	Color	Odor	Other
1410	1.0	22.93	5.37	0.185	7.7	1.52	222			
1415	1.5	22.21	4.92	0.186	2.8	1.42	238			
1420	2.0	22.61	5.01	0.186	2.0	1.11	236			
1425	2.5	22.41	5.04	0.186	2.5	0.98	230			
1430	3.0	22.51	5.07	0.185	4.6	0.84	222			

e. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	☐	☐	☑
Has required turbidity been reached	☑	☐	☐
Have parameters stabilized	☑	☐	☐

If No or N/A – Explain below

_____

SAMPLE COLLECTION: Method: Peri-Pump

Sample ID	Container Type	No. of Containers	Preservation	Analysis	Time
TMW-16	40mL	3	HCl	TCL VOCs + TIC	1430
	1L	2	—	TCL SVOC + TICs	↓
	1L	2	—	8082 PCBs	
	500mL	1	HNO_3	TAL METALS	

Additional Comments: _____

Signature: Jay Olson Date: 08/30/2016.

Well/Piezo ID: TMW-17

Ground Water Sample Collection Record

Client: BASF
Project Name:
Site Location: HUNTINGTON, WV
Weather Conditions:

Date: 8-29-16
Project Number:
Start: 1455 am/pm
Finish: am/pm

WATER LEVEL DATA: *(measured from top of casing)*

a. Total Well Length: 43.0
b. Water Table Depth: 36.97'
c. Casing Material: PVC
d. Casing Diameter: 2"
e. Water Column Length (a-b):
f. Calculated Well Volume: 0.96 gal.

WELL PURGING DATA:

a. Purge Method: LOW FLOW
b. Acceptance Criteria:
- Minimum Required Purge Volume (@ well volumes) NA
- Maximum Allowable Turbidity 10 NTUs
- Stabilization of Parameters 10 %

c. Field Testing Equipment Used
Make HORIBA Model U-52 Serial Number

d. Field Testing Equipment Calibration Documentation

Time	Volume Removed (gal)	T° (C/F)	pH	Specific Conductivity	Turbidity (NTUs)	Dissolved Oxygen	Oxygen Reduction Potential	Color	Odor	Other
1530	9.0	20.53	5.85	0.251	23.8	1.39	209			
1535	10.0	20.66	5.87	0.251	20.7	1.32	206			
1540	11.0	20.52	5.87	0.252	12.1	1.27	206			
1545	12.0	20.60	5.87	0.253	8.6	1.22	207			
1550	13.0	20.61	5.86	0.254	5.7	1.26	209			

e. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	☐	☐	☑
Has required turbidity been reached	☑	☐	☐
Have parameters stabilized	☑	☐	☐

If No or N/A – Explain below

SAMPLE COLLECTION: Method: MONSOON PUMP

Sample ID	Container Type	No. of Containers	Preservation	Analysis	Time
TMW-17	40 ML	3	HCL	TCL VOCs + TICs	1550
	1 L	2	NONE	TCL SVOCs + TICs	
	1	2	NONE	PCBs	
	500 ML	1	HNO3	TAL METALS	

Additional Comments:

Signature: Jay Olson Date: 08/29/2016

Well/Piezo ID: TMW-26

Ground Water Sample Collection Record

Client: BASF
Project Name: BASF HUNTINGTON
Site Location: HUNTINGTON WV
Weather Conditions: 90° F

Date: 08/31/2016
Project Number:
Start: 1615 am/pm
Finish: 1715 am/pm

WATER LEVEL DATA: *(measured from top of casing)*

a. Total Well Length: 33.50'
b. Water Table Depth: 24.98'
c. Casing Material: PVC
d. Casing Diameter: 2"
e. Water Column Length (a-b):
f. Calculated Well Volume:

WELL PURGING DATA:

a. Purge Method: Peri-Pump
b. Acceptance Criteria:
- Minimum Required Purge Volume (@ Low Flow well volumes)
- Maximum Allowable Turbidity 10 NTUs
- Stabilization of Parameters 10 %

c. Field Testing Equipment Used
Make Horiba Model U52 Serial Number

d. Field Testing Equipment Calibration Documentation

Time	Volume Removed (gal)	T° (C/F)	pH	Specific Conductivity	Turbidity (NTUs)	Dissolved Oxygen	Oxygen Reduction Potential	Color	Odor	Other
1630	2.0	25.08	5.84	0.542	34.0	0.20	188			
1635	2.5	24.29	5.78	0.520	26.9	0.16	188			
1640	3.0	24.23	5.76	0.510	17.6	0.15	188			
1645	3.5	24.24	5.75	0.509	9.5	0.13	192			
1650	4.0	24.22	5.72	0.511	7.3	0.11	195			

e. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	☐	☐	☑
Has required turbidity been reached	☑	☐	☐
Have parameters stabilized	☑	☐	☐

If No or N/A – Explain below

SAMPLE COLLECTION: Method: Peri Pump

Sample ID	Container Type	No. of Containers	Preservation	Analysis	Time
TMW-26	40ml	3	HCl	TCL VOCs	1700
	1L	2	—	TCL SVOCs	

Additional Comments:

Signature: [signature] Date: 08/31/2016.

Well/Piezo ID: TMW-27

Ground Water Sample Collection Record

Client: BASF
Project Name: BASF Huntington
Site Location: Huntington WV
Weather Conditions: 80° cloudy

Date: 09/01/2016
Project Number:
Start: 830 am/pm
Finish: 930 am/pm

WATER LEVEL DATA: *(measured from top of casing)*

a. Total Well Length: 33.50'
b. Water Table Depth: 24.64'
c. Casing Material: PVC
d. Casing Diameter: 2"
e. Water Column Length (a-b):
f. Calculated Well Volume:

WELL PURGING DATA:

a. Purge Method: Peri-Pump
b. Acceptance Criteria:
- Minimum Required Purge Volume (@ Low Flow well volumes)
- Maximum Allowable Turbidity 10 NTUs
- Stabilization of Parameters 10 %

c. Field Testing Equipment Used
Make Horiba Model U52 Serial Number

d. Field Testing Equipment Calibration Documentation

Time	Volume Removed (gal)	T° (C/F)	pH	Specific Conductivity	Turbidity (NTUs)	Dissolved Oxygen	Oxygen Reduction Potential	Color	Odor	Other
905	1.0	20.79	5.41	0.520	3.7	0.33	214			
910	1.5	20.75	5.40	0.520	4.1	0.30	215			
915	2.0	20.68	5.35	0.518	3.2	0.19	222			
920	2.5	20.71	5.30	0.514	3.3	0.10	229			
925	3.0	20.71	5.31	0.517	2.6	0.09	229			

e. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	☐	☐	☑
Has required turbidity been reached	☑	☐	☐
Have parameters stabilized	☑	☐	☐

If No or N/A – Explain below

SAMPLE COLLECTION: Method: Peri-Pump

Sample ID	Container Type	No. of Containers	Preservation	Analysis	Time
TMW-27	40mL	3	HCl	TCL VOCs	930
	1L	2	—	TCL SVOCs	

Additional Comments:

Signature: Jay Dann Date: 09/01/2016

Well/Piezo ID: TMW-28

Ground Water Sample Collection Record

Client: BASF
Project Name: BASF Huntington
Site Location: Huntington WV
Weather Conditions: 80°F Cloudy

Date: 09/01/2016.
Project Number:
Start: 0940 am/pm
Finish: 1030 am/pm

WATER LEVEL DATA: *(measured from top of casing)*

a. Total Well Length: 33.50'
b. Water Table Depth: 24.85'
c. Casing Material: PVC
d. Casing Diameter: 2"
e. Water Column Length (a-b):
f. Calculated Well Volume:

WELL PURGING DATA:

a. Purge Method: Peri-Pump
b. Acceptance Criteria:
- Minimum Required Purge Volume (@ Conv. Flow well volumes)
- Maximum Allowable Turbidity 10 NTUs
- Stabilization of Parameters 10 %

c. Field Testing Equipment Used
Make Horiba Model U52 Serial Number

d. Field Testing Equipment Calibration Documentation

Time	Volume Removed (gal)	T° (C/F)	pH	Specific Conductivity	Turbidity (NTUs)	Dissolved Oxygen	Oxygen Reduction Potential	Color	Odor	Other
1005	1.0	20.75	5.72	0.510	5.6	0.46	221			
1010	1.5	20.66	5.71	0.510	5.5	0.28	226			
1015	2.0	20.63	5.69	0.511	6.9	0.20	229			
1020	2.5	20.63	5.66	0.509	6.6	0.12	231			
1025	3.0	20.63	5.66	0.509	5.9	0.11	232			

e. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	☐	☐	☑
Has required turbidity been reached	☑	☐	☐
Have parameters stabilized	☑	☐	☐

If No or N/A – Explain below

SAMPLE COLLECTION: Method: Peri-Pump

Sample ID	Container Type	No. of Containers	Preservation	Analysis	Time
TMW-28	40ml	3	HCl	TCL VOCs	1030
	1L	2	—	TCL SVOCs	

Additional Comments:

Signature: Joey Adams Date: 09/01/2016.

Well/Piezo ID: TMW-29

Ground Water Sample Collection Record

Client: BASF
Project Name: BASF Huntington
Site Location: Huntington WV
Weather Conditions: 80°F Cloudy

Date: 09/01/2016
Project Number:
Start: 1040 am/pm
Finish: am/pm

WATER LEVEL DATA: *(measured from top of casing)*

a. Total Well Length: 33.50'
b. Water Table Depth: 24.93'
c. Casing Material: PVC
d. Casing Diameter: 2"
e. Water Column Length (a-b):
f. Calculated Well Volume:

WELL PURGING DATA:

a. Purge Method: Peri-Pump
b. Acceptance Criteria:
- Minimum Required Purge Volume (@ Low-Flow well volumes)
- Maximum Allowable Turbidity 10 NTUs
- Stabilization of Parameters 10 %

c. Field Testing Equipment Used
Make Horiba Model U52 Serial Number

d. Field Testing Equipment Calibration Documentation

Time	Volume Removed (gal)	T° (C/F)	pH	Specific Conductivity	Turbidity (NTUs)	Dissolved Oxygen	Oxygen Reduction Potential	Color	Odor	Other
1100	1.0	20.59	5.54	0.488	8.7	0.41	191			
1105	1.5	20.62	5.55	0.485	14.1	0.22	192			
1110	2.0	20.56	5.55	0.489	12.4	0.14	189			
1115	2.5	20.58	5.56	0.488	11.7	0.09	181			
1120	3.0	20.59	5.56	0.488	10.3	0.05	181			
1125	3.5	21.33	5.66	0.483	7.8	0.07	179			
1130	4.0	21.30	5.64	0.486	7.0	0.08	181			

e. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	☐	☐	☑
Has required turbidity been reached	☑	☐	☐
Have parameters stabilized	☑	☐	☐

If No or N/A – Explain below

SAMPLE COLLECTION: Method: Peri-Pump

Sample ID	Container Type	No. of Containers	Preservation	Analysis	Time
TMW-29	40mL	3	HCl	TCL VOCs	1130
	1L	2	—	TCL SVOCs	

Additional Comments:

Signature: [signature] Date: 09/01/2016.

Well/Piezo ID: TMW-30

Ground Water Sample Collection Record

Client: BASF
Project Name: BASF Huntington
Site Location: Huntington WV
Weather Conditions: 85° sunny

Date: 09/01/2016.
Project Number:
Start: 1300 am/pm
Finish: am/pm

WATER LEVEL DATA: *(measured from top of casing)*

a. Total Well Length: 33.50'
b. Water Table Depth: 24.91'
c. Casing Material: PVC
d. Casing Diameter: 2"
e. Water Column Length (a-b):
f. Calculated Well Volume:

WELL PURGING DATA:

a. Purge Method: Peri-Pump
b. Acceptance Criteria:
- Minimum Required Purge Volume (@ Low Flow well volumes)
- Maximum Allowable Turbidity 10 NTUs
- Stabilization of Parameters 10 %

c. Field Testing Equipment Used
Make Horiba Model U52 Serial Number

d. Field Testing Equipment Calibration Documentation

Time	Volume Removed (gal)	T° (C/F)	pH	Specific Conductivity	Turbidity (NTUs)	Dissolved Oxygen	Oxygen Reduction Potential	Color	Odor	Other
1335	1.0	21.98	5.70	0.504	8.9	0.81	150			
1340	1.5	21.26	5.33	0.504	2.7	0.17	184			
1345	2.0	21.28	5.30	0.503	6.2	0.16	186			
1350	2.5	21.26	5.29	0.503	1.9	0.15	187			
1355	3.0	21.28	5.28	0.501	2.1	0.12	189			

e. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	☐	☐	☑
Has required turbidity been reached	☑	☐	☐
Have parameters stabilized	☑	☐	☐

If No or N/A – Explain below

SAMPLE COLLECTION: Method: Peri-Pump

Sample ID	Container Type	No. of Containers	Preservation	Analysis	Time
TMW-30	40mL	3	HCl	TCL VOCs	1400
	1L	2	—	TCL SVOCs	

Additional Comments:

Signature: [signature] Date: 09/01/2016.

Well/Piezo ID: TMW-31

Ground Water Sample Collection Record

Client: BASF
Project Name: BASF Huntington
Site Location: Huntington WV
Weather Conditions: 85° Sunny

Date: 09/01/2016.
Project Number:
Start: 1415 am/pm
Finish: 1500 am/pm

WATER LEVEL DATA: *(measured from top of casing)*

a. Total Well Length: 33.50'
b. Water Table Depth: 24.41'
c. Casing Material: PVC
d. Casing Diameter: 2"
e. Water Column Length (a-b):
f. Calculated Well Volume:

WELL PURGING DATA:

a. Purge Method: Peri-Pump
b. Acceptance Criteria:
- Minimum Required Purge Volume (@ Low-Flow well volumes)
- Maximum Allowable Turbidity 10 NTUs
- Stabilization of Parameters 10 %

c. Field Testing Equipment Used
Make Horiba Model U52 Serial Number

d. Field Testing Equipment Calibration Documentation

Time	Volume Removed (gal)	T° (C/F)	pH	Specific Conductivity	Turbidity (NTUs)	Dissolved Oxygen	Oxygen Reduction Potential	Color	Odor	Other
1430	1.0	22.66	5.75	0.461	9.5	5.03	223			
1435	1.5	22.55	5.74	0.459	8.5	1.07	229			
1440	2.0	22.55	5.73	0.459	7.8	0.79	232			
1445	2.5	22.61	5.72	0.457	8.2	0.90	233			
1450	3.0	22.60	5.72	0.457	8.0	0.89	234			

e. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	☐	☐	☑
Has required turbidity been reached	☑	☐	☐
Have parameters stabilized	☑	☐	☐

If No or N/A – Explain below

SAMPLE COLLECTION: Method: Peri-Pump

Sample ID	Container Type	No. of Containers	Preservation	Analysis	Time
TMW-31	40ml	3	HCl	TO VOCs	~~1500~~ 1455

Additional Comments:

Signature: [signature] Date: 09/01/2016.

APPENDIX F

VISL RISK SCREENING TABLES

MW-7D AOC1

EPA-OLEM VAPOR INTRUSION ASSESSMENT
Groundwater Concentration to Indoor Air Concentration (GWC-IAC) Calculator Version 3.5.1 (May 2016 RSLs)

Parameter	Symbol	Value	Instructions
Exposure Scenario	Scenario	Commercial	Select residential or commercial scenario from pull down list
Target Risk for Carcinogens	TCR	1.00E-06	Enter target risk for carcinogens (for comparison to the calculated VI carcinogenic risk in column F)
Target Hazard Quotient for Non-Carcinogens	THQ	1	Enter target hazard quotient for non-carcinogens (for comparison to the calculated VI hazard in column G)
Average Groundwater Temperature (°C)	Tgw	25	Enter average of the stabilized groundwater temperature to correct Henry's Law Constant for groundwater target concentrations

	CAS	Chemical Name	Site Groundwater Concentration Cgw (ug/L)	Calculated Indoor Air Concentration Cia (ug/m^3)	VI Carcinogenic Risk CR	VI Hazard HQ	Inhalation Unit Risk IUR (ug/m^3)$^{-1}$	IUR Source*	Reference Concentration RfC (mg/m^3)	RFC Source*	Mutagenic Indicator i
x	67-64-1	Acetone	2.2E+00	3.15E-03	No IUR	2.3E-08			3.10E+01	A	
x	74-87-3	Chloromethane	6.8E-01	2.45E-01	No IUR	6.2E-04			9.00E-02	I	
x	127-18-4	Tetrachloroethylene	6.7E-01	4.85E-01	1.0E-08	2.8E-03	2.60E-07	I	4.00E-02	I	
x	79-01-6	Trichloroethylene	3.1E+01	1.25E+01	**4.2E-06**	**1.4E+00**	see note	I	2.00E-03	I	TCE

Notes:

(1) **Inhalation Pathway Exposure Parameters (RME):**

Exposure Scenario	Units	Residential Symbol	Residential Value	Commercial Symbol	Commercial Value	Selected (based on scenario) Symbol	Selected (based on scenario) Value
Averaging time for carcinogens	(yrs)	ATc_R_GW	70	ATc_C_GW	70	ATc_GW	70
Averaging time for non-carcinogens	(yrs)	ATnc_R_GW	26	ATnc_C_GW	25	Atnc_GW	25
Exposure duration	(yrs)	ED_R_GW	26	ED_C_GW	25	ED_GW	25
Exposure frequency	(days/yr)	EF_R_GW	350	EF_C_GW	250	EF_GW	250
Exposure time	(hr/day)	ET_R_GW	24	ET_C_GW	8	ET_GW	8

(2) **Generic Attenuation Factors:**

Source Medium of Vapors		Residential Symbol	Residential Value	Commercial Symbol	Commercial Value	Selected (based on scenario) Symbol	Selected (based on scenario) Value
Groundwater	(-)	AFgw_R_GW	0.001	AFgw_C_GW	0.001	AFgw_GW	0.001
Sub-Slab and Exterior Soil Gas	(-)	AFss_R_GW	0.03	AFss_C_GW	0.03	AFss_GW	0.03

(3) **Formulas**

Cia, target = MIN(Cia,c; Cia,nc)
Cia,c (ug/m3) = TCR x ATc x (365 days/yr) x (24 hrs/day) / (ED x EF x ET x IUR)
Cia,nc (ug/m3) = THQ x ATnc x (365 days/yr) x (24 hrs/day) x RfC x (1000 ug/mg) / (ED x EF x ET)

(4) **Special Case Chemicals**

Trichloroethylene	Residential Symbol	Residential Value	Commercial Symbol	Commercial Value	Selected (based on scenario) Symbol	Selected (based on scenario) Value
	mIURTCE_R_GW	1.00E-06	mIURTCE_C_GW	0.00E+00	mIURTCE_GW	0.00E+00
	IURTCE_R_GW	3.10E-06	IURTCE_C_GW	4.10E-06	IURTCE_GW	4.10E-06

Mutagenic Chemicals — The exposure durations and age-dependent adjustment factors for mutagenic-mode-of-action are listed in the table below:

Note: This section applies to trichloroethylene and other mutagenic chemicals, but not to vinyl chloride.

Age Cohort	Exposure Duration	Age-dependent adjustment factor
0 - 2 years	2	10
2 - 6 years	4	3
6 - 16 years	10	3
16 - 26 years	10	1

Mutagenic-mode-of-action (MMOA) adjustment factor 25 This factor is used in the equations for mutagenic chemicals.

Vinyl Chloride — See the Navigation Guide equation for Cia,c for vinyl chloride.

Notation:
I = IRIS: EPA Integrated Risk Information System (IRIS). Available online at http://www.epa.gov/iris/subst/index.html
P = PPRTV. EPA Provisional Peer Reviewed Toxicity Values (PPRTVs). Available online at http://hhpprtv.ornl.gov/pprtv.shtml
A = Agency for Toxic Substances and Disease Registry (ATSDR) Minimum Risk Levels (MRLs). Available online at: http://www.atsdr.cdc.gov/mrls/index.html
CA = California Environmental Protection Agency/Office of Environmental Health Hazard Assessment assessments. Available online at: http://www.oehha.ca.gov/risk/ChemicalDB/index.asp
H = HEAST. EPA Superfund Health Effects Assessment Summary Tables (HEAST) database. Available online at: http://epa-heast.ornl.gov/heast.shtml
S = See RSL User Guide, Section 5
X = PPRTV Appendix
Mut = Chemical acts according to the mutagenic-mode-of-action, special exposure parameters apply (see footnote (4) above).
VC = Special exposure equation for vinyl chloride applies (see Navigation Guide for equation).

EPA-OLEM VAPOR INTRUSION ASSESSMENT
Groundwater Concentration to Indoor Air Concentration (GWC-IAC) Calculator Version 3.5.1 (May 2016 RSLs)

Parameter	Symbol	Value	Instructions
Exposure Scenario	Scenario	Commercial	Select residential or commercial scenario from pull down list
Target Risk for Carcinogens	TCR	1.00E-06	Enter target risk for carcinogens (for comparison to the calculated VI carcinogenic risk in column F)
Target Hazard Quotient for Non-Carcinogens	THQ	1	Enter target hazard quotient for non-carcinogens (for comparison to the calculated VI hazard in column G)
Average Groundwater Temperature (^oC)	Tgw	25	Enter average of the stabilized groundwater temperature to correct Henry's Law Constant for groundwater target concentrations

CAS	Chemical Name	Site Groundwater Concentration	Calculated Indoor Air Concentration	VI Carcinogenic Risk	VI Hazard	Inhalation Unit Risk	IUR Source*	Reference Concentration	RFC Source*	Mutagenic Indicator
		Cgw	Cia	CR	HQ	IUR		RfC		
		(ug/L)	(ug/m^3)			$(ug/m^3)^{-1}$		(mg/m^3)		i

TCE = Special mutagenic and non-mutagenic IURs for trichloroethylene apply (see footnote (4) above).
Yellow highlighting indicates site-specific parameters that may be edited by the user
Blue highlighting indicates exposure factors that are based on Risk Assessment Guidance for Superfund (RAGS) or EPA vapor intrusion guidance, which generally should not be changed.
Pink highlighting indicates VI carcinogenic risk greater than the target risk for carcinogens (TCR) or VI Hazard greater than or equal to the target hazard quotient for non-carcinogens (THQ).

TWM-14C - AOC1

EPA-OLEM VAPOR INTRUSION ASSESSMENT

Sub-slab or Exterior Soil Gas Concentration to Indoor Air Concentration (SGC-IAC) Calculator Version 3.5.1 (May 2016 RSLs)

Parameter	Symbol	Value	Instructions
Exposure Scenario	Scenario	Commercial	Select residential or commercial scenario from pull down list
Target Risk for Carcinogens	TCR_SG	1.00E-06	Enter target risk for carcinogens (for comparison to the calculated VI carcinogenic risk in column F)
Target Hazard Quotient for Non-Carcinogens	THQ_SG	1	Enter target hazard quotient for non-carcinogens (for comparison to the calculated VI hazard in column G)

	CAS	Chemical Name	Site Sub-slab or Exterior Soil Gas Concentration	Calculated Indoor Air Concentration	VI Carcinogenic Risk	VI Hazard	Inhalation Unit Risk	IUR Source*	Reference Concentration	RFC Source*	Mutagenic Indicator
			Csg	Cia	CR	HQ	IUR		RfC		
			(ug/m^3)	(ug/m^3)			(ug/m^3)$^{-1}$		(mg/m^3)		i
x	67-64-1	Acetone	2.80E+01	8.40E-01	No IUR	6.2E-06			3.10E+01	A	
x	71-43-2	Benzene	1.1E+01	3.30E-01	2.1E-07	2.5E-03	7.80E-06	I	3.00E-02	I	
x	75-15-0	Carbon Disulfide	7.9E+01	2.37E+00	No IUR	7.7E-04			7.00E-01	I	
x	56-23-5	Carbon Tetrachloride	1.4E+01	4.20E-01	2.1E-07	9.6E-04	6.00E-06	I	1.00E-01	I	
x	74-87-3	Chloromethane		--	--	--			9.00E-02	I	
x	110-82-7	Cyclohexane	6.7E+01	2.01E+00	No IUR	7.6E-05			6.00E+00	I	
x	107-06-2	Dichloroethane, 1,2-	1.2E+01	3.60E-01	7.6E-07	1.2E-02	2.60E-05	I	7.00E-03	P	
x	100-41-4	Ethylbenzene	2.2E+01	6.60E-01	1.3E-07	1.5E-04	2.50E-06	CA	1.00E+00	I	
x	110-54-3	Hexane, N-	4.1E+01	1.23E+00	No IUR	4.0E-04			7.00E-01	I	
x	78-93-3	Methyl Ethyl Ketone (2-Butanone)	4.1E+01	1.23E+00	No IUR	5.6E-05			5.00E+00	I	
x	108-10-1	Methyl Isobutyl Ketone (4-methyl-2-pentanone)	6.7E+00	2.01E-01	No IUR	1.5E-05			3.00E+00	I	
x	103-65-1	Propyl benzene	6.5E+00	1.95E-01	No IUR	4.5E-05			1.00E+00	X	
x	100-42-5	Styrene	1.0E+01	3.00E-01	No IUR	6.8E-05			1.00E+00	I	
x	127-18-4	Tetrachloroethylene	1.5E+01	4.50E-01	9.5E-09	2.6E-03	2.60E-07	I	4.00E-02	I	
x	108-88-3	Toluene	4.1E+01	1.23E+00	No IUR	5.6E-05			5.00E+00	I	
x	79-01-6	Trichloroethylene		--	--	--	see note	I	2.00E-03	I	TCE
x	95-63-6	Trimethylbenzene, 1,2,4-	1.8E+01	5.40E-01	No IUR	1.8E-02			7.00E-03	P	
x	108-38-3	Xylene, m-	8.2E+01	2.46E+00	No IUR	5.6E-03			1.00E-01	S	
x	95-47-6	Xylene, o-	2.8E+00	8.40E-02	No IUR	1.9E-04			1.00E-01	S	
x	106-42-3	Xylene, P-		--	--	--			1.00E-01	S	

TMW-15V - AOC1

EPA-OLEM VAPOR INTRUSION ASSESSMENT

Sub-slab or Exterior Soil Gas Concentration to Indoor Air Concentration (SGC-IAC) Calculator Version 3.5.1 (May 2016 RSLs)

Parameter	Symbol	Value	Instructions
Exposure Scenario	Scenario	Commercial	Select residential or commercial scenario from pull down list
Target Risk for Carcinogens	TCR_SG	1.00E-06	Enter target risk for carcinogens (for comparison to the calculated VI carcinogenic risk in column F)
Target Hazard Quotient for Non-Carcinogens	THQ_SG	1	Enter target hazard quotient for non-carcinogens (for comparison to the calculated VI hazard in column G)

	CAS	Chemical Name	Site Sub-slab or Exterior Soil Gas Concentration	Calculated Indoor Air Concentration	VI Carcinogenic Risk	VI Hazard	Inhalation Unit Risk	IUR Source*	Reference Concentration	RFC Source*	Mutagenic Indicator
			Csg	Cia	CR	HQ	IUR		RfC		
			(ug/m^3)	(ug/m^3)			(ug/m^3)$^{-1}$		(mg/m^3)		i
x	67-64-1	Acetone	6.1E+01	1.83E+00	No IUR	1.3E-05			3.10E+01	A	
x	100-41-4	Ethylbenzene	7.5E+00	2.25E-01	4.6E-08	5.1E-05	2.50E-06	CA	1.00E+00	I	
x	110-54-3	Hexane, N-	5.0E+00	1.50E-01	No IUR	4.9E-05			7.00E-01	I	
x	108-10-1	Methyl Isobutyl Ketone (4-methyl-2-pentanone)	8.4E+00	2.52E-01	No IUR	1.9E-05			3.00E+00	I	
x	108-88-3	Toluene	1.1E+02	3.30E+00	No IUR	1.5E-04			5.00E+00	I	
x	108-38-3	Xylene, m-	3.2E+01	9.60E-01	No IUR	2.2E-03			1.00E-01	S	
x	95-47-6	Xylene, o-	1.8E+01	5.40E-01	No IUR	1.2E-03			1.00E-01	S	

TMW-16V - AOC1

EPA-OLEM VAPOR INTRUSION ASSESSMENT

Sub-slab or Exterior Soil Gas Concentration to Indoor Air Concentration (SGC-IAC) Calculator Version 3.5.1 (May 2016 RSLs)

Parameter	Symbol	Value	Instructions
Exposure Scenario	Scenario	Commercial	Select residential or commercial scenario from pull down list
Target Risk for Carcinogens	TCR_SG	1.00E-06	Enter target risk for carcinogens (for comparison to the calculated VI carcinogenic risk in column F)
Target Hazard Quotient for Non-Carcinogens	THQ_SG	1	Enter target hazard quotient for non-carcinogens (for comparison to the calculated VI hazard in column G)

	CAS	Chemical Name	Site Sub-slab or Exterior Soil Gas Concentration	Calculated Indoor Air Concentration	VI Carcinogenic Risk	VI Hazard	Inhalation Unit Risk	IUR Source*	Reference Concentration	RFC Source*	Mutagenic Indicator
			Csg	Cia	CR	HQ	IUR		RfC		
			(ug/m^3)	(ug/m^3)			(ug/m^3)$^{-1}$		(mg/m^3)		i
x	67-64-1	Acetone	2.7E+02	8.10E+00	No IUR	6.0E-05			3.10E+01	A	
x	71-43-2	Benzene	8.0E+00	2.40E-01	1.5E-07	1.8E-03	7.80E-06	I	3.00E-02	I	
x	75-15-0	Carbon Disulfide	3.0E+01	9.00E-01	No IUR	2.9E-04			7.00E-01	I	
x	110-82-7	Cyclohexane	4.7E+01	1.41E+00	No IUR	5.4E-05			6.00E+00	I	
x	107-06-2	Dichloroethane, 1,2-	9.4E+00	2.82E-01	6.0E-07	9.2E-03	2.60E-05	I	7.00E-03	P	
x	100-41-4	Ethylbenzene	1.7E+01	5.10E-01	1.0E-07	1.2E-04	2.50E-06	CA	1.00E+00	I	
x	110-54-3	Hexane, N-	2.0E+01	6.00E-01	No IUR	2.0E-04			7.00E-01	I	
x	103-65-1	Propyl benzene	6.1E+00	1.83E-01	No IUR	4.2E-05			1.00E+00	X	
x	100-42-5	Styrene	1.1E+01	3.30E-01	No IUR	7.5E-05			1.00E+00	I	
x	127-18-4	Tetrachloroethylene	1.6E+01	4.80E-01	1.0E-08	2.7E-03	2.60E-07	I	4.00E-02	I	
x	108-88-3	Toluene	3.7E+02	1.11E+01	No IUR	5.1E-04			5.00E+00	I	
x	95-63-6	Trimethylbenzene, 1,2,4-	2.1E+01	6.30E-01	No IUR	2.1E-02			7.00E-03	P	
x	108-38-3	Xylene, m-	6.4E+01	1.92E+00	No IUR	4.4E-03			1.00E-01	S	
x	95-47-6	Xylene, o-	1.8E+01	5.40E-01	No IUR	1.2E-03			1.00E-01	S	

MW-17V - AOC1

EPA-OLEM VAPOR INTRUSION ASSESSMENT

Sub-slab or Exterior Soil Gas Concentration to Indoor Air Concentration (SGC-IAC) Calculator Version 3.5.1 (May 2016 RSLs)

Parameter	Symbol	Value	Instructions
Exposure Scenario	Scenario	Commercial	Select residential or commercial scenario from pull down list
Target Risk for Carcinogens	TCR_SG	1.00E-06	Enter target risk for carcinogens (for comparison to the calculated VI carcinogenic risk in column F)
Target Hazard Quotient for Non-Carcinogens	THQ_SG	1	Enter target hazard quotient for non-carcinogens (for comparison to the calculated VI hazard in column G)

	CAS	Chemical Name	Site Sub-slab or Exterior Soil Gas Concentration	Calculated Indoor Air Concentration	VI Carcinogenic Risk	VI Hazard	Inhalation Unit Risk	IUR Source*	Reference Concentration	RFC Source*	Mutagenic Indicator
			Csg	Cia	CR	HQ	IUR		RfC		
			(ug/m^3)	(ug/m^3)			(ug/m^3)$^{-1}$		(mg/m^3)		i
x	67-64-1	Acetone	2.0E+02	6.00E+00	No IUR	4.4E-05			3.10E+01	A	
x	71-43-2	Benzene	1.7E+01	5.10E-01	3.2E-07	3.9E-03	7.80E-06	I	3.00E-02	I	
x	75-15-0	Carbon Disulfide	1.4E+02	4.20E+00	No IUR	1.4E-03			7.00E-01	I	
x	110-82-7	Cyclohexane	4.6E+01	1.38E+00	No IUR	5.3E-05			6.00E+00	I	
x	110-54-3	Hexane, N-	1.5E+01	4.50E-01	No IUR	1.5E-04			7.00E-01	I	
x	108-38-3	Xylene, m-	2.3E+01	6.90E-01	No IUR	1.6E-03			1.00E-01	S	

TMW-26V - AOC10

EPA-OLEM VAPOR INTRUSION ASSESSMENT

Sub-slab or Exterior Soil Gas Concentration to Indoor Air Concentration (SGC-IAC) Calculator Version 3.5.1 (May 2016 RSLs)

Parameter	Symbol	Value	Instructions
Exposure Scenario	Scenario	Residential	Select residential or commercial scenario from pull down list
Target Risk for Carcinogens	TCR_SG	1.00E-06	Enter target risk for carcinogens (for comparison to the calculated VI carcinogenic risk in column F)
Target Hazard Quotient for Non-Carcinogens	THQ_SG	1	Enter target hazard quotient for non-carcinogens (for comparison to the calculated VI hazard in column G)

	CAS	Chemical Name	Site Sub-slab or Exterior Soil Gas Concentration	Calculated Indoor Air Concentration	VI Carcinogenic Risk	VI Hazard	Inhalation Unit Risk	IUR Source*	Reference Concentration	RFC Source*	Mutagenic Indicator
			Csg	Cia	CR	HQ	IUR		RfC		
			(ug/m^3)	(ug/m^3)			(ug/m^3)$^{-1}$		(mg/m^3)		i
x	67-64-1	Acetone	8.8E+01	2.64E+00	No IUR	8.2E-05			3.10E+01	A	
x	71-43-2	Benzene	6.7E+00	2.01E-01	5.6E-07	6.4E-03	7.80E-06	I	3.00E-02	I	
x	75-15-0	Carbon Disulfide	1.1E+02	3.30E+00	No IUR	4.5E-03			7.00E-01	I	
x	110-82-7	Cyclohexane	1.0E+01	3.00E-01	No IUR	4.8E-05			6.00E+00	I	
x	100-41-4	Ethylbenzene	1.4E+01	4.20E-01	3.7E-07	4.0E-04	2.50E-06	CA	1.00E+00	I	
x	110-54-3	Hexane, N-	1.7E+01	5.10E-01	No IUR	7.0E-04			7.00E-01	I	
x	127-18-4	Tetrachloroethylene	1.7E+03	5.10E+01	**4.7E-06**	**1.2E+00**	2.60E-07	I	4.00E-02	I	
x	108-88-3	Toluene	7.0E+01	2.10E+00	No IUR	4.0E-04			5.00E+00	I	
x	79-01-6	Trichloroethylene	1.6E+01	4.80E-01	**1.0E-06**	2.3E-01	see note	I	2.00E-03	I	TCE
x	95-63-6	Trimethylbenzene, 1,2,4-	2.7E+01	8.10E-01	No IUR	1.1E-01			7.00E-03	P	
x	108-38-3	Xylene, m-	9.4E+01	2.82E+00	No IUR	2.7E-02			1.00E-01	S	
x	95-47-6	Xylene, o-	4.6E+01	1.38E+00	No IUR	1.3E-02			1.00E-01	S	

TMW-27V - AOC10

EPA-OLEM VAPOR INTRUSION ASSESSMENT

Sub-slab or Exterior Soil Gas Concentration to Indoor Air Concentration (SGC-IAC) Calculator Version 3.5.1 (May 2016 RSLs)

Parameter	Symbol	Value	Instructions
Exposure Scenario	Scenario	Residential	Select residential or commercial scenario from pull down list
Target Risk for Carcinogens	TCR_SG	1.00E-06	Enter target risk for carcinogens (for comparison to the calculated VI carcinogenic risk in column F)
Target Hazard Quotient for Non-Carcinogens	THQ_SG	1	Enter target hazard quotient for non-carcinogens (for comparison to the calculated VI hazard in column G)

	CAS	Chemical Name	Site Sub-slab or Exterior Soil Gas Concentration	Calculated Indoor Air Concentration	VI Carcinogenic Risk	VI Hazard	Inhalation Unit Risk	IUR Source*	Reference Concentration	RFC Source*	Mutagenic Indicator
			Csg	Cia	CR	HQ	IUR		RfC		
			(ug/m^3)	(ug/m^3)			(ug/m^3)$^{-1}$		(mg/m^3)		i
x	67-64-1	Acetone	6.5E+01	1.95E+00	No IUR	6.0E-05			3.10E+01	A	
x	56-23-5	Carbon Tetrachloride	9.1E+00	2.73E-01	5.8E-07	2.6E-03	6.00E-06	I	1.00E-01	I	
x	127-18-4	Tetrachloroethylene	2.1E+03	6.30E+01	**5.8E-06**	**1.5E+00**	2.60E-07	I	4.00E-02	I	
x	108-88-3	Toluene	1.4E+01	4.20E-01	No IUR	8.1E-05			5.00E+00	I	
x	79-01-6	Trichloroethylene	2.6E+01	7.80E-01	**1.6E-06**	3.7E-01	see note	I	2.00E-03	I	TCE

TMW-28V - AOC10

EPA-OLEM VAPOR INTRUSION ASSESSMENT

Sub-slab or Exterior Soil Gas Concentration to Indoor Air Concentration (SGC-IAC) Calculator Version 3.5.1 (May 2016 RSLs)

Parameter	Symbol	Value	Instructions
Exposure Scenario	Scenario	Residential	Select residential or commercial scenario from pull down list
Target Risk for Carcinogens	TCR_SG	1.00E-06	Enter target risk for carcinogens (for comparison to the calculated VI carcinogenic risk in column F)
Target Hazard Quotient for Non-Carcinogens	THQ_SG	1	Enter target hazard quotient for non-carcinogens (for comparison to the calculated VI hazard in column G)

	CAS	Chemical Name	Site Sub-slab or Exterior Soil Gas Concentration	Calculated Indoor Air Concentration	VI Carcinogenic Risk	VI Hazard	Inhalation Unit Risk	IUR Source*	Reference Concentration	RFC Source*	Mutagenic Indicator
			Csg	Cia	CR	HQ	IUR		RfC		
			(ug/m^3)	(ug/m^3)			(ug/m^3)$^{-1}$		(mg/m^3)		i
x	108-88-3	Toluene	4.9E+00	1.47E-01	No IUR	2.8E-05			5.00E+00	I	
x	79-01-6	Trichloroethylene	2.2E+02	6.60E+00	**1.4E-05**	**3.2E+00**	see note	I	2.00E-03	I	TCE

TMW-29V - AOC10

EPA-OLEM VAPOR INTRUSION ASSESSMENT

Sub-slab or Exterior Soil Gas Concentration to Indoor Air Concentration (SGC-IAC) Calculator Version 3.5.1 (May 2016 RSLs)

Parameter	Symbol	Value	Instructions
Exposure Scenario	Scenario	Residential	Select residential or commercial scenario from pull down list
Target Risk for Carcinogens	TCR_SG	1.00E-06	Enter target risk for carcinogens (for comparison to the calculated VI carcinogenic risk in column F)
Target Hazard Quotient for Non-Carcinogens	THQ_SG	1	Enter target hazard quotient for non-carcinogens (for comparison to the calculated VI hazard in column G)

	CAS	Chemical Name	Site Sub-slab or Exterior Soil Gas Concentration	Calculated Indoor Air Concentration	VI Carcinogenic Risk	VI Hazard	Inhalation Unit Risk	IUR Source*	Reference Concentration	RFC Source*	Mutagenic Indicator
			Csg	Cia	CR	HQ	IUR		RfC		
			(ug/m^3)	(ug/m^3)			(ug/m^3)$^{-1}$		(mg/m^3)		i
x	75-15-0	Carbon Disulfide	3.6E+01	1.08E+00	No IUR	1.5E-03			7.00E-01	I	
x	56-23-5	Carbon Tetrachloride	4.0E+01	1.20E+00	**2.6E-06**	1.2E-02	6.00E-06	I	1.00E-01	I	
x	127-18-4	Tetrachloroethylene	6.3E+02	1.89E+01	**1.8E-06**	4.5E-01	2.60E-07	I	4.00E-02	I	

TMW-30V - AOC10

EPA-OLEM VAPOR INTRUSION ASSESSMENT

Sub-slab or Exterior Soil Gas Concentration to Indoor Air Concentration (SGC-IAC) Calculator Version 3.5.1 (May 2016 RSLs)

Parameter	Symbol	Value	Instructions
Exposure Scenario	Scenario	Residential	Select residential or commercial scenario from pull down list
Target Risk for Carcinogens	TCR_SG	1.00E-06	Enter target risk for carcinogens (for comparison to the calculated VI carcinogenic risk in column F)
Target Hazard Quotient for Non-Carcinogens	THQ_SG	1	Enter target hazard quotient for non-carcinogens (for comparison to the calculated VI hazard in column G)

	CAS	Chemical Name	Site Sub-slab or Exterior Soil Gas Concentration	Calculated Indoor Air Concentration	VI Carcinogenic Risk	VI Hazard	Inhalation Unit Risk	IUR Source*	Reference Concentration	RFC Source*	Mutagenic Indicator
			Csg	Cia	CR	HQ	IUR		RfC		
			(ug/m^3)	(ug/m^3)			(ug/m^3)$^{-1}$		(mg/m^3)		i
x	56-23-5	Carbon Tetrachloride	1.0E+02	3.00E+00	**6.4E-06**	2.9E-02	6.00E-06	I	1.00E-01	I	
x	127-18-4	Tetrachloroethylene	4.2E+03	1.26E+02	**1.2E-05**	**3.0E+00**	2.60E-07	I	4.00E-02	I	
x	108-88-3	Toluene	1.2E+01	3.60E-01	No IUR	6.9E-05			5.00E+00	I	
x	79-01-6	Trichloroethylene	5.4E+01	1.62E+00	**3.4E-06**	7.8E-01	see note	I	2.00E-03	I	TCE

TMW-31 - AOC 10

EPA-OLEM VAPOR INTRUSION ASSESSMENT

Sub-slab or Exterior Soil Gas Concentration to Indoor Air Concentration (SGC-IAC) Calculator Version 3.5.1 (May 2016 RSLs)

Parameter	Symbol	Value	Instructions
Exposure Scenario	Scenario	Residential	Select residential or commercial scenario from pull down list
Target Risk for Carcinogens	TCR_SG	1.00E-06	Enter target risk for carcinogens (for comparison to the calculated VI carcinogenic risk in column F)
Target Hazard Quotient for Non-Carcinogens	THQ_SG	1	Enter target hazard quotient for non-carcinogens (for comparison to the calculated VI hazard in column G)

	CAS	Chemical Name	Site Sub-slab or Exterior Soil Gas Concentration	Calculated Indoor Air Concentration	VI Carcinogenic Risk	VI Hazard	Inhalation Unit Risk	IUR Source*	Reference Concentration	RFC Source*	Mutagenic Indicator
			Csg	Cia	CR	HQ	IUR		RfC		
			(ug/m^3)	(ug/m^3)			(ug/m^3)$^{-1}$		(mg/m^3)		i
x	67-64-1	Acetone	6.5E+01	1.95E+00	No IUR	6.0E-05			3.10E+01	A	
x	75-15-0	Carbon Disulfide	2.4E+01	7.20E-01	No IUR	9.9E-04			7.00E-01	I	
x	56-23-5	Carbon Tetrachloride	2.8E+01	8.40E-01	**1.8E-06**	8.1E-03	6.00E-06	I	1.00E-01	I	
x	110-54-3	Hexane, N-	5.5E+00	1.65E-01	No IUR	2.3E-04			7.00E-01	I	
x	127-18-4	Tetrachloroethylene	2.1E+02	6.30E+00	5.8E-07	1.5E-01	2.60E-07	I	4.00E-02	I	
x	108-88-3	Toluene	4.8E+01	1.44E+00	No IUR	2.8E-04			5.00E+00	I	
x	79-01-6	Trichloroethylene	1.2E+01	3.60E-01	7.5E-07	1.7E-01	see note	I	2.00E-03	I	TCE