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Freedom Industries

Site Investigation Report

Freedom Industries -
Etowah River Terminal
1015 Barlow Drive
Charleston, Kanawha County,
West Virginia

VRP ID# 15017

April 30, 2015

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Site Investigation Report

Freedom Industries -
Etowah River Terminal

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1. Site description

1.1 Site Location

Freedom Industries is located at 1015 Barlow Drive in Charleston, West Virginia 25311 (herein referred to as the Site). The Site is located at Latitude 38˚ 22' 5.16" north and Longitude 81˚ 36' 23.40" west and is located at an elevation of approximately 617 feet above mean sea level. The general location of the Site and physiographic features of the surrounding area are shown on **Figure 1**, developed from the United States Geological Survey (USGS) topographic map for Charleston East, WV. A more detailed map of the Site and relevant features is presented as **Figure 2**.

1.2 Topography

The Site is located north of the City of Charleston, WV and borders the Elk River to the west. The ground surface elevation rises steeply from the Elk River toward the Site, plateaus on the site and continues to increase significantly offsite toward the east. The surface topography within the main portion of the Site generally dips slightly to the north.

1.3 Geology

Regional geologic data indicates that surface soils in the area of the Site consist of unconsolidated, poorly to well-drained, highly stratified, sands, gravels and clayey silts. Surface soils at the Site consist of fill material down to depths ranging from two to six feet below ground surface. Pennsylvanian-aged sedimentary rock underlies the unconsolidated sediments at the Site consisting of stratified sequences of sandstone, limestone and shale. Depth to top of bedrock at the Site ranges from 33 feet below ground surface (bgs) to 58feet bgs.

1.4 Hydrogeology

Analysis of groundwater elevation data across the Site indicates that two separate flow regimes exist. Shallow groundwater flows through surficial, low-permeability soils, hydraulically driven by the steep gradient as the site topography drops off sharply toward the Elk River. Groundwater flow also occurs in the deeper, more permeable unconsolidated sediments; this deeper aquifer is heavily influenced by the Elk River and is associated with regional groundwater flow. The general flow of ground water across the Site is from east to west, mimicking the surface topography.

Potentiometric surface maps for the shallow and deep aquifers based on water elevations measured during the December 2014 and January 2015 gauging events are presented as **Figures 4A through 5B**.

1.5 Previous Investigations

In September 2003, Pennzoil-Quaker State entered the site into a Voluntary Remediation Agreement within the WV Voluntary Remediation and Redevelopment Program. According to the information submitted in the Voluntary Remediation and Redevelopment Program (VRRP) Application, constituents of concern (COCs) in soil consist of benzene, methyl tertiary butyl ether (MTBE), total petroleum hydrocarbons (TPH) diesel range organics (DRO) and gasoline range organics (GRO), lead, 1-methylnaphthalene, 2-methylnaphthalene and naphthalene; these constituents were previously detected at the Site at concentrations exceeding the de Minimis levels for migration to groundwater. COCs in groundwater consist of benzene, MTBE, TPH (DRO, ORO and GRO), lead, 1-methylnaphthalene, 2-methylnaphthalene, Dibenz(a,h)anthracene, and Indeno(1,2,3-cd)pyrene; these constituents were detected at concentrations above the de Minimis levels for direct contact with groundwater. Following delineation of the chemicals of concern, a risk assessment was conducted to evaluate the potential risk posed to human health and the environment through all potential exposure pathways. A Land Use Covenant (LUC) is recorded as an administrative control to eliminate several of these pathways, thereby, indicating that the COCs remaining at the Site did not pose a risk after exposure pathways were eliminated.

1.6 Site and Vicinity Characteristics

Currently, the Site is inactive. Since the release of 4-Methyl-1-cyclohexane methanol (MCHM) and propylene glycol phenyl ether (PPH) on January 9, 2014, bulk storage and distribution activities have ceased and the Site has been undergoing cleanup and decommissioning. Beginning in August and concluding in October 2014, all of the aboveground storage tanks (ASTs) associated piping and facilities were cleaned and demolished, and steel material was sent off for recycling. Throughout the decommissioning process, gross MCHM impacted soils were removed using an excavator. Historical site features and excavations, as of the end of February 2015, are shown of **Figure 2**.

Surrounding the Site are residential, commercial, and vacant properties and the Elk River. Based on ARCADIS' observations, the closest residence is approximately 75 feet from the southern boundary of the Site.

1.6.1 Relevant Site Features

1.6.1.1 Storm Water Outfalls

The Site currently has two storm water outfalls (Outfall #2 and Outfall #3) that drain into the Elk River. Since ARCADIS has become the consultant for Freedom Industries, discharge has only been observed during one attempt to collect a sample, which was on September 11, 2014. Storm water outfalls, including the abandoned Outfall #1, are depicted on **Figure 2**.

1.6.1.2 Storm Water Collection Trenches and Sumps

Prior to ARCADIS's involvement with Freedom Industries, Civil and Environmental Consultants (CEC) installed two storm water collection trenches east (up gradient) and west (down gradient) of the release area respectively with the western trench having an estimated 10,000 gallon capacity and acting as a final barrier to any possibly contaminated surface water that would otherwise enter the Elk River. In these trenches, CEC installed three collection sumps (Sump 2, CV-Footing, and Treat-1V). These trenches collected potentially contaminated storm water, which was then pumped to storage tanks for characterization and proper disposal. Several of the remaining ASTs were utilized for temporary storage of storm water prior to demolition. Following demolition, temporarily staged frac tanks have been utilized to store the storm water prior to disposal offsite. In September of 2014, ARCADIS installed sump Treat-2V to aid in the collection of storm water runoff from the release area.

The eastern trench and associated sumps, Sump 2 and CV-Footing, were abandoned in November of 2014 after the installation of the groundwater diversion trench, which is described in greater detail in Section 1.6.1.3.

Both storm water diversion trenches and all four collection sumps are depicted on **Figure 2**.

1.6.1.3 Groundwater Diversion Trench

In November of 2014, a diversion trench was installed on the eastern (up gradient) side of the Site sloping to the north and turning west toward the Elk River. The diversion trench was installed as a French drain type system with an impermeable geo-membrane liner on the bottom and western side of the north-south portion of the trench; a thirty-six inch diameter corrugated pipe placed vertically in the trench acts as a monitoring sump for water levels and visual observation. This monitoring point is located within the trench near the northern boundary of the Site. The outflow of this sump has a cutoff valve connected to a solid pipe which daylights and spills onto a bed of riprap leading down to the Elk River. This trench removed any flow to the former eastern collection trench and greatly reduces the amount of water reaching the western trench.

Prior to allowing water from the diversion trench to flow into the Elk River, water samples were collected from the diversion trench sump and analyzed for site contaminants of potential concern (COPCs) to ensure that the water was free of contaminants. Diversion trench sump sampling results indicate that concentrations of COPCs are below laboratory detectable limits.

The groundwater diversion trench is depicted on **Figure 2**.

1.6.1.4 Secondary Containment Wall

The eastern secondary containment wall from approximately twenty feet south of former Sump 2, moving south, to approximately ten feet north of the southeastern most corner was removed in August and September of 2014 to facilitate the cleaning and demolition of ASTs and associated piping.

Approximately seventy-five linear feet of the secondary containment wall, west of the release area, were removed along with an approximately twenty-foot section of the wall's footer. This was in an effort to collect samples and characterize the extent of COPCs that likely settled along the wall during the release.

The secondary containment wall is depicted on **Figure 2**.

1.6.1.5 Oil Water Separator

The site has an approximately 8,000 gallon oil water separator (OWS) that collected fluids from the former tanker loading rack and collection sumps/drains located throughout the AST secondary containment area. Following the release in January of 2014, the outflow of the OWS was plugged. The OWS continues to collect water from the loading rack and secondary containment area. This water is collected and pumped into storage tanks for disposal.

The OWS is depicted on **Figure 2.**

1.6.1.6 ASTs and Frac Tanks

Following the release on January 9, 2014, the contents of all bulk storage ASTs were removed. Prior to final demolition of the tanks, Tanks 403, 404, and 405 were used to store collected storm water from the collection trenches, OWS, and vacuum truck. When a sufficient volume of storm water was collected tanker trucks were used to transport water to the Shamrock Environmental Corporation in Greensboro, North Carolina for disposal.

Prior to the final demolition of Tanks 403, 404, and 405, five frac tanks were staged onsite to temporarily store the collected storm water. Four of the frac tanks were of single wall construction and, at the request of the WV DEP, in November those four tanks were replaced with double walled tanks. Water from these tanks was transported via tanker to the Charleston Sanitary Board (CSB) for disposal through the city's wastewater treatment plant.

In early December of 2014, the water being sent to CSB failed field tests for total suspended solids (TSS). To remedy this problem water was filtered through a bag style, fabric filter to remove large particulates and placed in a cleaned frac tank.

All solids generated from filtration and periodic cleaning of the frac tanks were transported to Envirotank Clean in Belpre, Ohio.

The location of the frac tanks and locations of former ASTs are depicted on **Figure 2**. Waste disposal manifests, not including scale tickets, provided by SPSI are presented as **Appendix B.**

2. Chemicals of Concern

2.1 Historic Land Use

The pre-1930 land use was agricultural. In 1930 development of the bulk petroleum storage facility began when Elk Refining Company (Elk) purchased 1.56-acres from Edith Bowers Bailey and Homer Bailey. In 1941, 1947, and 1948 Elk purchased additional property to expand the terminal. In 1950, warehouse/office and garage storage buildings were constructed. Elk merged with Pennzoil United, Inc. (now Pennzoil-Quaker State (PQS)) in 1970 and operated the terminal under that ownership.

In 2001, PQS sold the property to Etowah River Terminal, LLC when the use of the Site changed from bulk petroleum storage to storage and distribution of freeze conditioning agents including ethylene glycol and calcium chloride solutions. In addition, coal-cleaning materials, including MCHM were stored and distributed from the Site.

Since 2001, the Site has been used for the storage and distribution of anti-freezing chemicals. Petroleum product storage and distribution ceased prior to the enactment of an Environmental Covenant by the West Virginia Department of Environmental Protection (WVDEP). As such, only chemicals stored after 2001 are identified as COPCs.

2.2 Current Chemicals of Concern

As directed by guidelines of the VRP program, the following COPCs have been investigated because of the January 2014 release:

- 4-Methyl-1-cyclohexanemethanol (MCHM)
- Propylene glycol phenyl ether (PPH)
- Propylene glycol & glycols
- Alcohols
- Volatile fatty acids
- Aldehydes

It should be noted that volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and a range of other compounds were analyzed from selected samples to ensure that the mobility and associated risk of former chemicals has not been altered since the previous VRRP closure.

3. Current Investigation

This report summarized activities and data collected from January 2014 through February 2015. Several samples have been collected during this time period including surface soil, sub-surface soil, sediment samples from the Elk River, groundwater, water from collection sumps, diversion trench water, storm water from outfalls, and surface water from the Elk River. All data collected by CEC that is available to ARCADIS is included as part of this investigation summary.

3.1 Soil Borings

Each soil boring designated location was pre-cleared to five feet below ground surface (bgs), refusal, or termination depth using a stainless steel hand auger in accordance with ARCADIS borehole clearance procedures to prevent any potential damage to nearby underground utilities or obstructions. Each soil boring location was installed to a specific depth, as indicated on the boring logs provided in **Appendix A**. Soil was collected in two-foot intervals for the entire depth of the boring, and screened with a photoionization detector (PID) calibrated with 100 parts per million (ppm) isobutylene. At each boring location, a soil sample was collected for laboratory analysis from the surface (0-1 ft. bgs), the deepest unsaturated soil interval, and the unsaturated interval with the highest PID screening value; focusing around 10 ft. bgs (for use in a future site specific risk assessment as the typical depth of exposure to a construction worker). All soil samples were shipped on ice and under chain of custody seal to TestAmerica, Inc., in North Canton, Ohio.

Final soil boring locations are depicted on **Figure 3**.

3.2 Groundwater

Ten new monitoring wells (MW-3A and MW-8 through MW-13) were installed in October of 2014. Monitoring wells identified with an S suffix indicate shallow monitoring wells. Groundwater samples were collected from all monitoring wells that yielded a sufficient volume of water. Prior to sampling, monitoring wells were gauged with an oil/water interface probe (IP) to determine depth to water (DTW), depth to

bottom (DTB), and depth to product (DTP), if applicable, prior to purging and sampling activities. The IP and attached tape, marked in 0.01-foot increments, was properly decontaminated, before each use with Alconox and distilled water. The depth to water and/or any non-miscible liquids were measured from highest point on each monitoring well casing. All measurements were recorded to the nearest 0.01-foot increment. Groundwater gauging data is presented in **Table 1**.

Monitoring wells were sampled using low-flow groundwater sampling methods. Prior to collecting a sample, each well was purged using a bladder pump equipped with a new polyethylene bladder and new disposable tubing. The sampling pump and tubing were slowly lowered into each monitoring well to a depth approximately one foot from the bottom of the well. Wells onsite have slow recharge rates and the pumping rate at each well was kept to a minimum to limit aquifer drawdown as much as possible. New nitrile gloves were worn by field personnel at each groundwater monitoring well during sampling activities. An equipment blank sample was collected by pouring distilled water through new sampling tubing into the appropriate sample bottles. A table with all blank sample results is presented as **Table 5**.

Natural attenuation parameters including temperature, dissolved oxygen, pH, conductivity, and oxygen reduction potential (ORP) were collected and recorded at 5 minute intervals. Groundwater samples were collected from each temporary groundwater monitoring well after these parameters had stabilized. Natural attenuation parameters collected immediately prior to groundwater sampling activities are presented as **Table 2**.

All groundwater samples were placed in laboratory-supplied containers and shipped on ice under chain-of-custody seal to TestAmerica, Inc. in North Canton, Ohio.

Monitoring Well locations are depicted on **Figure 2**.

3.3 Surface Water and Sediment

Three sets of surface water and sediment samples were collected from the Elk River at three locations. Samples were collected upstream of the Northern edge of the Site, the location immediately adjacent to where a majority of the released chemical mixture entered the Elk River, and downstream of the barge dock. Surface water was collected from the top of the river surface, and sediment samples were collected directly below the surface water collection point.

Surface water samples were collected using new disposable polyethylene bailers and sediment samples were collected with new disposable soil scoops. New nitrile gloves were worn by field personnel at each sample collection point during sampling activities. Samples were placed in laboratory-supplied containers and shipped on ice under chain-of-custody seal to TestAmerica, Inc. in North Canton, Ohio.

Surface water and sediment locations are depicted on **Figure 8**.

3.4 Dewatering Sumps

Four dewatering sumps (Sump 2, CV-Footing, Treat-1V, and Treat-2V) set within the two trenches (located east and west of the release area) were sampled weekly from the apparent time of installation until mid-November 2014. Sump samples were collected using new disposable polyethylene bailers and string. New nitrile gloves were worn by field personnel at each sump during sampling activities. Samples were placed in laboratory-supplied containers and shipped on ice under chain-of-custody seal to TestAmerica, Inc. in North Canton, Ohio.

Sump locations are depicted on **Figure 2**.

3.5 Excavations

After review of the results from the *Remediation Delineation and Investigation Work Plan,* presented as **Appendix C**, excavation of impacted soil commenced. Soil removal was performed in multiple stages based on visual and olfactory observation indicating the presence of COPCs listed in Section 2.2. Following excavations, confirmation soil samples (designated 'CS' and the date of collection) were gathered and placed in laboratory-supplied containers and shipped on ice under chain-of-custody seal to TestAmerica, Inc. in North Canton, Ohio.

New nitrile gloves were worn by field personnel at each sample collection point during sampling activities. Confirmation soil sample depths are approximate based on the estimated depth from the original ground surface.

Waste Disposal manifests, not including scale tickets, provided by SPSI are presented as **Appendix B**. The extents of excavation as of February 2015 are depicted on **Figure 2**.

4. Analytical Results

4.1 Adsorbed Phase Concentrations

4.1.1 Soil Borings

COPCs detected at the Site are summarized below. MCHM and PPH do not currently have soil groundwater standards under the WV DEP De Minimis regulations.

- Concentrations of MCHM in soil borings ranged from <340 µg/Kg, below laboratory detection limits (BDL), to 15,000,000 µg/Kg.
- Concentrations of PPH in soil borings ranged from <340 µg/Kg, BDL, to 9,700 µg/Kg.
- Concentrations of ethylene glycol ranged from <10 mg/Kg, BDL, to 3,400 mg/Kg. The WV DEP De Minimis standards for industrial soil are 1,000,000 mg/kg.
- Concentrations of propylene glycol ranged from <10 mg/Kg, BDL, to 4,100 mg/Kg. The WV DEP De Minimis standards for industrial soil are 1,000,000 mg/kg.
- Concentrations of acetaldehyde ranged from <1 mg/Kg, BDL, to 1.7 mg/Kg. The WV DEP De Minimis standards for industrial soil are 3,700 mg/kg.
- Concentrations of formaldehyde ranged from <1 mg/Kg, BDL, to 11 mg/Kg. The WV DEP De Minimis standards for industrial soil are 180,000 mg/kg.

Selected soil samples were analyzed for VOCs and TPH to assess how concentrations of these COCs have changed since the closure of the previous VRP case. Benzene is the only compound with concentrations exceeding the WV DEP De Minimis Standards. Benzene concentrations ranged from <5.6 µg/Kg, BDL, to 210 µg/Kg. This exceeds the WV DEP De Minimis Standard for migration to groundwater of 0.051 mg/Kg. These exceedances, consistent with previous sampling results, are typical of a bulk petroleum storage site and are addressed in the land use covenant (LUC) established during the previous VRRP case.

Current investigation analytical results for surface soil and subsurface soil are summarized in **Table 3A** and **Table 3B** respectively, and presented on **Figures 6A and 6B**. Copies of all available analytical reports and chain of custody records are included as **Appendix D**.

4.1.1.1 Sub Tank Soils

Soil Samples were collected by CEC from around the base of a four tanks (395, 396, 397, 399). Tank 396 is the tank that failed and the Tanks 395 and 397 were located on opposite sides of the failed tank. Soil samples from beneath these tanks were analyzed for MCHM and PPH. Neither MCHM nor PPH currently have standards under WV DEP De Minimis guidance.

- Concentrations of MCHM from around Tanks 395-397 ranged from <360 µg/Kg, BDL, to 2,000,000 µg/Kg.
- Concentrations of PPH from around Tanks 395-397 ranged from <410 µg/Kg, BDL, to 6,500 µg/Kg.

Current investigation analytical results are summarized in **Table 3C**. Copies of all available analytical reports and chain of custody records are included as **Appendix D**.

4.1.1.2 Diversion Trench Soils

Seven soil samples were collected from along the bottom of the groundwater diversion trench. These samples were only analyzed for MCHM and PPH. As depicted on **Figure 2** this area is outside of the AST secondary containment area and is up the hydraulic gradient from the location of the spill. The concentrations of both MCHM and PPH were all <400 µg/Kg, BDL, in the diversion trench soils. Current investigation analytical results are summarized in **Table 3D**. Copies of all available analytical reports and chain of custody records are included as **Appendix D**.

4.1.2 Sediment

- Concentrations of MCHM in sediment samples ranged from <490 µg/Kg, BDL, in sediment sample SED-03 to an estimated concentration of 360 µg/Kg in SED-01.
- Concentrations of PPH in sediment samples were all <570 µg/Kg, below laboratory detection limits.

Current investigation analytical results are summarized in **Table 3E** and presented on **Figure 8**. Copies of all available analytical reports and chain of custody records are included as **Appendix D**.

4.2 Dissolved Phase Concentrations

4.2.1 Groundwater

Groundwater samples were collected from all accessible wells during each sampling event. The compounds listed below have detections in groundwater; however, there is currently no WV DEP De Minimis Groundwater Standard for the respective compounds.

- Concentrations of MCHM in groundwater ranged from <0.21 µg/L, BDL, to 14 µg/L.
- Concentrations of PPH in groundwater ranged from <0.33 µg/L, BDL, to 320 µg/L.

Lead is present in the groundwater with concentrations ranging from <10 µg/L, BDL, to 57 µg/L. This exceeds the WV DEP De Minimis Standards for groundwater of 15 µg/L. This is typical of older bulk petroleum storage facilities and has already been addressed by the LUC currently on the site and under the previous VRP case.

Current investigation analytical results are summarized in **Table 4A** and presented on **Figure 7**. Copies of all available analytical reports and chain of custody records are included as **Appendix D**.

4.2.2 Surface Water

No COPCs with WV DEP De Minimis Standards were present in the three surface water samples collected from the Elk River. MCHM and PPH levels were <9.7 µg/L, BDL, in all three samples.

Current investigation analytical results are summarized in **Table 4B** and presented on **Figure 8**. Copies of all available analytical reports and chain of custody records are included as **Appendix D**.

4.2.3 Sumps

Sumps were tested at least weekly, until November of 2014, for the presence of MCHM and PPH.

- Concentrations of MCHM in sumps have ranged from <9.5 µg/L, BDL, to 440,000 µg/L.
- Concentrations of PPH in sumps have ranged from <1.3 µg/L, BDL, to 3,200 µg/L.

Current investigation analytical results are summarized in **Table 4B**. Copies of all available analytical reports and chain of custody records are included as **Appendix D**.

4.2.4 Diversion Trench Water

Samples were collected from the groundwater diversion trench during construction and prior to releasing the water into the Elk River. Concentrations of MCHM and PPH were below the laboratory detection limit of 10 µg/L.

Current investigation analytical results are summarized in **Table 4B**. Copies of all available analytical reports and chain of custody records are included as **Appendix D**.

4.2.5 Storm Water Outfall

Storm water samples were collected from outfalls are shown in **Table 4C.**

- Concentrations of MCHM ranged from <9.5 µg/L, BDL, to 610 µg/L.
- Concentrations of PPH ranged from <9.5 µg/L, BDL, to 18 µg/L.

Copies of all available analytical reports and chain of custody records are included as **Appendix D**.

5. Conclusions

The results of the current investigation provide sufficient data to characterize subsurface conditions at the Site, which will be used to complete a base line risk assessment. The current investigation has also shown, based on sample results that no further contamination from petroleum hydrocarbons has occurred, beyond what has already been measured and assessed from the previous VRP case. The Site Specific Risk Assessment will focus solely on COPCs pertaining to the current release.

ARCADIS proposes that the list of COPC be reduced to a list of COCs, which include MCHM, PPH, and Propylene glycol.

Tables

TABLE 1
MONITORING AND GAUGING DATA
Freedom Industries, Inc.
Address, Charleston, West Virginia

Well ID	Depth to Bottom (ft btoc)	Casing Elevation (ft amsl)	Gauging Date (mm/dd/yr)	Depth to Groundwater (ft btoc)	Groundwater Elevation (ft asl)	Depth to PSH (ft btoc)	PSH Thickness (feet)	Comments
MW-1	32.97	608.84						
			08/05/14	28.17	580.67	NP	0.00	
			10/22/14	28.16	580.68	NP	0.00	
			12/03/14	27.57	581.27	NP	0.00	
			01/14/15	26.50	582.34	NP	0.00	
			02/11/15	26.89	581.95	NP	0.00	
MW-2	29.95	607.49						
			08/05/14	NM	NM	NM	NM	Could Not Locate
			10/22/14	17.77	589.72	NP	0.00	
			12/03/14	17.51	589.98	NP	0.00	
			01/14/15	17.37	590.12	NP	0.00	
			02/11/15	17.07	590.42	NP	0.00	
MW-3	22.55	586.85						
			08/04/14	19.90	566.95	NP	0.00	
			10/21/14	19.51	567.34	NP	0.00	
			12/04/14	18.30	568.55	NP	0.00	
			01/12/15	16.62	570.23	NP	0.00	
			02/09/15	15.45	571.40	NP	0.00	
MW-3A	24.70	582.57						
			10/21/14	14.77	567.80	NP	0.00	DUP-2;MS/MSD
			12/04/14	14.52	568.05	NP	0.00	MS/MSD
			01/12/15	14.69	572.16	NP	0.00	DUP-1
			02/10/15	14.52	572.33	NP	0.00	
MW-4	22.00	585.49						
			08/04/14	18.52	566.97	NP	0.00	
			10/21/14	18.97	566.52	NP	0.00	
			12/04/14	17.29	568.20	NP	0.00	
			01/13/15	17.56	567.93	NP	0.00	
			02/10/15	17.46	568.03	NP	0.00	
MW-5	27.19	593.02						
			08/04/14	17.89	575.13	NP	0.00	
			12/01/14	NM	NM	NM	NM	
			01/13/15	22.62	570.40	NP	0.00	
			02/09/15	22.74	570.28	NP	0.00	

TABLE 1

MONITORING AND GAUGING DATA
Freedom Industries, Inc.
Address, Charleston, West Virginia

Well ID	Depth to Bottom (ft btoc)	Casing Elevation (ft amsl)	Gauging Date (mm/dd/yr)	Depth to Groundwater (ft btoc)	Groundwater Elevation (ft asl)	Depth to PSH (ft btoc)	PSH Thickness (feet)	Comments
MW-6	21.30	583.80						
			08/04/14	16.78	567.02	NP	0.00	DUP;MS/MSD
			10/21/14	16.14	567.66	NP	0.00	
			12/03/14	16.03	567.77	NP	0.00	
			01/13/15	15.85	567.95	NP	0.00	
			02/10/15	NM	NM	NM	NM	
MW-7	31.35	608.28						
			08/05/14	23.24	585.04	NP	0.00	
			10/21/14	23.65	584.63	NP	0.00	
			12/03/14	22.95	585.33	NP	0.00	
			01/14/15	22.47	585.81	NP	0.00	
			12/05/14	24.95	583.33	NP	0.00	
			02/11/15	22.30	585.98	NP	0.00	
MW-8	39.07	606.60						
			10/20/14	30.34	576.26	NP	0.00	
			12/02/14	27.12	579.48	NP	0.00	
			01/14/15	26.87	579.73	NP	0.00	
			02/09/15	26.92	579.68	NP	0.00	
MW-8S	18.85	606.81						
			10/20/14	17.27	589.54	NP	0.00	
			12/02/14	14.72	592.09	NP	0.00	
			01/14/15	14.49	592.32	NP	0.00	
			02/09/15	14.95	591.86	NP	0.00	
MW-9	32.80	606.95						
			10/20/14	25.05	581.90	NP	0.00	
			12/02/14	23.16	583.79	NP	0.00	
			01/13/15	22.27	584.68	NP	0.00	
			02/11/15	22.44	584.51	NP	0.00	
MW-10	44.60	604.00						
			10/20/14	36.11	567.89	NP	0.00	
			12/02/14	36.32	567.68	NP	0.00	
			01/13/15	35.87	568.13	NP	0.00	
			02/10/15	35.93	568.07	NP	0.00	
MW-11	39.20	606.26						
			10/22/14	35.18	571.08	NP	0.00	
			12/03/14	35.35	570.91	NP	0.00	
			01/14/15	34.70	571.56	NP	0.00	
			02/11/15	35.38	570.88	NP	0.00	

TABLE 1
MONITORING AND GAUGING DATA
Freedom Industries, Inc.
Address, Charleston, West Virginia

Well ID	Depth to Bottom (ft btoc)	Casing Elevation (ft amsl)	Gauging Date (mm/dd/yr)	Depth to Groundwater (ft btoc)	Groundwater Elevation (ft asl)	Depth to PSH (ft btoc)	PSH Thickness (feet)	Comments
MW-11S	19.49	605.96						
			10/22/14	19.47	586.49	NP	0.00	
			12/03/14	19.38	586.58	NP	0.00	
			01/14/15	19.49	586.47	NP	0.00	Dry
			02/11/15	19.40	586.56	NP	0.00	
MW-12	39.25	605.27						
			10/20/14	19.47	585.80	NP	0.00	
			12/03/14	27.60	577.67	NP	0.00	
			01/13/15	27.15	578.12	NP	0.00	
			02/10/15	27.02	578.25	NP	0.00	
MW-12S	19.56	605.24						
			10/20/14	19.55	585.69	NP	0.00	
			12/03/14	19.27	585.97	NP	0.00	
			01/13/15	19.32	585.92	NP	0.00	
			02/10/15	19.37	585.87	NP	0.00	
MW-13	27.65	586.48						
			10/20/14	18.82	567.66	NP	0.00	DUP-1;MS/MSD
			12/04/14	18.17	568.31	NP	0.00	DUP-1
			01/12/15	18.74	567.74	NP	0.00	MS/MSD
			02/10/15	18.52	567.96	NP	0.00	DUP-1;MS/MSD

Notes:
PSH: Phase-Separated Hydrocarbons
NP: No Measurable PSH
NM: Not Measured
ft btoc: feet below top of casing
ft amsl: feet above mean sea level
Groundwater elevation corrected for preseence of free product by the equation:
(Top of Casing - Depth to Water) + (Thickness of PSH * Specific Gravity) where
Specific Gravity of PSH = 0.73

Table 2. Groundwater Natural Attenuation Parameters, Freedom Industries, Inc, 1015 Barlow Drive, Charleston, West Virginia

Well ID	Date	DTW (ft btoc)	Temperature (ºC)	Conductivity (mS/cm)	DO (mg/L)	pH	ORP (mV)	Turbidity (NTU)	Total Ca (mg/L)	Total Fe (mg/L)	Dissolved Fe (mg/L)	Total Mn (mg/L)	Dissolved Mn (mg/L)	NO_3/NO_2 (mg/L)	SO_4 (mg/L)
MW-1	8/5/2014	28.17	15.4	NM	7.26	7.09	29.8	NM	37 B	NA	NA	NA	NA	NA	NA
	8/20/2014	28.50	22.87	0.405	0.52	5.74	103	409	NA	NA	NA	NA	NA	NA	NA
	8/21/2014	NM	NM	NM	NM	NM	NM	NM	43 J	44	0.41	2.0	2.3	<0.05	140
	10/22/2014	28.16	9.31	0.482	3.06	6.07	67.3	NM	42	NA	NA	NA	NA	NA	NA
	12/3/2014	27.57	13.08	0.427	1.28	5.91	108.4	NM	35	NA	NA	NA	NA	NA	NA
	1/14/2015	26.50	9.39	0.438	5.14	5.71	120.8	NM	NA	NA	NA	NA	NA	NA	NA
	2/11/2015	26.89	9.59	0.411	2.07	5.57	67.2	NM	33	NA	NA	NA	NA	NA	NA
MW-2	8/20/2014	20.27	20.31	0.444	3.71	5.17	274	224	49 B	120	0.028 J	2.1 B	1.1 B	0.099	160
	10/22/2014	17.77	9.88	NM	5.12	6.02	78.8	NM	39	NA	NA	NA	NA	NA	NA
	12/3/2014	17.51	14.40	0.445	3.59	5.10	178.1	NM	33	NA	NA	NA	NA	NA	NA
	1/14/2015	17.37	10.28	0.483	1.16	5.43	142.0	NM	NA	NA	NA	NA	NA	NA	NA
	2/11/2015	17.07	11.6	0.500	3.10	5.39	67.80	NM	37	NA	NA	NA	NA	NA	NA
MW-3	8/4/2014	19.90	16.4	NM	8.80	7.57	-68.4	NM	37 B	NA	NA	NA	NA	NA	NA
	8/20/2014	19.86	22.21	0.401	1.02	6.31	-9	>1000	NA	NA	NA	NA	NA	NA	NA
	8/21/2014	NM	NM	NM	NM	NM	NM	NM	57 J	430	36	9.9	6.0	0.20	48
	10/21/2014	19.51	11.5	0.434	4.02	8.28	31.2	NM	39	NA	NA	NA	NA	NA	NA
	1/12/2015	16.62	NM	NM	NM	NM	NM	NM	120	NA	NA	NA	NA	NA	NA
	2/9/2015	15.45	NM	NM	NM	NM	NM	NM	220	NA	NA	NA	NA	NA	NA
MW-3A	10/21/2014	14.77	11.25	0.564	0.24	7.48	-42.3	NM	28 [29]	NA	NA	NA	NA	NA	NA
	12/4/2014	14.52	14.22	0.552	2.57	6.69	-74.7	NM	NA [42]	NA	NA	NA	NA	NA	NA
	1/12/2015	14.69	11.24	0.488	0.75	6.25	-25.4	NM	34 [35]	NA	NA	NA	NA	NA	NA
	2/10/2015	14.52	11.7	0.458	1.37	6.36	-45.5	NM	34	NA	NA	NA	NA	NA	NA
MW-4	8/4/2014	18.52	16.6	NM	2.33	7.07	-116.7	NM	65 B	NA	NA	NA	NA	NA	NA
	8/20/2014	19.49	17.54	0.637	5.49	6.14	-75	498	NA	NA	NA	NA	NA	NA	NA
	8/21/2014	NM	NM	NM	NM	NM	NM	NM	88 J	290	31	16	8.1	<0.05	0.62 J
	10/21/2014	18.97	11.63	0.471	0.41	9.21	-62.9	NM	46	NA	NA	NA	NA	NA	NA
	12/3/2014	17.29	14.02	0.538	1.46	5.98	45.2	NM	62	NA	NA	NA	NA	NA	NA
	1/12/2015	17.56	11.13	0.527	0.85	6.25	-45.3	NM	59	NA	NA	NA	NA	NA	NA
	2/10/2015	17.46	12.05	0.518	1.13	6.08	-6.1	NM	64	NA	NA	NA	NA	NA	NA
MW-5	8/20/2014	22.77	19.54	0.313	9.00	5.32	132	>1000	NA	NA	NA	NA	NA	NA	NA
	8/21/2014	NM	NM	NM	NM	NM	NM	NM	30 J	1400	20	3.8	4.2	<0.05	6.1
	1/13/2015	22.62	NM	NM	NM	NM	NM	NM	63	NA	NA	NA	NA	NA	NA
	2/9/2015	22.74	NM	NM	NM	NM	NM	NM	100	NA	NA	NA	NA	NA	NA
MW-6	8/4/2014	17.89	16.0	NM	2.19	6.55	-69.0	NM	33 B	NA	NA	NA	NA	NA	NA
	8/6/2014	16.79	15.3	NM	3.39	7.23	-23.0	NM	NA	NA	NA	NA	NA	NA	NA
	8/21/2014	16.78	17.09	0.413	5.91	6.32	-95	721	30 J [30 J]	48 [47]	49 [47]	2.4 [2.4]	2.7 [2.6]	0.066 [<0.05]	7.1 [6.1]
	10/21/2014	16.14	11.52	0.487	0.45	7.03	-42.6	NM	45	NA	NA	NA	NA	NA	NA
	1/13/2015	15.85	11.86	0.469	0.95	6.60	-59.7	NM	47	NA	NA	NA	NA	NA	NA
	2/10/2015	NM	12.00	0.485	0.92	6.35	-34.4	NM	49	NA	NA	NA	NA	NA	NA
MW-7	8/5/2014	23.24	15.2	NM	6.79	7.39	178.4	NM	37 B	NA	NA	NA	NA	NA	NA
	8/20/2014	24.19	19.80	0.472	6.40	4.32	307	351	36 B	20	7.0 B	2.0 B	2.1 B	<0.05	160
	10/22/2014	23.65	10.54	0.519	4.70	5.40	109.4	NM	37	NA	NA	NA	NA	NA	NA
	12/3/2014	22.95	14.10	0.470	10.10	5.72	106.0	NM	35	NA	NA	NA	NA	NA	NA
	1/14/2015	22.47	10.37	0.479	3.85	5.14	217.9	NM	NA	NA	NA	NA	NA	NA	NA
	2/11/2015	22.30	11.27	0.497	5.97	5.15	103.9	NM	34	NA	NA	NA	NA	NA	NA

MW-8	10/20/2014	30.34	10.67	0.285	4.04	7.12	37.0	NM	18	NA	NA	NA	NA	NA	NA
	12/2/2014	27.12	14.35	0.302	1.24	6.36	-15.6	NM	19	NA	NA	NA	NA	NA	NA
	1/14/2015	26.87	10.32	0.338	0.51	6.51	-24.2	NM	18	NA	NA	NA	NA	NA	NA
	2/9/2015	26.92	10.11	0.296	2.68	6.56	-70.3	NM	16	NA	NA	NA	NA	NA	NA
MW-8S	12/2/2014	14.72	NM	NM	NM	NM	NM	NM	9.5	NA	NA	NA	NA	NA	NA
	1/14/2015	14.49	12.33	0.287	1.79	5.31	218.2	NM	8.8	NA	NA	NA	NA	NA	NA
	2/9/2015	14.95	NM	NM	NM	NM	NM	NM	8.2	NA	NA	NA	NA	NA	NA
MW-9	10/20/2014	25.05	10.97	0.367	0.97	7.36	-10.7	NM	19	NA	NA	NA	NA	NA	NA
	12/2/2014	23.16	14.84	0.351	0.29	6.68	-89.0	NM	21	NA	NA	NA	NA	NA	NA
	1/13/2015	22.27	10.55	0.431	0.50	7.01	-66.3	NM	19	NA	NA	NA	NA	NA	NA
	2/11/2015	22.44	10.87	0.412	1.44	6.72	-85.5	NM	14	NA	NA	NA	NA	NA	NA
MW-10	10/20/2014	36.11	11.77	0.278	0.74	6.40	23.0	NM	14	NA	NA	NA	NA	NA	NA
	12/2/2014	36.32	14.91	0.287	1.34	6.30	-76.4	NM	11	NA	NA	NA	NA	NA	NA
	1/13/2015	35.87	11.00	0.623	2.72	6.27	65.8	NM	30	NA	NA	NA	NA	NA	NA
	2/10/2015	35.93	11.73	0.256	1.21	5.74	84.3	NM	11	NA	NA	NA	NA	NA	NA
MW-11	10/22/2014	35.18	8.62	0.705	1.07	6.71	-38.1	NM	28	NA	NA	NA	NA	NA	NA
	12/3/2014	35.35	13.62	0.524	1.03	6.91	-77.3	NM	35	NA	NA	NA	NA	NA	NA
	1/14/2015	34.70	8.97	0.567	0.60	6.51	-49.7	NM	NA	NA	NA	NA	NA	NA	NA
	2/11/2015	35.38	9.34	0.612	1.85	6.48	-49.7	NM	43	NA	NA	NA	NA	NA	NA
MW-12	10/20/2014	27.49	12.16	0.360	1.24	7.48	-88.6	NM	16	NA	NA	NA	NA	NA	NA
	12/2/2014	27.60	15.37	0.262	2.73	6.40	-25.8	NM	15	NA	NA	NA	NA	NA	NA
	1/13/2015	27.15	11.87	0.390	0.49	6.76	-83.6	NM	13	NA	NA	NA	NA	NA	NA
	2/10/2015	27.02	10.16	0.373	0.63	6.53	-69.2	NM	14 [40]	NA	NA	NA	NA	NA	NA
MW-13	10/21/2014	18.82	9.96	0.609	0.43	6.68	-35.5	NM	45 [45]	NA	NA	NA	NA	NA	NA
	12/4/2014	18.17	12.75	0.565	2.71	6.58	-40.7	NM	40	NA	NA	NA	NA	NA	NA
	1/12/2015	18.74	11.54	0.556	0.92	6.21	-18.5	NM	40	NA	NA	NA	NA	NA	NA
	2/10/2015	18.52	8.49	0.547	2.67	6.40	-29.9	NM	39	NA	NA	NA	NA	NA	NA

Notes:

DTW - depth to water
ft btoc - feet below top of casing
ºC - degrees Celsius
mS/cm - microsiemens per centimeter
DO - dissolved oxygen
mg/L - milligrams per liter
ORP - oxidation-reduction potential
mV - millivolts
Ca - calcium
Fe - iron
Mn - manganese
NO_3/NO_2 - nitrates and nitrites
SO_4 - sulfate
NM - Not Measured
NA - Not Analyzed

Table 3A
Surface Soil Analytical Results
Site Investigation report
Freedom Industries-Etowah Terminal

Location ID		ARC-SS-01	ARC-SS-02	ARC-SS-03	ARC-SS-04	ARC-SS-05	ARC-SS-06	ARC-SS-07	ARC-SS-08	ARC-SS-09
Sample ID		ARC-SS-01-09/05/14	ARC-SS-02-09/05/14	ARC-SS-03-9/16/14	ARC-SS-04-9/16/14	ARC-SS-05-9/16/14	ARC-SS-06-09/04/14	ARC-SS-07-09/04/14	ARC-SS-08-09/04/14	ARC-SS-09-09/04/14
Depth (FT BGS)		0-1	0-1	0-1	0-1	0-1	0-1	0-1	0-1	0-1
Date Collected		9/5/2014	9/5/2014	9/16/2014	9/16/2014	9/16/2014	9/4/2014	9/4/2014	9/4/2014	9/4/2014
Parent Sample ID										
Chemical	**Units**									
SVOCs										
4-Methyl-1-cyclohexane methanol	ug/kg	< 2100 U	< 400 U	< 2200 U	< 4100 U	400000	< 400 U	< 390 U	< 410 U	< 390 U
Propylene glycol phenyl ether	ug/kg	< 2100 U	< 400 U	4700	9700	< 170000 U	37 J	64 J	< 410 U	< 390 U
VOCs										
Benzene	ug/kg	< 6.0 U	< 6.0 U	< 6.3 U	210 J	41 J	0.57 J	< 5.9 U	0.40 J	< 6.0 U
Ethylbenzene	ug/kg	0.64 J	< 6.0 U	0.47 J	59 J	140 J	< 6.0 U	< 5.9 U	< 5.9 U	< 6.0 U
Methyl-tert-butylether	ug/kg	< 6.0 U	< 6.0 U	< 6.3 U	< 280 U	< 320 U	< 6.0 U	< 5.9 U	< 5.9 U	0.78 J
Toluene	ug/kg	< 6.0 U	< 6.0 U	0.37 J	340	68 J	< 6.0 U	< 5.9 U	< 5.9 U	< 6.0 U
Total Xylenes	ug/kg	< 12 U	< 12 U	6.6 J	510 J	330 J	< 12 U	< 12 U	12	< 12 U
Metals										
Lead	mg/kg	17	24	160	31	32	13 J	12 J	78 J	11 J
TPH										
2-Methyl-1-propanol	mg/kg	< 13 U	< 12 U	< 13 U	< 12 U	< 13 U	< 12 U	< 12 U	< 12 U	< 12 U
Diesel (C10-C20)	mg/kg	160	49	740	1200	1200	< 20 U	< 20 U	12 J	< 20 U
Ethanol	mg/kg	< 13 U	< 12 U	< 13 U	< 12 U	< 13 U	< 12 U	< 12 U	< 12 U	< 12 U
Ethylene Glycol	mg/kg	< 13 U	< 12 U	< 13 U	< 12 U	180	< 12 U	< 12 U	< 12 U	< 12 U
Gasoline C6-C10	ug/kg	6000	< 120 U	17000	71000	17000	< 120 U	< 120 U	550	80 J
Isopropyl alcohol	mg/kg	< 13 U	< 12 U	< 13 U	< 12 U	< 13 U	< 12 U	< 12 U	< 12 U	< 12 U
Methanol	mg/kg	< 13 U	< 12 U	< 13 U	< 12 U	< 13 U	< 12 U	< 12 U	< 12 U	< 12 U
N-Propyl Alcohol	mg/kg	< 13 U	< 12 U	< 13 U	< 12 U	< 13 U	< 12 U	< 12 U	< 12 U	< 12 U
Propylene Glycol	mg/kg	< 13 U	< 12 U	< 13 U	< 12 U	250	< 12 U	< 12 U	< 12 U	< 12 U
TPH C20-C34	mg/kg	28	67	170 J	140 J	99 J	< 20 U	< 20 U	< 20 U	< 20 U
Miscellaneous										
Acetaldehyde	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetic acid	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butyric Acid	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Formaldehyde	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Formic Acid	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lactic acid	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propionic Acid	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyruvic Acid	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
mk/kg: miligrams per kilogram
ug/kg: micrograms per kilogram
TPH: Total Petroleum Hydrocarbons
Shading indicates these soils have been excavated

Table 3A
Surface Soil Analytical Results
Site Investigation report
Freedom Industries-Etowah Terminal

Location ID		ARC-SS-12	MW-3A	MW-8	MW-9	MW-10	MW-11	MW-12
Sample ID		ARC-SS-12-09/05/14	MW-3A (0-1) (10-14-2014)	MW-8 (0-1) (10-07-2014)	MW-9 (0-1) (10-08-2014)	MW-10 (0-1) (10-07-2014)	MW-11 (0-1) (10-08-2014)	MW-12 (0-1) (10-13-2014)
Depth (FT BGS)		0-1	0-1	0-1	0-1	0-1	0-1	0-1
Date Collected		9/5/2014	10/14/2014	10/7/2014	10/8/2014	10/7/2014	10/8/2014	10/13/2014
Parent Sample ID								
Chemical	**Units**							
SVOCs								
4-Methyl-1-cyclohexane methanol	ug/kg	< 380 U	< 390 U	< 440 U	< 840 U	< 1800 U	< 390 U	< 1800 U
Propylene glycol phenyl ether	ug/kg	< 380 U	< 390 U	< 440 U	< 840 U	< 1800 U	< 390 U	< 1800 U
VOCs								
Benzene	ug/kg	< 5.6 U	NA	NA	NA	NA	NA	NA
Ethylbenzene	ug/kg	< 5.6 U	NA	NA	NA	NA	NA	NA
Methyl-tert-butylether	ug/kg	< 5.6 U	NA	NA	NA	NA	NA	NA
Toluene	ug/kg	< 5.6 U	NA	NA	NA	NA	NA	NA
Total Xylenes	ug/kg	3.0 J	NA	NA	NA	NA	NA	NA
Metals								
Lead	mg/kg	130	NA	NA	NA	NA	NA	NA
TPH								
2-Methyl-1-propanol	mg/kg	< 11 U	< 12 U	< 13 U	< 13 U	< 11 U	< 12 U	< 11 U
Diesel (C10-C20)	mg/kg	< 190 U	NA	NA	NA	NA	NA	NA
Ethanol	mg/kg	< 11 U	< 12 U	< 13 U	< 13 U	< 11 U	< 12 U	< 11 U
Ethylene Glycol	mg/kg	< 11 U	< 12 U	< 13 U	< 13 U	< 11 U	< 12 U	< 11 U
Gasoline C6-C10	ug/kg	< 110 U	NA	NA	NA	NA	NA	NA
Isopropyl alcohol	mg/kg	< 11 U	2.6 J	7.3 J	2.5 J	7.1 J	< 12 U	13
Methanol	mg/kg	< 11 U	< 12 U	< 13 U	< 13 U	< 11 U	< 12 U	< 11 U
N-Propyl Alcohol	mg/kg	< 11 U	< 12 U	< 13 U	< 13 U	< 11 U	< 12 U	< 11 U
Propylene Glycol	mg/kg	< 11 U	< 12 U	< 13 U	< 13 U	< 11 U	< 12 U	< 11 U
TPH C20-C34	mg/kg	370	NA	NA	NA	NA	NA	NA
Miscellaneous								
Acetaldehyde	mg/kg	NA	< 1.2 U	0.53 J	0.36 J	< 1.1 U	< 1.2 U	< 1.1 U
Acetic acid	mg/kg	NA	< 11 U	< 11 U	< 12 U	3.8 J	< 10 U	9.5 J
Butyric Acid	mg/kg	NA	< 11 U	< 11 U	< 12 U	< 10 U	< 10 U	30
Formaldehyde	mg/kg	NA	< 1.2 U	0.54 J	< 1.3 U	0.60 J	< 1.2 U	< 1.1 U
Formic Acid	mg/kg	NA	< 11 U	< 11 U	< 12 U	< 10 U	< 10 U	4.0 J
Lactic acid	mg/kg	NA	< 11 U	< 11 U	< 12 U	< 10 U	< 10 U	< 10 U
Propionic Acid	mg/kg	NA	< 11 U	17	13	69	< 10 U	< 10 U
Pyruvic Acid	mg/kg	NA	< 11 U	< 11 U	< 12 U	< 10 U	< 10 U	< 10 U
Chloride	mg/kg	NA	25	2.2 JB	1.3 JB	13 B	0.94 JB	12

Notes:
mk/kg: miligrams per kilogram
ug/kg: micrograms per kilogram
TPH: Total Petroleum Hydrocarbons
Shading indicates these soils have been excavated

Table 3A
Surface Soil Analytical Results
Site Investigation report
Freedom Industries-Etowah Terminal

Location ID		MW-13	SB-1	SB-2	SB-3	SB-3	SB-4	SB-5	SB-6	SB-7	SB-8	SB-8	SB-9	SB-10
Sample ID		MW-13 (0-1) (10-14-2014)	SB-1 (0-1)	SB-2 (0-1)	SB-3 (0-1)	DUP-13	SB-4 (0-1)	SB-5 (0-1)	SB-6 (0-1)	SB-7 (0-1) (10-02-2014)	DUP-02	SB-8 (0-1)	SB-9 (0-1)	SB-10 (0-1) (10-02-2014)
Depth (FT BGS)		0-1	0-1	0-1	0-1	0-1	0-1	0-1	0-1	0-1	0-1	0-1	0-1	0-1
Date Collected		10/14/2014	9/30/2014	9/30/2014	10/23/2014	10/23/2014	9/30/2014	9/30/2014	10/1/2014	10/2/2014	10/1/2014	10/1/2014	10/1/2014	10/2/2014
Parent Sample ID						SB-3 (0-1)					SB-8 (0-1)			
Chemical	**Units**													
SVOCs														
4-Methyl-1-cyclohexane methanol	ug/kg	< 420 U	< 380 U	< 720 U	710 J	1900 J	< 410 U	< 2000 U	< 400 U	< 400 U	< 410 U	< 410 U	< 2000 U	< 410 U
Propylene glycol phenyl ether	ug/kg	< 420 U	< 380 U	< 720 U	580 J	350 J	< 410 U	< 2000 U	< 400 U	< 400 U	< 410 U	< 410 U	< 2000 U	< 410 U
VOCs														
Benzene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl-tert-butylether	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Xylenes	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals														
Lead	mg/kg	NA	NA	NA	55	66	NA	NA	NA	NA	NA	NA	NA	NA
TPH														
2-Methyl-1-propanol	mg/kg	< 13 U	< 11 U	< 11 U	< 13 U	< 12 U	< 12 U	< 12 U	< 12 U	< 12 U	< 12 U	< 13 U	< 12 U	< 12 U
Diesel (C10-C20)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethanol	mg/kg	< 13 U	< 11 U	< 11 U	< 13 U	< 12 U	< 12 U	< 12 U	< 12 U	< 12 U	< 12 U	< 13 U	< 12 U	< 12 U
Ethylene Glycol	mg/kg	< 13 U	< 11 U	< 11 U	< 13 U	< 12 U	< 12 U	< 12 U	< 12 U	< 12 U	< 12 U	< 13 U	< 12 U	< 12 U
Gasoline C6-C10	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropyl alcohol	mg/kg	18	< 11 U	< 11 U	< 13 U	< 12 U	< 12 U	< 12 U	< 12 U	< 12 U	< 12 U	< 13 U	< 12 U	< 12 U
Methanol	mg/kg	< 13 U	< 11 U	< 11 U	< 13 U	< 12 U	< 12 U	< 12 U	< 12 U	< 12 U	< 12 U	< 13 U	< 12 U	< 12 U
N-Propyl Alcohol	mg/kg	< 13 U	< 11 U	< 11 U	< 13 U	< 12 U	< 12 U	< 12 U	< 12 U	< 12 U	< 12 U	< 13 U	< 12 U	< 12 U
Propylene Glycol	mg/kg	< 13 U	< 11 U	< 11 U	< 13 U	< 12 U	< 12 U	< 12 U	< 12 U	< 12 U	< 12 U	< 13 U	< 12 U	< 12 U
TPH C20-C34	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Miscellaneous														
Acetaldehyde	mg/kg	< 1.3 U	0.53 J	< 1.1 U	< 1.3 U	< 1.2 U	< 1.2 U	< 1.2 U	< 1.2 U	< 1.2 U	1.4	1.2	< 1.2 U	< 1.2 U
Acetic acid	mg/kg	< 11 U	< 10 U	< 9.4 U	< 12 U	< 11 U	< 12 U	17	< 11 U	< 11 U	< 11 U	< 12 U	< 11 U	< 12 U
Butyric Acid	mg/kg	25	< 10 U	< 9.4 U	< 12 U	< 11 U	< 12 U	< 10 U	43	< 11 U	150 J	300 J	< 11 U	< 12 U
Formaldehyde	mg/kg	< 1.3 U	0.53 J	< 1.1 U	7.9	9.8	6.1	0.42 J	< 1.2 U	2.6	0.70 J	0.60 J	< 1.2 U	4.2
Formic Acid	mg/kg	< 11 U	< 10 U	< 9.4 U	< 12 U	< 11 U	< 12 U	< 10 U	< 11 U	< 11 U	< 11 U	< 12 U	< 11 U	< 12 U
Lactic acid	mg/kg	< 11 U	< 10 U	< 9.4 U	4.1 J	< 11 U	< 12 U	< 10 U	< 11 U	< 11 U	< 11 U	< 12 U	< 11 U	< 12 U
Propionic Acid	mg/kg	< 11 U	200	68	530	490	110	84	10000	25	4800	10000	7300	< 12 U
Pyruvic Acid	mg/kg	< 11 U	< 10 U	< 9.4 U	180	58	< 12 U	< 10 U	< 11 U	< 11 U	< 11 U	< 12 U	< 11 U	< 12 U
Chloride	mg/kg	410	5.6 J	6.8 J	52	51	31	20	1.7 J	6.9 J	1.7 J	1.9 J	1.9 J	15

Notes:
mk/kg: miligrams per kilogram
ug/kg: micrograms per kilogram
TPH: Total Petroleum Hydrocarbons
Shading indicates these soils have been excavated

Table 3A
Surface Soil Analytical Results
Site Investigation report
Freedom Industries-Etowah Terminal

Location ID		SB-11	SB-12	SB-13	SB-14	SB-16	SB-17	SB-18	SB-19	SB-20	SB-20
Sample ID		SB-11 (0-1) (10-02-2014)	SB-12 (0-1) (10-02-2014)	SB-13 (0-1) (10-08-2014)	SB-14 (0-1) (10-08-2014)	SB-16 (0-1) (10-02-2014)	SB-17 (0-1)	SB-18 (0-1)	SB-19 (0-1)	SB-20 (0-1)	SB-20 (CS) (2-3)
Depth (FT BGS)		0-1	0-1	0-1	0-1	0-1	0-1	0-1	0-1	0-1	2-3
Date Collected		10/2/2014	10/2/2014	10/8/2014	10/8/2014	10/2/2014	10/1/2014	10/1/2014	10/1/2014	10/1/2014	10/28/2014
Parent Sample ID											
Chemical	**Units**										
SVOCs											
4-Methyl-1-cyclohexane methanol	ug/kg	< 400 U	< 400 U	< 410 U	< 420 U	< 480 U	< 420 U	< 400 U	< 1000 U	4800000	15000000
Propylene glycol phenyl ether	ug/kg	< 400 U	< 400 U	< 410 U	< 420 U	< 480 U	< 420 U	< 400 U	< 1000 U	< 1700000 U	< 9100000 U
VOCs											
Benzene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl-tert-butylether	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Xylenes	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals											
Lead	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH											
2-Methyl-1-propanol	mg/kg	< 12 U	< 12 U	< 13 U	< 13 U	< 15 U	< 13 U	< 12 U	< 12 U	< 13 U	< 14 U
Diesel (C10-C20)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethanol	mg/kg	< 12 U	< 12 U	< 13 U	< 13 U	< 15 U	< 13 U	< 12 U	< 12 U	< 13 U	< 14 U
Ethylene Glycol	mg/kg	< 12 U	< 12 U	< 13 U	< 13 U	< 15 U	< 13 U	< 12 U	< 12 U	600	3400
Gasoline C6-C10	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropyl alcohol	mg/kg	< 12 U	< 12 U	7.2 J	14	18	2.5 J	< 12 U	< 12 U	< 13 U	< 14 U
Methanol	mg/kg	< 12 U	< 12 U	< 13 U	< 13 U	92	< 13 U	< 12 U	< 12 U	20	120
N-Propyl Alcohol	mg/kg	< 12 U	< 12 U	< 13 U	< 13 U	< 15 U	< 13 U	< 12 U	< 12 U	< 13 U	< 14 U
Propylene Glycol	mg/kg	< 12 U	< 12 U	< 13 U	< 13 U	< 15 U	< 13 U	< 12 U	< 12 U	730	4100
TPH C20-C34	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Miscellaneous											
Acetaldehyde	mg/kg	< 1.2 U	< 1.2 U	< 1.2 U	< 1.3 U	< 1.4 U	1.3	< 1.2 U	< 1.2 U	0.58 J	< 1.3 U
Acetic acid	mg/kg	< 11 U	< 11 U	< 11 U	< 11 U	< 12 U	< 11 U	< 54 U	< 11 U	< 12 U	< 120 U
Butyric Acid	mg/kg	< 11 U	< 11 U	< 11 U	< 11 U	< 12 U	< 11 U	< 54 U	560	< 12 U	< 120 U
Formaldehyde	mg/kg	2.5	2.1	< 1.2 U	< 1.3 U	< 1.4 U	0.65 J	< 1.2 U	5.0	1.1 J	0.66 J
Formic Acid	mg/kg	< 11 U	< 11 U	< 11 U	< 11 U	< 12 U	< 11 U	< 54 U	160 J	< 12 U	< 120 U
Lactic acid	mg/kg	< 11 U	< 11 U	< 11 U	< 11 U	< 12 U	< 11 U	< 54 U	< 11 U	< 12 U	< 120 U
Propionic Acid	mg/kg	< 11 U	< 11 U	4.1 J	< 11 U	< 12 U	72 J	< 54 U	14000	1100	< 120 U
Pyruvic Acid	mg/kg	< 11 U	< 11 U	< 11 U	< 11 U	< 12 U	< 11 U	< 54 U	< 540 U	< 12 U	< 120 U
Chloride	mg/kg	490	80	6.4 JB	1.8 JB	5.1 JB	2.7 J	1.2 J	2.1 J	340	350

Notes:
mk/kg: miligrams per kilogram
ug/kg: micrograms per kilogram
TPH: Total Petroleum Hydrocarbons
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Table 3A
Surface Soil Analytical Results
Site Investigation report
Freedom Industries-Etowah Terminal

Location ID		SB-20	SB-21	SB-22	SB-23	SB-23-CS	SB-24	SB-24	SB-25	SB-26
Sample ID		SB-20 (2-3) CS2 (12-04-2014)	SB-21 (0-1) (10-02-2014)	SB-22 (0-1) (10-02-2014)	SB-23 (0-1) (10-02-2014)	SB-23-CS (10-08-2014)	SB-24 (0-1)	DUP-01	SB-25 (0-1) (10-02-2014)	SB-26 (0-1)
Depth (FT BGS)		2-3	0-1	0-1	0-1	0-1	0-1	0-1	0-1	0-1
Date Collected		12/4/2014	10/2/2014	10/2/2014	10/2/2014	10/8/2014	10/1/2014	10/1/2014	10/2/2014	10/1/2014
Parent Sample ID								SB-24 (0-1)		
Chemical	**Units**									
SVOCs										
4-Methyl-1-cyclohexane methanol	ug/kg	100 J	< 400 U	< 430 U	1100000	2900	220000	160000	700 J	800000
Propylene glycol phenyl ether	ug/kg	< 2200 U	< 400 U	< 430 U	< 830000 U	630 J	< 100000 U	< 79000 U	< 930 U	< 400000 U
VOCs										
Benzene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl-tert-butylether	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Xylenes	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals										
Lead	mg/kg	38 B	NA	NA	NA	NA	NA	NA	NA	NA
TPH										
2-Methyl-1-propanol	mg/kg	< 13 U	< 12 U	< 13 U	< 12 U	< 13 U	< 12 U	< 12 U	< 11 U	< 12 U
Diesel (C10-C20)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethanol	mg/kg	< 13 U	< 12 U	< 13 U	< 12 U	< 13 U	< 12 U	< 12 U	< 11 U	< 12 U
Ethylene Glycol	mg/kg	< 13 U	< 12 U	< 13 U	210	< 13 U	320	260	< 11 U	370
Gasoline C6-C10	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropyl alcohol	mg/kg	< 13 U	< 12 U	< 13 U	< 12 U	< 13 U	< 12 U	< 12 U	< 11 U	< 12 U
Methanol	mg/kg	< 13 U	< 12 U	< 13 U	20	< 13 U	< 12 U	< 12 U	< 11 U	29
N-Propyl Alcohol	mg/kg	< 13 U	< 12 U	< 13 U	< 12 U	< 13 U	< 12 U	< 12 U	< 11 U	< 12 U
Propylene Glycol	mg/kg	< 13 U	< 12 U	< 13 U	240	< 13 U	380	310	< 11 U	440
TPH C20-C34	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Miscellaneous										
Acetaldehyde	mg/kg	0.68 J	1.7	< 1.3 U	< 1.2 U	< 1.3 U	< 1.2 U	< 1.2 U	< 1.1 U	0.38 J
Acetic acid	mg/kg	< 13 U	< 11 U	< 12 U	19	< 11 U	< 12 U	< 10 U	< 10 U	460
Butyric Acid	mg/kg	< 13 U	< 11 U	< 12 U	< 11 U	< 11 U	< 12 U	4.6 J	< 10 U	< 11 U
Formaldehyde	mg/kg	< 1.3 U	0.46 J	11	0.52 J	1.2 J	0.45 J	1.2	< 1.1 U	5.8
Formic Acid	mg/kg	< 13 U	< 11 U	< 12 U	< 11 U	< 11 U	< 12 U	< 10 U	< 10 U	70 J
Lactic acid	mg/kg	< 13 U	< 11 U	< 12 U	< 11 U	< 11 U	< 12 U	< 10 U	< 10 U	< 11 U
Propionic Acid	mg/kg	< 13 U	220	< 12 U	< 11 U	< 11 U	2000	250	500	3200
Pyruvic Acid	mg/kg	< 13 U	< 11 U	< 12 U	< 11 U	< 11 U	< 12 U	< 10 U	< 10 U	64 J
Chloride	mg/kg	2.5 J	1.5 J	93	130	420 B	83	57	2.4 J	200

Notes:
mk/kg: miligrams per kilogram
ug/kg: micrograms per kilogram
TPH: Total Petroleum Hydrocarbons
Shading indicates these soils have been excavated

Table 3A
Surface Soil Analytical Results
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Freedom Industries-Etowah Terminal

Location ID		SB-26-CS	SB-27	SB-27	SB-28	SB-29	SB-31	SB-32	SB-33	SB-34
Sample ID		SB-26-CS (10-08-2014)	SB-27 (0-1)	DUP-03	SB-28 (0-1) (10-02-2014)	SB-29 (0-1) (10-02-2014)	SB-31 (0-1) (10-02-2014)	SB-32 (0-1) (10-02-2014)	SB-33 (0-1)	SB-34 (0-1)
Depth (FT BGS)		0-1	0-1	0-1	0-1	0-1	0-1	0-1	0-1	0-1
Date Collected		10/8/2014	10/1/2014	10/1/2014	10/2/2014	10/2/2014	10/2/2014	10/2/2014	10/1/2014	10/1/2014
Parent Sample ID				SB-27 (0-1)						
Chemical	**Units**									
SVOCs										
4-Methyl-1-cyclohexane methanol	ug/kg	1400000	< 2000 U	< 3700 U	< 410 U	< 420 U	< 2000 U	< 1500 U	< 820 U	< 380 U
Propylene glycol phenyl ether	ug/kg	< 1000000 U	< 2000 U	< 3700 U	< 410 U	< 420 U	< 2000 U	< 1500 U	< 820 U	< 380 U
VOCs										
Benzene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl-tert-butylether	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Xylenes	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals										
Lead	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH										
2-Methyl-1-propanol	mg/kg	< 13 U	< 12 U	< 11 U	< 13 U	< 13 U	< 12 U	< 12 U	< 13 U	< 12 U
Diesel (C10-C20)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethanol	mg/kg	< 13 U	< 12 U	< 11 U	< 13 U	< 13 U	< 12 U	< 12 U	< 13 U	< 12 U
Ethylene Glycol	mg/kg	240	< 12 U	< 11 U	< 13 U	< 13 U	< 12 U	< 12 U	< 13 U	< 12 U
Gasoline C6-C10	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropyl alcohol	mg/kg	< 13 U	3.8 J	< 11 U	< 13 U	< 13 U	< 12 U	4.2 J	8.5 J	< 12 U
Methanol	mg/kg	< 13 U	< 12 U	< 11 U	< 13 U	< 13 U	< 12 U	< 12 U	< 13 U	< 12 U
N-Propyl Alcohol	mg/kg	< 13 U	< 12 U	< 11 U	< 13 U	< 13 U	< 12 U	< 12 U	< 13 U	< 12 U
Propylene Glycol	mg/kg	300	< 12 U	< 11 U	< 13 U	< 13 U	< 12 U	< 12 U	< 13 U	< 12 U
TPH C20-C34	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Miscellaneous										
Acetaldehyde	mg/kg	0.49 J	0.53 J	< 1.1 U	< 1.2 U	< 1.3 U	0.35 J	< 1.2 U	0.47 J	< 1.2 U
Acetic acid	mg/kg	53	< 11 U	< 11 U	< 11 U	< 13 U	< 12 U	< 11 U	< 12 U	< 11 U
Butyric Acid	mg/kg	< 12 U	< 11 U	< 11 U	< 11 U	< 13 U	< 12 U	< 11 U	< 12 U	< 11 U
Formaldehyde	mg/kg	2.1	5.1	3.0	< 1.2 U	9.4	1.2	3.8	< 1.2 U	7.8 H
Formic Acid	mg/kg	< 12 U	< 11 U	< 11 U	< 11 U	< 13 U	< 12 U	< 11 U	< 12 U	< 11 U
Lactic acid	mg/kg	< 12 U	< 11 U	< 11 U	< 11 U	< 13 U	< 12 U	< 11 U	< 12 U	< 11 U
Propionic Acid	mg/kg	120	4.6 J	11	370	< 13 U	230	640	560	490
Pyruvic Acid	mg/kg	< 12 U	< 11 U	< 11 U	< 11 U	< 13 U	< 12 U	< 11 U	< 12 U	< 11 U
Chloride	mg/kg	120 B	27	31	4.3 J	7.1 J	3.6 J	2.7 J	19	1.4 J

Notes:
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ug/kg: micrograms per kilogram
TPH: Total Petroleum Hydrocarbons
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Table 3A
Surface Soil Analytical Results
Site Investigation report
Freedom Industries-Etowah Terminal

Location ID		SB-36	SB-37	SB-38	SB-40	SB-41	SB-42	SB-43
Sample ID		SB-36 (0-1) (10-02-2014)	SB-37 (0-1) (10-02-2014)	SB-38 (0-1) (10-02-2014)	SB-40 (0-1) (10-08-2014)	SB-41 (0-1) (10-09-2014)	SB-42 (0-1) (10-09-2014)	SB-43 (0-1) (10-15-2014)
Depth (FT BGS)		0-1	0-1	0-1	0-1	0-1	0-1	0-1
Date Collected		10/2/2014	10/2/2014	10/2/2014	10/8/2014	10/9/2014	10/9/2014	10/15/2014
Parent Sample ID								
Chemical	**Units**							
SVOCs								
4-Methyl-1-cyclohexane methanol	ug/kg	< 390 U	< 400 U	< 860 U	< 420 U	< 420 U	< 1800 U	490000
Propylene glycol phenyl ether	ug/kg	< 390 U	< 400 U	< 860 U	< 420 U	< 420 U	< 1800 U	< 260000 U
VOCs								
Benzene	ug/kg	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	ug/kg	NA	NA	NA	NA	NA	NA	NA
Methyl-tert-butylether	ug/kg	NA	NA	NA	NA	NA	NA	NA
Toluene	ug/kg	NA	NA	NA	NA	NA	NA	NA
Total Xylenes	ug/kg	NA	NA	NA	NA	NA	NA	NA
Metals								
Lead	mg/kg	NA	NA	NA	NA	NA	NA	15
TPH								
2-Methyl-1-propanol	mg/kg	< 12 U	< 12 U	< 13 U	< 13 U	< 13 U	< 14 U	4.6 J
Diesel (C10-C20)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Ethanol	mg/kg	< 12 U	< 12 U	< 13 U	< 13 U	< 13 U	< 14 U	< 13 U
Ethylene Glycol	mg/kg	< 12 U	< 12 U	< 13 U	< 13 U	< 13 U	< 14 U	3100
Gasoline C6-C10	ug/kg	NA	NA	NA	NA	NA	NA	NA
Isopropyl alcohol	mg/kg	< 12 U	< 12 U	< 13 U	< 13 U	< 13 U	< 14 U	< 13 U
Methanol	mg/kg	< 12 U	< 12 U	< 13 U	< 13 U	< 13 U	< 14 U	290
N-Propyl Alcohol	mg/kg	< 12 U	< 12 U	< 13 U	< 13 U	< 13 U	< 14 U	< 13 U
Propylene Glycol	mg/kg	< 12 U	< 12 U	< 13 U	< 13 U	< 13 U	< 14 U	4100
TPH C20-C34	mg/kg	NA	NA	NA	NA	NA	NA	NA
Miscellaneous								
Acetaldehyde	mg/kg	< 1.2 U	0.58 J	< 1.3 U	< 1.3 U	< 1.3 U	< 1.4 U	< 1.2 U
Acetic acid	mg/kg	< 12 U	< 11 U	< 11 U	< 11 U	< 11 U	< 13 U	< 11 U
Butyric Acid	mg/kg	< 12 U	< 11 U	< 11 U	< 11 U	< 11 U	< 13 U	< 11 U
Formaldehyde	mg/kg	9.8	< 1.2 U	< 1.3 U	< 1.3 U	< 1.3 U	< 1.4 U	< 1.2 U
Formic Acid	mg/kg	3.1 J	< 11 U	< 11 U	< 11 U	< 11 U	< 13 U	5.4 J
Lactic acid	mg/kg	< 12 U	< 11 U	< 11 U	< 11 U	< 11 U	< 13 U	< 11 U
Propionic Acid	mg/kg	120	540	460	77	5.0 JB	< 13 U	< 11 U
Pyruvic Acid	mg/kg	< 12 U	< 11 U	< 11 U	< 11 U	< 11 U	< 13 U	< 11 U
Chloride	mg/kg	7.2 J	65	5.7 J	15 B	< 13 U	11 J	490

Notes:
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ug/kg: micrograms per kilogram
TPH: Total Petroleum Hydrocarbons
Shading indicates these soils have been excavated

Table 3A
Surface Soil Analytical Results
Site Investigation report
Freedom Industries-Etowah Terminal

Location ID		SB-44	SB-45	SB-46	SS-10	SS-11	SS-13	SS-14	SS-15
Sample ID		SB-44 (0-1) (10-15-2014)	SB-45(0-1) (10-16-2014)	SB-46(0-1) (10-16-2014)	SS-10 (10-06-2014)	SS-11 (10-06-2014)	SS-13 (10-06-2014)	SS-14 (10-06-2014)	SS-15 (10-06-2014)
Depth (FT BGS)		0-1	0-1	0-1	0-1	0-1	0-1	0-1	0-1
Date Collected		10/15/2014	10/16/2014	10/16/2014	10/6/2014	10/6/2014	10/6/2014	10/6/2014	10/6/2014
Parent Sample ID									
Chemical	**Units**								
SVOCs									
4-Methyl-1-cyclohexane methanol	ug/kg	< 1700 U	< 400 U	< 440 U	< 1800 U	4100	< 7200 U	< 7300 U	< 1500 U
Propylene glycol phenyl ether	ug/kg	< 1700 U	< 400 U	< 440 U	< 1800 U	270 J	< 7200 U	< 7300 U	< 1500 U
VOCs									
Benzene	ug/kg	NA	NA	NA	88 J	1.3 J	< 240 U	12 J	< 280 U
Ethylbenzene	ug/kg	NA	NA	NA	160 J	< 5.0 U	350	68 J	390
Methyl-tert-butylether	ug/kg	NA	NA	NA	< 410 U	< 5.0 U	< 240 U	< 220 U	< 280 U
Toluene	ug/kg	NA	NA	NA	310 J	0.99 J	36 J	61 J	26 J
Total Xylenes	ug/kg	NA	NA	NA	830	< 10 U	3500	270 J	2400
Metals									
Lead	mg/kg	38	13 B	18 B	71 B	190 B	130 B	130 B	59 B
TPH									
2-Methyl-1-propanol	mg/kg	< 13 U	< 12 U	< 14 U	< 11 U	< 12 U	< 11 U	< 11 U	< 11 U
Diesel (C10-C20)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
Ethanol	mg/kg	< 13 U	< 12 U	< 14 U	< 11 U	< 12 U	< 11 U	< 11 U	< 11 U
Ethylene Glycol	mg/kg	< 13 U	< 12 U	< 14 U	< 11 U	< 12 U	< 11 U	< 11 U	< 11 U
Gasoline C6-C10	ug/kg	NA	NA	NA	< 100 U	< 120 U	< 110 U	190	< 110 U
Isopropyl alcohol	mg/kg	< 13 U	< 12 U	< 14 U	< 11 U	< 12 U	< 11 U	< 11 U	< 11 U
Methanol	mg/kg	< 13 U	< 12 U	< 14 U	< 11 U	< 12 U	< 11 U	< 11 U	< 11 U
N-Propyl Alcohol	mg/kg	< 13 U	< 12 U	< 14 U	< 11 U	< 12 U	< 11 U	< 11 U	< 11 U
Propylene Glycol	mg/kg	< 13 U	< 12 U	< 14 U	< 11 U	< 12 U	< 11 U	< 11 U	< 11 U
TPH C20-C34	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
Miscellaneous									
Acetaldehyde	mg/kg	< 1.3 U	< 1.2 U	1.2 J	< 1.0 U	< 1.2 U	< 1.1 U	< 1.1 U	< 1.1 U
Acetic acid	mg/kg	8.0 J	< 11 U	< 11 U	< 9.5 U	< 11 U	< 10 U	< 9.1 U	< 9.7 U
Butyric Acid	mg/kg	< 12 U	< 11 U	< 11 U	< 9.5 U	< 11 U	7.9 J	< 9.1 U	32
Formaldehyde	mg/kg	2.7	11	< 1.4 U	< 1.0 U	< 1.2 U	4.7	3.1	5.0
Formic Acid	mg/kg	5.9 J	< 11 U	< 11 U	< 9.5 U	< 11 U	< 10 U	< 9.1 U	< 9.7 U
Lactic acid	mg/kg	< 12 U	< 11 U	< 11 U	< 9.5 U	< 11 U	< 10 U	< 9.1 U	< 9.7 U
Propionic Acid	mg/kg	< 12 U	< 11 U	< 11 U	470	520	460	400	270
Pyruvic Acid	mg/kg	< 12 U	< 11 U	< 11 U	10	< 11 U	< 10 U	< 9.1 U	< 9.7 U
Chloride	mg/kg	6.0 J	6.1 J	21	24	51	300	110	8.4 J

Notes:
mk/kg: miligrams per kilogram
ug/kg: micrograms per kilogram
TPH: Total Petroleum Hydrocarbons
Shading indicates these soils have been excavated

Table 3A
Surface Soil Analytical Results
Site Investigation report
Freedom Industries-Etowah Terminal

Location ID		SS-16	SS-17-DEEP	SS-18	SS-19-DEEP	SS-20-DEEP	SS-21	SS-22	SS-23	SS-24
Sample ID		SS-16 (10-06-2014)	SS-17-DEEP (0-1)	SS-18 (0-1) (10-02-2014)	SS-19-DEEP (0-1)	SS-20-DEEP (0-1)	SS-21 (0-1) (10-02-2014)	SS-22 (10-06-2014)	SS-23 (10-07-2014)	SS-24 (10-07-2014)
Depth (FT BGS)		0-1	0-1	0-1	0-1	0-1	0-1	0-1	0-1	0-1
Date Collected		10/6/2014	9/30/2014	10/3/2014	9/30/2014	9/30/2014	10/3/2014	10/6/2014	10/7/2014	10/7/2014
Parent Sample ID										
Chemical	**Units**									
SVOCs										
4-Methyl-1-cyclohexane methanol	ug/kg	< 3600 U	< 1500 U	< 410 U	< 360 U	< 1400 U	< 380 U	< 400 U	< 410 U	< 490 U
Propylene glycol phenyl ether	ug/kg	< 3600 U	< 1500 U	< 410 U	< 360 U	< 1400 U	< 380 U	< 400 U	< 410 U	< 490 U
VOCs										
Benzene	ug/kg	1.4 J	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	ug/kg	2.2 J	NA	NA	NA	NA	NA	NA	NA	NA
Methyl-tert-butylether	ug/kg	< 4.2 U	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	ug/kg	5.7	NA	NA	NA	NA	NA	NA	NA	NA
Total Xylenes	ug/kg	9.6	NA	NA	NA	NA	NA	NA	NA	NA
Metals										
Lead	mg/kg	49 B	NA	NA	NA	NA	NA	NA	NA	NA
TPH										
2-Methyl-1-propanol	mg/kg	< 11 U	< 11 U	< 12 U	< 11 U	< 11 U	< 12 U	< 12 U	< 12 U	< 15 U
Diesel (C10-C20)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethanol	mg/kg	< 11 U	< 11 U	< 12 U	< 11 U	< 11 U	< 12 U	< 12 U	< 12 U	< 15 U
Ethylene Glycol	mg/kg	< 11 U	< 11 U	< 12 U	< 11 U	< 11 U	< 12 U	< 12 U	< 12 U	< 15 U
Gasoline C6-C10	ug/kg	320	NA	NA	NA	NA	NA	NA	NA	NA
Isopropyl alcohol	mg/kg	< 11 U	< 11 U	< 12 U	< 11 U	< 11 U	< 12 U	< 12 U	7.3 J	< 15 U
Methanol	mg/kg	< 11 U	< 11 U	< 12 U	< 11 U	< 11 U	< 12 U	< 12 U	< 12 U	< 15 U
N-Propyl Alcohol	mg/kg	< 11 U	< 11 U	< 12 U	< 11 U	< 11 U	< 12 U	< 12 U	< 12 U	< 15 U
Propylene Glycol	mg/kg	< 11 U	< 11 U	< 12 U	< 11 U	< 11 U	< 12 U	< 12 U	< 12 U	< 15 U
TPH C20-C34	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Miscellaneous										
Acetaldehyde	mg/kg	< 1.1 U	0.38 J	< 1.2 U	< 1.1 U	0.35 J	< 1.1 U	< 1.2 U	0.46 J	< 1.4 U
Acetic acid	mg/kg	< 10 U	< 10 U	< 11 U	< 11 U	< 9.5 U	< 10 U	< 12 U	< 12 U	< 13 U
Butyric Acid	mg/kg	6.2 J	< 10 U	< 11 U	< 11 U	15	< 10 U	4.8 J	< 12 U	< 13 U
Formaldehyde	mg/kg	< 1.1 U	0.45 J	2.0	0.93 J	0.44 J	5.5	< 1.2 U	< 1.2 U	< 1.4 U
Formic Acid	mg/kg	< 10 U	< 10 U	< 11 U	< 11 U	< 9.5 U	2.6 J	< 12 U	< 12 U	< 13 U
Lactic acid	mg/kg	< 10 U	< 10 U	< 11 U	< 11 U	< 9.5 U	< 10 U	< 12 U	< 12 U	< 13 U
Propionic Acid	mg/kg	350	61	130	34	380	< 10 U	500	100	20
Pyruvic Acid	mg/kg	< 10 U	< 10 U	< 11 U	< 11 U	< 9.5 U	< 10 U	< 12 U	< 12 U	< 13 U
Chloride	mg/kg	8.9 J	14	5.8 JB	25	3.9 J	56 B	3.3 J	1.8 JB	6.7 JB

Notes:
mk/kg: miligrams per kilogram
ug/kg: micrograms per kilogram
TPH: Total Petroleum Hydrocarbons
Shading indicates these soils have been excavated

Table 3A
Surface Soil Analytical Results
Site Investigation report
Freedom Industries-Etowah Terminal

Location ID		SS-25	SS-26	SS-27	SS-28
Sample ID		SS-25 (10-06-2014)	SS-26 (10-06-2014)	SS-27 (0-1) (10-02-2014)	SS-28 (10-06-2014)
Depth (FT BGS)		0-1	0-1	0-1	0-1
Date Collected		10/6/2014	10/6/2014	10/3/2014	10/6/2014
Parent Sample ID					
Chemical	**Units**				
SVOCs					
4-Methyl-1-cyclohexane methanol	ug/kg	< 490 U	580 J	< 400 U	< 390 U
Propylene glycol phenyl ether	ug/kg	< 490 U	< 1900 U	< 400 U	< 390 U
VOCs					
Benzene	ug/kg	NA	NA	NA	NA
Ethylbenzene	ug/kg	NA	NA	NA	NA
Methyl-tert-butylether	ug/kg	NA	NA	NA	NA
Toluene	ug/kg	NA	NA	NA	NA
Total Xylenes	ug/kg	NA	NA	NA	NA
Metals					
Lead	mg/kg	NA	NA	NA	NA
TPH					
2-Methyl-1-propanol	mg/kg	< 15 U	< 12 U	< 12 U	< 12 U
Diesel (C10-C20)	mg/kg	NA	NA	NA	NA
Ethanol	mg/kg	< 15 U	< 12 U	< 12 U	< 12 U
Ethylene Glycol	mg/kg	< 15 U	< 12 U	< 12 U	< 12 U
Gasoline C6-C10	ug/kg	NA	NA	NA	NA
Isopropyl alcohol	mg/kg	11 J	< 12 U	< 12 U	3.2 J
Methanol	mg/kg	< 15 U	< 12 U	< 12 U	< 12 U
N-Propyl Alcohol	mg/kg	< 15 U	< 12 U	< 12 U	< 12 U
Propylene Glycol	mg/kg	< 15 U	< 12 U	< 12 U	< 12 U
TPH C20-C34	mg/kg	NA	NA	NA	NA
Miscellaneous					
Acetaldehyde	mg/kg	< 1.5 U	< 1.2 U	< 1.2 U	< 1.2 U
Acetic acid	mg/kg	< 13 U	< 11 U	< 12 U	< 11 U
Butyric Acid	mg/kg	< 13 U	29	< 12 U	< 11 U
Formaldehyde	mg/kg	< 1.5 U	< 1.2 U	< 1.2 U	< 1.2 U
Formic Acid	mg/kg	< 13 U	< 11 U	< 12 U	< 11 U
Lactic acid	mg/kg	< 13 U	< 11 U	< 12 U	< 11 U
Propionic Acid	mg/kg	5.7 J	120	390	500
Pyruvic Acid	mg/kg	< 13 U	< 11 U	< 12 U	< 11 U
Chloride	mg/kg	24	14	22 B	2.1 J

Notes:
mk/kg: miligrams per kilogram
ug/kg: micrograms per kilogram
TPH: Total Petroleum Hydrocarbons
Shading indicates these soils have been excavated

Table 3B
SubSurface Soil Analytical Results
Site Investigation Report
Freedom Industries-Etowah Terminal

Location ID		MW-3A	MW-3A	MW-3A	MW-8	MW-8	MW-9	MW-9
Sample ID		MW-3A (6-8) (10-14-2014)	DUP-09 (10-14-2014)	MW-3A (12-14) (10-14-2014)	MW-8 (12-14) (10-07-2014)	MW-8 (36-38) (10-07-2014)	MW-9 (12-14) (10-08-2014)	MW-9 (22-24) (10-08-2014)
Depth (FT BGS)		6-8	12-14	12-14	12-14	36-38	12-14	22-24
Date Collected		10/14/2014	10/14/2014	10/14/2014	10/7/2014	10/7/2014	10/8/2014	10/8/2014
Parent Sample ID			MW-3A (12-14) (10-14-2014)					
Chemical	**Units**							
SVOCs								
4-Methyl-1-cyclohexane methanol	ug/kg	< 4200 U	< 1600 U	< 1500 U	< 410 U	< 380 U	< 410 U	< 420 U
Propylene glycol phenyl ether	ug/kg	< 4200 U	< 1600 U	< 1500 U	< 410 U	< 380 U	< 410 U	< 420 U
TPH								
2-Methyl-1-propanol	mg/kg	< 13 U	< 12 U	< 12 U	< 12 U	< 11 U	< 12 U	< 13 U
Diesel (C10-C20)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Diesel C10-C28	mg/kg	NA	NA	NA	NA	NA	NA	NA
Ethanol	mg/kg	< 13 U	< 12 U	< 12 U	< 12 U	< 11 U	< 12 U	< 13 U
Ethylene Glycol	mg/kg	< 13 U	< 12 U	< 12 U	< 12 U	< 11 U	< 12 U	< 13 U
Formic Acid	mg/kg	NA	NA	NA	NA	NA	NA	NA
Gasoline C6-C10	ug/kg	NA	NA	NA	NA	NA	NA	NA
Isopropyl alcohol	mg/kg	< 13 U	< 12 U	< 12 U	< 12 U	< 11 U	< 12 U	< 13 U
Methanol	mg/kg	< 13 U	< 12 U	< 12 U	< 12 U	< 11 U	< 12 U	< 13 U
N-Propyl Alcohol	mg/kg	< 13 U	< 12 U	< 12 U	< 12 U	< 11 U	< 12 U	< 13 U
Propylene Glycol	mg/kg	< 13 U	< 12 U	< 12 U	< 12 U	< 11 U	< 12 U	< 13 U
TPH C20-C34	mg/kg	NA	NA	NA	NA	NA	NA	NA

Notes:
mk/kg: miligrams per kilogram
ug/kg: micrograms per kilogram
TPH: Total Petroleum Hydrocarbons

Table 3B
SubSurface Soil Analytical Results
Site Investigation Report
Freedom Industries-Etowah Terminal

Location ID		MW-10	MW-10	MW-11	MW-11	MW-12	MW-12
Sample ID		MW-10 (20-22) (10-07-2014)	MW-10 (34-36) (10-07-2014)	MW-11 (8-10) (10-08-2014)	MW-11 (38-40) (10-08-2014)	MW-12 (10-12) (10-13-2014)	MW-12 (34-36) (10-13-2014)
Depth (FT BGS)		20-22	34-36	8-10	38-40	10-12	34-36
Date Collected		10/7/2014	10/7/2014	10/8/2014	10/8/2014	10/13/2014	10/13/2014
Parent Sample ID							
Chemical	**Units**						
SVOCs							
4-Methyl-1-cyclohexane methanol	ug/kg	< 370 U	< 370 U	< 370 U	< 380 U	< 410 U	< 380 U
Propylene glycol phenyl ether	ug/kg	< 370 U	< 370 U	< 370 U	< 380 U	< 410 U	< 380 U
TPH							
2-Methyl-1-propanol	mg/kg	< 11 U	< 11 U	< 11 U	< 12 U	< 13 U	< 12 U
Diesel (C10-C20)	mg/kg	NA	NA	NA	NA	NA	NA
Diesel C10-C28	mg/kg	NA	NA	NA	NA	NA	NA
Ethanol	mg/kg	< 11 U	< 11 U	< 11 U	< 12 U	< 13 U	< 12 U
Ethylene Glycol	mg/kg	< 11 U	< 11 U	< 11 U	< 12 U	< 13 U	< 12 U
Formic Acid	mg/kg	NA	NA	NA	NA	NA	NA
Gasoline C6-C10	ug/kg	NA	NA	NA	NA	NA	NA
Isopropyl alcohol	mg/kg	< 11 U	< 11 U	< 11 U	< 12 U	< 13 U	< 12 U
Methanol	mg/kg	< 11 U	< 11 U	< 11 U	< 12 U	< 13 U	< 12 U
N-Propyl Alcohol	mg/kg	< 11 U	< 11 U	< 11 U	< 12 U	< 13 U	< 12 U
Propylene Glycol	mg/kg	< 11 U	< 11 U	< 11 U	< 12 U	< 13 U	< 12 U
TPH C20-C34	mg/kg	NA	NA	NA	NA	NA	NA

Notes:
mk/kg: miligrams per kilogram
ug/kg: micrograms per kilogram
TPH: Total Petroleum Hydrocarbons

Table 3B
SubSurface Soil Analytical Results
Site Investigation Report
Freedom Industries-Etowah Terminal

Location ID		MW-13	MW-13	MW-13	SB-1	SB-1	SB-2	SB-2	SB-4	SB-4	SB-5	SB-6
Sample ID		MW-13 (12-14) (10-14-2014)	MW-13 (18-20) (10-14-2014)	DUP-08 (10-14-2014)	SB-1 (16-18)	SB-1 (24-26)	SB-2 (16-18)	SB-2 (18-20)	SB-4 (12-14)	SB-4 (22-24)	SB-5 (12-14)	SB-6 (8-10)
Depth (FT BGS)		12-14	18-20	18-20	16-18	24-26	16-18	18-20	12-14	22-24	12-14	8-10
Date Collected		10/14/2014	10/14/2014	10/14/2014	9/30/2014	9/30/2014	9/30/2014	9/30/2014	9/30/2014	9/30/2014	9/30/2014	10/1/2014
Parent Sample ID				MW-13 (18-20) (10-14-2014)								
Chemical	**Units**											
SVOCs												
4-Methyl-1-cyclohexane methanol	ug/kg	21000	< 370 U	< 370 U	< 420 U	< 440 U	< 400 U	< 400 U	< 2000 U	< 370 U	< 490 U	< 400 U
Propylene glycol phenyl ether	ug/kg	< 8700 U	< 370 U	< 370 U	< 420 U	< 440 U	< 400 U	< 400 U	< 2000 U	< 370 U	< 490 U	< 400 U
TPH												
2-Methyl-1-propanol	mg/kg	< 13 U	< 11 U	< 11 U	< 13 U	< 13 U	< 12 U	< 12 U	< 12 U	< 11 U	< 15 U	< 12 U
Diesel (C10-C20)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diesel C10-C28	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethanol	mg/kg	< 13 U	< 11 U	< 11 U	< 13 U	< 13 U	< 12 U	< 12 U	< 12 U	< 11 U	< 15 U	< 12 U
Ethylene Glycol	mg/kg	17	< 11 U	< 11 U	< 13 U	< 13 U	< 12 U	< 12 U	< 12 U	< 11 U	< 15 U	< 12 U
Formic Acid	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gasoline C6-C10	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropyl alcohol	mg/kg	< 13 U	< 11 U	< 11 U	< 13 U	< 13 U	< 12 U	< 12 U	< 12 U	< 11 U	< 15 U	< 12 U
Methanol	mg/kg	< 13 U	< 11 U	< 11 U	< 13 U	< 13 U	< 12 U	< 12 U	< 12 U	< 11 U	< 15 U	< 12 U
N-Propyl Alcohol	mg/kg	< 13 U	< 11 U	< 11 U	< 13 U	< 13 U	< 12 U	< 12 U	< 12 U	< 11 U	< 15 U	< 12 U
Propylene Glycol	mg/kg	26	< 11 U	< 11 U	< 13 U	< 13 U	< 12 U	< 12 U	< 12 U	< 11 U	< 15 U	< 12 U
TPH C20-C34	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
mk/kg: miligrams per kilogram
ug/kg: micrograms per kilogram
TPH: Total Petroleum Hydrocarbons

Table 3B
SubSurface Soil Analytical Results
Site Investigation Report
Freedom Industries-Etowah Terminal

Location ID		SB-7	SB-7	SB-8	SB-9	SB-10	SB-11	SB-12	SB-17	SB-18
Sample ID		SB-7 (10-12) (10-02-2014)	DUP-07 (10-02-2014)	SB-8 (8-10)	SB-9 (8-10)	SB-10 (10-12) (10-02-2014)	SB-11 (8-10) (10-02-2014)	SB-12 (8-10) (10-02-2014)	SB-17 (8-10)	SB-18 (8-10)
Depth (FT BGS)		10-12	10-12	8-10	8-10	10-12	8-10	8-10	8-10	8-10
Date Collected		10/2/2014	10/2/2014	10/1/2014	10/1/2014	10/2/2014	10/2/2014	10/2/2014	10/1/2014	10/1/2014
Parent Sample ID			SB-7 (10-12) (10-02-2014)							
Chemical	**Units**									
SVOCs										
4-Methyl-1-cyclohexane methanol	ug/kg	< 390 U	< 400 U	< 410 U	< 400 U	< 410 U	< 410 U	< 400 U	< 400 U	< 410 U
Propylene glycol phenyl ether	ug/kg	< 390 U	< 400 U	< 410 U	< 400 U	100 J	< 410 U	< 400 U	< 400 U	< 410 U
TPH										
2-Methyl-1-propanol	mg/kg	< 12 U	< 12 U	< 12 U	< 12 U	< 12 U	< 12 U	< 12 U	< 12 U	< 12 U
Diesel (C10-C20)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diesel C10-C28	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethanol	mg/kg	< 12 U	< 12 U	< 12 U	< 12 U	< 12 U	< 12 U	< 12 U	< 12 U	< 12 U
Ethylene Glycol	mg/kg	< 12 U	< 12 U	< 12 U	< 12 U	< 12 U	< 12 U	< 12 U	< 12 U	< 12 U
Formic Acid	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gasoline C6-C10	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropyl alcohol	mg/kg	< 12 U	< 12 U	< 12 U	< 12 U	< 12 U	< 12 U	< 12 U	< 12 U	< 12 U
Methanol	mg/kg	2.7 J	< 12 U	< 12 U	< 12 U	< 12 U	< 12 U	< 12 U	< 12 U	< 12 U
N-Propyl Alcohol	mg/kg	< 12 U	< 12 U	< 12 U	< 12 U	< 12 U	< 12 U	< 12 U	< 12 U	< 12 U
Propylene Glycol	mg/kg	< 12 U	< 12 U	< 12 U	< 12 U	< 12 U	< 12 U	< 12 U	< 12 U	< 12 U
TPH C20-C34	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
mk/kg: miligrams per kilogram
ug/kg: micrograms per kilogram
TPH: Total Petroleum Hydrocarbons

Table 3B
SubSurface Soil Analytical Results
Site Investigation Report
Freedom Industries-Etowah Terminal

Location ID		SB-19	SB-20	SB-20	SB-21	SB-22	SB-23	SB-24	SB-24	SB-25	SB-26
Sample ID		SB-19 (8-10)	SB-20 (10-12)	SB-20 (12-14)	SB-21 (8-10) (10-02-2014)	SB-22 (10-12) (10-02-2014)	SB-23 (10-12) (10-02-2014)	SB-24 (10-12)	SB-24 (14-16)	SB-25 (10-12) (10-02-2014)	SB-26 (8-10)
Depth (FT BGS)		8-10	10-12	12-14	8-10	10-12	10-12	10-12	14-16	10-12	8-10
Date Collected		10/1/2014	10/1/2014	10/1/2014	10/2/2014	10/2/2014	10/2/2014	10/1/2014	10/1/2014	10/2/2014	10/1/2014
Parent Sample ID											
Chemical	**Units**										
SVOCs											
4-Methyl-1-cyclohexane methanol	ug/kg	< 400 U	< 410 U	< 410 U	< 410 U	< 400 U	5200	< 400 U	< 420 U	< 400 U	3700
Propylene glycol phenyl ether	ug/kg	< 400 U	< 410 U	< 410 U	< 410 U	< 400 U	< 4100 U	< 400 U	< 420 U	< 400 U	< 2700 U
TPH											
2-Methyl-1-propanol	mg/kg	< 12 U	< 12 U	< 13 U	< 12 U	< 12 U	< 12 U	< 12 U	< 13 U	< 12 U	< 12 U
Diesel (C10-C20)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diesel C10-C28	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethanol	mg/kg	< 12 U	< 12 U	< 13 U	< 12 U	< 12 U	< 12 U	< 12 U	12 J	< 12 U	< 12 U
Ethylene Glycol	mg/kg	< 12 U	< 12 U	< 13 U	< 12 U	< 12 U	71	22	500	< 12 U	< 12 U
Formic Acid	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gasoline C6-C10	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropyl alcohol	mg/kg	< 12 U	< 12 U	< 13 U	< 12 U	< 12 U	< 12 U	< 12 U	< 13 U	< 12 U	< 12 U
Methanol	mg/kg	< 12 U	< 12 U	< 13 U	< 12 U	< 12 U	< 12 U	< 12 U	< 13 U	< 12 U	< 12 U
N-Propyl Alcohol	mg/kg	< 12 U	< 12 U	< 13 U	< 12 U	< 12 U	< 12 U	< 12 U	< 13 U	< 12 U	< 12 U
Propylene Glycol	mg/kg	< 12 U	< 12 U	< 13 U	< 12 U	< 12 U	89	< 12 U	< 13 U	< 12 U	< 12 U
TPH C20-C34	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
mk/kg: miligrams per kilogram
ug/kg: micrograms per kilogram
TPH: Total Petroleum Hydrocarbons

Table 3B
SubSurface Soil Analytical Results
Site Investigation Report
Freedom Industries-Etowah Terminal

	Location ID	SB-26	SB-27	SB-27	SB-28	SB-29	SB-29	SB-31	SB-32	SB-33
	Sample ID	SB-26 (14-16)	SB-27 (6-8)	SB-27 (14-16)	SB-28 (12-14) (10-02-2014)	SB-29 (10-12) (10-02-2014)	DUP-04 (10-02-2014)	SB-31 (8-10) (10-02-2014)	SB-32 (12-14) (10-02-2014)	SB-33 (10-12)
	Depth (FT BGS)	14-16	6-8	14-16	12-14	10-12	10-12	8-10	12-14	10-12
	Date Collected	10/1/2014	10/1/2014	10/1/2014	10/2/2014	10/2/2014	10/2/2014	10/2/2014	10/2/2014	10/1/2014
	Parent Sample ID						SB-29 (10-12) (10-02-2014)			
Chemical	**Units**									
SVOCs										
4-Methyl-1-cyclohexane methanol	ug/kg	< 400 U	< 410 U	< 410 U	< 410 U	< 410 U	< 410 U	< 400 U	< 420 U	< 410 U
Propylene glycol phenyl ether	ug/kg	< 400 U	< 410 U	< 410 U	< 410 U	< 410 U	< 410 U	< 400 U	< 420 U	< 410 U
TPH										
2-Methyl-1-propanol	mg/kg	< 12 U	< 12 U	< 12 U	< 12 U	< 12 U	< 12 U	< 12 U	< 13 U	< 12 U
Diesel (C10-C20)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diesel C10-C28	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethanol	mg/kg	< 12 U	< 12 U	< 12 U	< 12 U	< 12 U	< 12 U	< 12 U	< 13 U	< 12 U
Ethylene Glycol	mg/kg	< 12 U	< 12 U	< 12 U	< 12 U	< 12 U	< 12 U	< 12 U	< 13 U	< 12 U
Formic Acid	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gasoline C6-C10	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropyl alcohol	mg/kg	< 12 U	< 12 U	< 12 U	< 12 U	< 12 U	< 12 U	< 12 U	< 13 U	< 12 U
Methanol	mg/kg	< 12 U	< 12 U	< 12 U	< 12 U	46	20	< 12 U	< 13 U	< 12 U
N-Propyl Alcohol	mg/kg	< 12 U	< 12 U	< 12 U	< 12 U	< 12 U	< 12 U	< 12 U	< 13 U	< 12 U
Propylene Glycol	mg/kg	< 12 U	< 12 U	< 12 U	< 12 U	< 12 U	< 12 U	< 12 U	< 13 U	< 12 U
TPH C20-C34	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
mk/kg: miligrams per kilogram
ug/kg: micrograms per kilogram
TPH: Total Petroleum Hydrocarbons

Table 3B
SubSurface Soil Analytical Results
Site Investigation Report
Freedom Industries-Etowah Terminal

Location ID		SB-34	SB-36	SB-36	SB-37	SB-38	SB-38	SB-43
Sample ID		SB-34 (12-14)	SB-36 (12-14) (10-02-2014)	DUP-06 (10-02-2014)	SB-37 (8-10) (10-02-2014)	SB-38 (12-14) (10-02-2014)	DUP-05 (10-02-2014)	SB-43 (6-8) (10-15-2014)
Depth (FT BGS)		12-14	12-14	12-14	8-10	12-14	12-14	6-8
Date Collected		10/1/2014	10/2/2014	10/2/2014	10/2/2014	10/2/2014	10/2/2014	10/15/2014
Parent Sample ID				SB-36 (12-14) (10-02-2014)			SB-38 (12-14) (10-02-2014)	
Chemical	**Units**							
SVOCs								
4-Methyl-1-cyclohexane methanol	ug/kg	< 400 U	< 1700 U	< 410 U	< 420 U	5800	< 420 U	20000
Propylene glycol phenyl ether	ug/kg	< 400 U	< 1700 U	< 410 U	< 420 U	< 4000 U	< 420 U	660 J
TPH								
2-Methyl-1-propanol	mg/kg	< 12 U	< 13 U	< 12 U	< 13 U	< 12 U	< 13 U	< 13 U
Diesel (C10-C20)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Diesel C10-C28	mg/kg	NA	NA	NA	NA	NA	NA	NA
Ethanol	mg/kg	< 12 U	< 13 U	< 12 U	< 13 U	< 12 U	< 13 U	< 13 U
Ethylene Glycol	mg/kg	< 12 U	< 13 U	< 12 U	< 13 U	6.7 J	6.6 J	5.0 J
Formic Acid	mg/kg	NA	NA	NA	NA	NA	NA	NA
Gasoline C6-C10	ug/kg	NA	NA	NA	NA	NA	NA	NA
Isopropyl alcohol	mg/kg	< 12 U	< 13 U	< 12 U	< 13 U	< 12 U	< 13 U	< 13 U
Methanol	mg/kg	< 12 U	< 13 U	< 12 U	< 13 U	< 12 U	53	< 13 U
N-Propyl Alcohol	mg/kg	< 12 U	< 13 U	< 12 U	< 13 U	< 12 U	< 13 U	< 13 U
Propylene Glycol	mg/kg	< 12 U	< 13 U	< 12 U	< 13 U	4.9 J	4.4 J	4.8 J
TPH C20-C34	mg/kg	NA	NA	NA	NA	NA	NA	NA

Notes:
mk/kg: miligrams per kilogram
ug/kg: micrograms per kilogram
TPH: Total Petroleum Hydrocarbons

Table 3B
SubSurface Soil Analytical Results
Site Investigation Report
Freedom Industries-Etowah Terminal

	Location ID	SB-43	SB-43	SB-44	SB-44	SB-44	SB-45	SB-45
	Sample ID	SB-43 (22-24) (10-15-2014)	DUP-10 (10-15-2014)	SB-44 (10-12) (10-15-2014)	DUP-11 (10-15-2014)	SB-44 (18-20) (10-15-2014)	SB-45(12-14) (10-16-2014)	SB-45(14-16) (10-16-2014)
	Depth (FT BGS)	22-24	22-24	10-12	18-20	18-20	12-14	14-16
	Date Collected	10/15/2014	10/15/2014	10/15/2014	10/15/2014	10/15/2014	10/16/2014	10/16/2014
	Parent Sample ID		SB-43 (22-24) (10-15-2014)		SB-44 (18-20) (10-15-2014)			
Chemical	**Units**							
SVOCs								
4-Methyl-1-cyclohexane methanol	ug/kg	< 1900 U	< 1900 U	< 1600 U	< 3800 U	< 1600 U	440	< 370 U
Propylene glycol phenyl ether	ug/kg	< 1900 U	< 1900 U	< 1600 U	< 3800 U	< 1600 U	< 380 U	< 370 U
TPH								
2-Methyl-1-propanol	mg/kg	< 11 U	< 11 U	< 12 U	< 12 U	< 12 U	< 12 U	< 11 U
Diesel (C10-C20)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Diesel C10-C28	mg/kg	NA	NA	NA	NA	NA	NA	NA
Ethanol	mg/kg	< 11 U	< 11 U	< 12 U	< 12 U	< 12 U	< 12 U	< 11 U
Ethylene Glycol	mg/kg	< 11 U	< 11 U	< 12 U	< 12 U	< 12 U	< 12 U	< 11 U
Formic Acid	mg/kg	NA	NA	NA	NA	NA	NA	NA
Gasoline C6-C10	ug/kg	NA	NA	NA	NA	NA	NA	NA
Isopropyl alcohol	mg/kg	< 11 U	< 11 U	< 12 U	< 12 U	< 12 U	< 12 U	< 11 U
Methanol	mg/kg	< 11 U	< 11 U	< 12 U	< 12 U	< 12 U	< 12 U	< 11 U
N-Propyl Alcohol	mg/kg	< 11 U	< 11 U	< 12 U	< 12 U	< 12 U	< 12 U	< 11 U
Propylene Glycol	mg/kg	< 11 U	< 11 U	< 12 U	< 12 U	< 12 U	< 12 U	< 11 U
TPH C20-C34	mg/kg	NA	NA	NA	NA	NA	NA	NA

Notes:
mk/kg: miligrams per kilogram
ug/kg: micrograms per kilogram
TPH: Total Petroleum Hydrocarbons

Table 3B
SubSurface Soil Analytical Results
Site Investigation Report
Freedom Industries-Etowah Terminal

	Location ID	SB-45	SS-17-DEEP	SS-17-DEEP	SS-19-DEEP	SS-19-DEEP	SS-20-DEEP	SS-20-DEEP	SS-21
	Sample ID	DUP-12 (10-16-2014)	SS-17-DEEP (12-14)	SS-17-DEEP (36-38)	SS-19-DEEP (36-38)	SS-19-DEEP (4-6)	SS-20-DEEP (14-16)	SS-20-DEEP (36-38)	DUP-08 (10-02-2014)
	Depth (FT BGS)	14-16	12-14	36-38	36-38	4-6	14-16	36-38	14-16
	Date Collected	10/16/2014	9/30/2014	9/30/2014	9/30/2014	9/30/2014	9/30/2014	9/30/2014	10/3/2014
	Parent Sample ID	SB-45(14-16) (10-16-2014)							SS-21 DEEP (14-16) (10-02-2014)
Chemical	**Units**								
SVOCs									
4-Methyl-1-cyclohexane methanol	ug/kg	< 370 U	< 400 U	< 360 U	< 340 U	< 410 U	< 1000 U	< 350 U	< 390 U
Propylene glycol phenyl ether	ug/kg	< 370 U	< 400 U	< 360 U	< 340 U	< 410 U	< 1000 U	< 350 U	< 390 U
TPH									
2-Methyl-1-propanol	mg/kg	< 11 U	< 12 U	< 11 U	< 10 U	< 12 U	< 12 U	< 11 U	< 12 U
Diesel (C10-C20)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
Diesel C10-C28	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
Ethanol	mg/kg	< 11 U	< 12 U	< 11 U	< 10 U	< 12 U	< 12 U	< 11 U	< 12 U
Ethylene Glycol	mg/kg	< 11 U	< 12 U	< 11 U	< 10 U	< 12 U	< 12 U	< 11 U	< 12 U
Formic Acid	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
Gasoline C6-C10	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA
Isopropyl alcohol	mg/kg	< 11 U	< 12 U	< 11 U	< 10 U	< 12 U	< 12 U	< 11 U	< 12 U
Methanol	mg/kg	< 11 U	< 12 U	< 11 U	< 10 U	< 12 U	< 12 U	< 11 U	< 12 U
N-Propyl Alcohol	mg/kg	< 11 U	< 12 U	< 11 U	< 10 U	< 12 U	< 12 U	< 11 U	< 12 U
Propylene Glycol	mg/kg	< 11 U	< 12 U	< 11 U	< 10 U	< 12 U	< 12 U	< 11 U	< 12 U
TPH C20-C34	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
mk/kg: miligrams per kilogram
ug/kg: micrograms per kilogram
TPH: Total Petroleum Hydrocarbons

Table 3B
SubSurface Soil Analytical Results
Site Investigation Report
Freedom Industries-Etowah Terminal

Location ID		SS-21	SS-21	SS-27	SS-27
Sample ID		SS-21 DEEP (14-16) (10-02-2014)	SS-21 DEEP (4-6) (10-02-2014)	SS-27 DEEP (10-12) (10-02-2014)	SS-27 DEEP (16-18) (10-02-2014)
Depth (FT BGS)		14-16	4-6	10-12	16-18
Date Collected		10/3/2014	10/3/2014	10/3/2014	10/3/2014
Parent Sample ID					
Chemical	**Units**				
SVOCs					
4-Methyl-1-cyclohexane methanol	ug/kg	< 390 U	< 2200 U	< 400 U	< 410 U
Propylene glycol phenyl ether	ug/kg	< 390 U	< 2200 U	< 400 U	< 410 U
TPH					
2-Methyl-1-propanol	mg/kg	< 12 U	< 13 U	< 12 U	< 13 U
Diesel (C10-C20)	mg/kg	NA	NA	NA	NA
Diesel C10-C28	mg/kg	NA	NA	NA	NA
Ethanol	mg/kg	< 12 U	< 13 U	< 12 U	< 13 U
Ethylene Glycol	mg/kg	< 12 U	< 13 U	< 12 U	< 13 U
Formic Acid	mg/kg	NA	NA	NA	NA
Gasoline C6-C10	ug/kg	NA	NA	NA	NA
Isopropyl alcohol	mg/kg	< 12 U	< 13 U	< 12 U	< 13 U
Methanol	mg/kg	< 12 U	< 13 U	< 12 U	< 13 U
N-Propyl Alcohol	mg/kg	< 12 U	< 13 U	< 12 U	< 13 U
Propylene Glycol	mg/kg	< 12 U	< 13 U	< 12 U	< 13 U
TPH C20-C34	mg/kg	NA	NA	NA	NA

Notes:
mk/kg: miligrams per kilogram
ug/kg: micrograms per kilogram
TPH: Total Petroleum Hydrocarbons

Table 3C
Sub Tank Soil Analytical Results
Site Investigation Report
Freedom Industries-Etowah Terminal

	Location ID	T395C	T395C	T395D	T396A	T396C	T396D-INT	T396F
	Sample ID	T395-C-2-3-051414(S)	T395-C-3-4-051414(S)	T395-D-2-3-051514(S)	T396-A-3-4-051514(S)	T396-C-3-4-051514(S)	T396-D-INT.3-4-051514(S)	T396-F-0.1-1-051514(S)
	Date Collected	5/14/2014	5/14/2014	5/15/2014	5/15/2014	5/15/2014	5/15/2014	5/15/2014
Chemical	**Units**							
SVOCs								
4-Methyl-1-cyclohexane methanol	ug/kg	< 420 UH < 420 U	< 410 UH < 410 U	2800 H 1100	17000 H 17000	1400 H 1700	< 4200 UH < 4200 U	87000 H 120000
Propylene glycol phenyl ether	ug/kg	< 420 U < 420 UH	< 410 U < 410 UH	< 840 U < 1700 UH	< 5400 U < 8600 UH	< 1700 U < 860 UH	< 4200 U < 4200 UH	< 42000 U < 41000 UH
PCBs								
Aroclor 1016	ug/kg	NA	NA	NA	NA	NA	NA	NA
Aroclor 1221	ug/kg	NA	NA	NA	NA	NA	NA	NA
Aroclor 1232	ug/kg	NA	NA	NA	NA	NA	NA	NA
Aroclor 1242	ug/kg	NA	NA	NA	NA	NA	NA	NA
Aroclor 1248	ug/kg	NA	NA	NA	NA	NA	NA	NA
Aroclor 1254	ug/kg	NA	NA	NA	NA	NA	NA	NA
Aroclor 1260	ug/kg	NA	NA	NA	NA	NA	NA	NA
Aroclor 1262	ug/kg	NA	NA	NA	NA	NA	NA	NA
Aroclor 1268	ug/kg	NA	NA	NA	NA	NA	NA	NA
TPH								
Diesel C10-C28	mg/kg	NA	NA	NA	NA	NA	NA	NA
Gasoline C6-C10	ug/kg	NA	NA	NA	NA	NA	NA	NA

Notes:
mg/kg: miligrams per kilogram
ug/kg: micrograms per kilogram

Table 3C
Sub Tank Soil Analytical Results
Site Investigation Report
Freedom Industries-Etowah Terminal

	Location ID	T397B	Tank 399	TB-395	TB-396	TB-397	TK395A	TK395B	TK395B	TK395B
	Sample ID	T397-B-0-1-051414(S)	TANK 399 SAND (7-16-2014)	TB-395 (7-30-2014)	TB-396 (7-29-2014)	TB-397 (7-29-2014)	TK395A (0-0.5)	TK395B (0.5-1.1)	TK395B (0-0.1)	TK395B (1.1-2.1)
	Date Collected	5/14/2014	7/16/2014	7/30/2014	7/29/2014	7/29/2014	5/14/2014	5/14/2014	5/14/2014	5/14/2014
Chemical	**Units**									
SVOCs										
4-Methyl-1-cyclohexane methanol	ug/kg	180000	< 360 U	1500 J	1800000	22000	1900000 H 8600000	< 430 UH < 1100 U	2300 H 6400	< 410 UH 460
Propylene glycol phenyl ether	ug/kg	< 83000 U	NA	940 J	< 1100000 U	1600 J	< 4300000 U < 1100000 UH	3300 1300 H	< 4500 U 2100 H	< 410 U < 410 UH
PCBs										
Aroclor 1016	ug/kg	NA	< 37 U	NA	NA	NA	NA	NA	NA	NA
Aroclor 1221	ug/kg	NA	< 37 U	NA	NA	NA	NA	NA	NA	NA
Aroclor 1232	ug/kg	NA	< 37 U	NA	NA	NA	NA	NA	NA	NA
Aroclor 1242	ug/kg	NA	< 37 U	NA	NA	NA	NA	NA	NA	NA
Aroclor 1248	ug/kg	NA	< 37 U	NA	NA	NA	NA	NA	NA	NA
Aroclor 1254	ug/kg	NA	< 37 U	NA	NA	NA	NA	NA	NA	NA
Aroclor 1260	ug/kg	NA	< 37 U	NA	NA	NA	NA	NA	NA	NA
Aroclor 1262	ug/kg	NA	< 37 U	NA	NA	NA	NA	NA	NA	NA
Aroclor 1268	ug/kg	NA	< 37 U	NA	NA	NA	NA	NA	NA	NA
TPH										
Diesel C10-C28	mg/kg	NA	8.4 J	NA	NA	NA	NA	NA	NA	NA
Gasoline C6-C10	ug/kg	NA	< 110 U	NA	NA	NA	NA	NA	NA	NA

Notes:
mg/kg: miligrams per kilogram
ug/kg: micrograms per kilogram

Table 3C
Sub Tank Soil Analytical Results
Site Investigation Report
Freedom Industries-Etowah Terminal

	Location ID	TK395B	TK395B	TK396	TK396	TK396	TK396	TK396	TK397	TK397	TK397	TK397
	Sample ID	TK395B (2.1-3.1)	TK395B (3.1-4.1)	TK396 (0.7-1.2)	TK396 (0-0.2)	TK396 (1.2-2.2)	TK396 (2.9-3.2)	TK396 (3.2-4.2)	TK397 (0.9-1.1)	TK397 (0-0.1)	TK397 (1.1-2.1)	TK397 (2.1-3.1)
	Date Collected	5/14/2014	5/14/2014	5/14/2014	5/14/2014	5/14/2014	5/14/2014	5/14/2014	5/14/2014	5/14/2014	5/14/2014	5/14/2014
Chemical	**Units**											
SVOCs												
4-Methyl-1-cyclohexane methanol	ug/kg	490 H < 430 U	< 420 UH < 1700 U	480000 H 500000	2000000 H 1800000	2300 H 7700	19000 H 68000	26000 H 45000	< 1800 UH < 1800 U	5100 H 11000	< 8400 U < 2100 UH	< 1700 UH < 1800 U
Propylene glycol phenyl ether	ug/kg	< 430 U < 430 UH	< 1700 U < 420 UH	< 210000 U < 210000 UH	< 900000 U < 910000 UH	< 4100 U < 1600 UH	< 41000 U < 8200 UH	22000 < 11000 UH	4300 4600 H	6500 6600 H	< 8400 U < 2100 UH	< 1800 U < 1700 UH
PCBs												
Aroclor 1016	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1221	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1232	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1242	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1248	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1254	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1260	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1262	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1268	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH												
Diesel C10-C28	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gasoline C6-C10	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
mg/kg: miligrams per kilogram
ug/kg: micrograms per kilogram

Table 3C
Sub Tank Soil Analytical Results
Site Investigation Report
Freedom Industries-Etowah Terminal

	Location ID	**TK397**
	Sample ID	**TK397 (3.1-4.1)**
	Date Collected	**5/14/2014**
Chemical	**Units**	
SVOCs		
4-Methyl-1-cyclohexane methanol	ug/kg	< 1100 UH < 4300 U
Propylene glycol phenyl ether	ug/kg	< 4300 U < 1100 UH
PCBs		
Aroclor 1016	ug/kg	NA
Aroclor 1221	ug/kg	NA
Aroclor 1232	ug/kg	NA
Aroclor 1242	ug/kg	NA
Aroclor 1248	ug/kg	NA
Aroclor 1254	ug/kg	NA
Aroclor 1260	ug/kg	NA
Aroclor 1262	ug/kg	NA
Aroclor 1268	ug/kg	NA
TPH		
Diesel C10-C28	mg/kg	NA
Gasoline C6-C10	ug/kg	NA

Notes:
mg/kg: miligrams per kilogram
ug/kg: micrograms per kilogram

Table 3D
Diversion Tench Soil Analytical Results
Site Investigation Report
Freedom Industries-Etowah Terminal

	Location ID Sample ID Date Collected	DiversionTrenchSoil DIVERSION TRENCH SOIL 1 11/11/2014	DiversionTrenchSoil DIVERSION TRENCH SOIL 2 11/13/2014	DiversionTrenchSoil DIVERSION TRENCH SOIL 2 (11-13-2014) 11/13/2014	DiversionTrenchSoil DIVERSION TRENCH SOIL 3 11/13/2014
Chemical	**Units**				
SVOCs					
4-Methyl-1-cyclohexane methanol	ug/kg	< 370 U	< 400 U	< 400 U	< 380 U
Propylene glycol phenyl ether	ug/kg	< 370 U	< 400 U	< 400 U	< 380 U

Note:
ug/kg: micrograms per kilogram
Depths and exact location of samples were not recorded. Trench depth is from approximately 5 to 7 feet below grade.

Table 3D
Diversion Tench Soil Analytical Results
Site Investigation Report
Freedom Industries-Etowah Terminal

	Location ID Sample ID Date Collected	DiversionTrenchSoil DIVERSION TRENCH SOIL 3 (11-13-2014) 11/13/2014	DiversionTrenchSoil DIVERSION TRENCH SOIL 4 11/13/2014	DiversionTrenchSoil DIVERSION TRENCH SOIL 4 (11-13-2014) 11/13/2014
Chemical	**Units**			
SVOCs				
4-Methyl-1-cyclohexane methanol	ug/kg	< 380 U	< 400 U	< 400 U
Propylene glycol phenyl ether	ug/kg	< 380 U	< 400 U	< 400 U

Note:
ug/kg: micrograms per kilogram
Depths and exact location of samples were not recorded. Trench depth is from approximately 5 to 7 feet below grade.

Table 3E
Sediment Analytical Results
Site investigation Report
Freedom Industries-Etowah Terminal

	Location ID	SED-01	SED-02	SED-03
	Sample ID	SED-01 (10-07-2014)	SED-02 (10-07-2014)	SED-03 (10-08-2014)
	Depth (FT BGS)	0-1	0-1	0-1
	Date Collected	10/7/2014	10/7/2014	10/8/2014
Chemical	**Units**			
SVOCs				
4-Methyl-1-cyclohexane methanol	ug/kg	360 J	< 570 U	< 490 U
Propylene glycol phenyl ether	ug/kg	< 480 U	< 570 U	< 490 U
Metals				
Calcium	mg/kg	2400	2500	2000
TPH				
2-Methyl-1-propanol	mg/kg	< 14 U	< 17 U	< 15 U
Ethanol	mg/kg	< 14 U	< 17 U	< 15 U
Ethylene Glycol	mg/kg	< 14 U	< 17 U	< 15 U
Isopropyl alcohol	mg/kg	< 14 U	4.5 J	7.5 J
Methanol	mg/kg	< 14 U	< 17 U	< 15 U
N-Propyl Alcohol	mg/kg	< 14 U	< 17 U	< 15 U
Propylene Glycol	mg/kg	< 14 U	< 17 U	< 15 U
Miscellaneous				
Acetaldehyde	mg/kg	< 1.4 U	< 1.7 U	< 1.5 U
Acetic acid	mg/kg	< 13 U	< 17 U	< 13 U
Butyric Acid	mg/kg	14	10 J	< 13 U
Formaldehyde	mg/kg	< 1.4 U	< 1.7 U	< 1.5 U
Formic Acid	mg/kg	< 13 U	< 17 U	< 13 U
Lactic acid	mg/kg	< 13 U	< 17 U	< 13 U
Propionic Acid	mg/kg	85	290	< 13 U
Pyruvic Acid	mg/kg	< 13 U	< 17 U	5.9 J
Chloride	mg/kg	5.6 JB	10 JB	73 B

Notes:
mk/kg: miligrams per kilogram
ug/kg: micrograms per kilogram

Table 4A
Groundwater Analytical Results
Site Investigation Report
Freedom Industries-Etowah Terminal

	Location ID	MW-1	MW-1	MW-1	MW-1	MW-1	MW-1	MW-1	MW-2
	Sample ID	MW-1 (02-07-2014)	MW-1	MW-1/(08-21-2014)	MW-01 (10-22-2014)	MW-1 (12-03-2014)	MW-1 (01-14-2015)	MW-1 (02-11-2015)	MW-2 (02-06-2014)
	Date Collected	2/7/2014	8/5/2014	8/21/2014	10/22/2014	12/3/2014	1/14/2015	2/11/2015	2/6/2014
	Parent Sample ID								
Chemical	**Units**								
SVOCs									
4-Methyl-1-cyclohexane methanol (MCHM)	ug/l	< 0.22 U	< 9.5 U	< 19 U	< 9.5 U	< 9.8 U	< 10 U	< 9.9 U	1.3 J
Propylene glycol phenyl ether (PPH)	ug/l	< 0.37 U	NA	< 19 U	< 9.5 U	< 9.8 U	< 10 U	< 9.9 U	< 0.33 U
TPH									
2-Methyl-1-propanol	mg/l	NA	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	NA
Ethanol	mg/l	NA	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	NA
Ethylene Glycol	mg/l	NA	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	NA
Isopropyl alcohol	mg/l	NA	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	NA
Methanol	mg/l	NA	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	NA
N-Propyl Alcohol	mg/l	NA	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	NA
Propylene Glycol	mg/l	NA	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	NA
Gases									
Ethane	ug/l	NA	NA	< 0.50 U	NA	NA	NA	NA	NA
Ethene	ug/l	NA	NA	< 0.50 U	NA	NA	NA	NA	NA
Methane	ug/l	NA	NA	1.0	NA	NA	NA	NA	NA
Metals									
Lead	ug/l	NA	NA	NA	NA	3.8 J	NA	NA	NA
Miscellaneous									
Acetaldehyde	ug/l	NA	NA	< 100 U	< 50 U	< 50 U	< 50 UH	< 50 U	NA
Acetic acid	mg/l	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA
Butyric Acid	mg/l	NA	NA	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA
Formaldehyde	ug/l	NA	NA	< 50 U	< 50 U	< 50 U	< 50 UH	< 50 U	NA
Formic Acid	mg/l	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA
Lactic acid	mg/l	NA	< 1.0 U	0.90 J	2.4	< 1.0 U	0.94 J	< 1.0 U	NA
Propionic Acid	mg/l	NA	28	< 1.0 U	22	24	< 1.0 U	< 1.0 U	NA
Pyruvic Acid	mg/l	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA

Notes:
U: Compound is below laboratory detection limits
J: Estimated concnetration; below laboratory detection limit and above method detection limit
H: Hold time exceeded
NA: Not analyzed
ug/l: micrograms per liter
mg/l: miligrams per liter

Table 4A
Groundwater Analytical Results
Site Investigation Report
Freedom Industries-Etowah Terminal

	Location ID	MW-2	MW-2	MW-2	MW-2	MW-2	MW-3	MW-3	MW-3
	Sample ID	MW-2 (8-20-2014)	MW-02 (10-22-2014)	MW-2 (12-03-2014)	MW-2 (01-14-2015)	MW-2 (02-11-2015)	MW-3 (02-08-2014)	MW-3	MW-3/(08-21-2014)
	Date Collected	8/20/2014	10/22/2014	12/3/2014	1/14/2015	2/11/2015	2/8/2014	8/4/2014	8/21/2014
	Parent Sample ID								
Chemical	**Units**								
SVOCs									
4-Methyl-1-cyclohexane methanol (MCHM)	ug/l	< 12 U	< 9.5 U	< 9.5 U	< 11 U	< 9.8 U	14	< 9.5 U	< 13 U
Propylene glycol phenyl ether (PPH)	ug/l	< 12 U	< 9.5 U	< 9.5 U	< 11 U	< 9.8 U	3 J	NA	1.8 J
TPH									
2-Methyl-1-propanol	mg/l	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	NA	< 10 U	< 10 U
Ethanol	mg/l	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	NA	< 10 U	< 10 U
Ethylene Glycol	mg/l	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	NA	< 10 U	< 10 U
Isopropyl alcohol	mg/l	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	NA	< 10 U	< 10 U
Methanol	mg/l	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	NA	< 10 U	< 10 U
N-Propyl Alcohol	mg/l	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	NA	< 10 U	< 10 U
Propylene Glycol	mg/l	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	NA	< 10 U	< 10 U
Gases									
Ethane	ug/l	< 0.50 U	NA	NA	NA	NA	NA	NA	< 0.50 U
Ethene	ug/l	< 0.50 U	NA	NA	NA	NA	NA	NA	< 0.50 U
Methane	ug/l	0.17 J	NA	NA	NA	NA	NA	NA	19
Metals									
Lead	ug/l	NA	NA	57	NA	NA	NA	NA	NA
Miscellaneous									
Acetaldehyde	ug/l	< 100 U	< 50 U	< 50 U	< 50 UH	< 50 U	NA	< 100 UH	< 100 U
Acetic acid	mg/l	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U	< 1.0 U
Butyric Acid	mg/l	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	NA	NA
Formaldehyde	ug/l	< 50 U	< 50 U	< 50 U	< 50 UH	< 50 U	NA	< 50 UH	< 50 U
Formic Acid	mg/l	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U	< 1.0 U
Lactic acid	mg/l	< 1.0 U	2.9	< 1.0 U	2.1	< 1.0 U	NA	< 1.0 U	< 1.0 U
Propionic Acid	mg/l	20	28	5.3	< 1.0 U	< 1.0 U	NA	65 E	< 1.0 U
Pyruvic Acid	mg/l	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U	< 1.0 U

Notes:
U: Compound is below laboratory detection limits
J: Estimated concnetration; below laboratory detection limit and above method detection limit
H: Hold time exceeded
NA: Not analyzed
ug/l: micrograms per liter
mg/l: miligrams per liter

Table 4A
Groundwater Analytical Results
Site Investigation Report
Freedom Industries-Etowah Terminal

	Location ID	MW-3	MW-3	MW-3	MW-3	MW-3A	MW-3A	MW-3A
	Sample ID	MW-3 (10-21-2014)	MW-3 (12-04-2014)	MW-3 (01-12-2015)	MW-3 (02-09-2015)	MW-3A (10-21-2014)	DUP-02 (10-21-2014)	MW-3A (12-04-2014)
	Date Collected	10/21/2014	12/4/2014	1/12/2015	2/9/2015	10/21/2014	10/21/2014	12/4/2014
	Parent Sample ID						MW-3A (10-21-2014)	
Chemical	**Units**							
SVOCs								
4-Methyl-1-cyclohexane methanol (MCHM)	ug/l	< 9.7 U	< 10 U	< 9.5 U	< 9.7 U	< 9.6 U	< 9.7 U	< 10 U
Propylene glycol phenyl ether (PPH)	ug/l	2.8 J	16	8.9 J	3.7 J	< 9.6 U	< 9.7 U	< 10 U
TPH								
2-Methyl-1-propanol	mg/l	< 10 U	NA	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Ethanol	mg/l	< 10 U	NA	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Ethylene Glycol	mg/l	< 10 U	NA	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Isopropyl alcohol	mg/l	< 10 U	NA	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Methanol	mg/l	< 10 U	NA	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
N-Propyl Alcohol	mg/l	< 10 U	NA	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Propylene Glycol	mg/l	< 10 U	NA	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Gases								
Ethane	ug/l	NA	NA	NA	NA	NA	NA	NA
Ethene	ug/l	NA	NA	NA	NA	NA	NA	NA
Methane	ug/l	NA	NA	NA	NA	NA	NA	NA
Metals								
Lead	ug/l	NA	NA	NA	NA	NA	NA	21
Miscellaneous								
Acetaldehyde	ug/l	< 50 U	NA	< 50 UH	< 50 U	< 50 U	< 50 U	< 50 U
Acetic acid	mg/l	< 5.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Butyric Acid	mg/l	< 5.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Formaldehyde	ug/l	< 50 U	NA	< 50 UH	< 50 U	< 50 U	< 50 U	< 50 U
Formic Acid	mg/l	< 5.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Lactic acid	mg/l	1.3 J	NA	0.41 J	< 1.0 U	1.2	1.2	0.49 J
Propionic Acid	mg/l	5.5	NA	< 1.0 U	< 1.0 U	16	19	< 1.0 U
Pyruvic Acid	mg/l	< 5.0 U	NA	< 1.0 U	< 1.0 U	10	10	6.3

Notes:
U: Compound is below laboratory detection limits
J: Estimated concnetration; below laboratory detection limit and above method detection limit
H: Hold time exceeded
NA: Not analyzed
ug/l: micrograms per liter
mg/l: miligrams per liter

Table 4A
Groundwater Analytical Results
Site Investigation Report
Freedom Industries-Etowah Terminal

	Location ID	MW-3A	MW-3A	MW-3A	MW-3A	MW-4	MW-4	MW-4
	Sample ID	DUP-1 (12-04-2014)	MW-3A (01-12-2015)	DUP-1 (01-12-2015)	MW-3A (02-10-2015)	MW-4 (02-08-2014)	MW-4	MW-4/(08-21-2014)
	Date Collected	12/4/2014	1/12/2015	1/12/2015	2/10/2015	2/8/2014	8/4/2014	8/21/2014
	Parent Sample ID	MW-3A (12-04-2014)		MW-3A (01-12-2015)				
Chemical	**Units**							
SVOCs								
4-Methyl-1-cyclohexane methanol (MCHM)	ug/l	< 9.5 U	< 9.5 U	< 10 U	< 9.7 U	< 0.21 U	< 95 U	< 110 U
Propylene glycol phenyl ether (PPH)	ug/l	2.6 J	< 9.5 U	< 10 U	< 9.7 U	22	NA	320
TPH								
2-Methyl-1-propanol	mg/l	< 10 U	< 10 U	< 10 U	< 10 U	NA	< 10 U	< 10 U
Ethanol	mg/l	< 10 U	< 10 U	< 10 U	< 10 U	NA	< 10 U	< 10 U
Ethylene Glycol	mg/l	< 10 U	< 10 U	< 10 U	< 10 U	NA	< 10 U	< 10 U
Isopropyl alcohol	mg/l	< 10 U	< 10 U	< 10 U	< 10 U	NA	< 10 U	< 10 U
Methanol	mg/l	< 10 U	< 10 U	< 10 U	< 10 U	NA	< 10 U	< 10 U
N-Propyl Alcohol	mg/l	< 10 U	< 10 U	< 10 U	< 10 U	NA	< 10 U	< 10 U
Propylene Glycol	mg/l	< 10 U	< 10 U	< 10 U	< 10 U	NA	< 10 U	< 10 U
Gases								
Ethane	ug/l	NA	NA	NA	NA	NA	1.7 J	NA
Ethene	ug/l	NA	NA	NA	NA	NA	< 0.50 U	NA
Methane	ug/l	NA	NA	NA	NA	NA	4000	NA
Metals								
Lead	ug/l	3.5 J	NA	NA	NA	NA	NA	NA
Miscellaneous								
Acetaldehyde	ug/l	< 50 U	< 50 UH	< 50 UH	< 50 U	NA	< 100 UH	< 100 U
Acetic acid	mg/l	< 1.0 U	< 1.0 U	< 1.0 U	< 5.0 U	NA	< 1.0 U	< 5.0 U
Butyric Acid	mg/l	< 1.0 U	< 1.0 U	< 1.0 U	< 5.0 U	NA	NA	NA
Formaldehyde	ug/l	< 50 U	< 50 UH	< 50 UH	< 50 U	NA	16 JH	18 J
Formic Acid	mg/l	< 1.0 U	< 1.0 U	< 1.0 U	< 5.0 U	NA	< 1.0 U	< 5.0 U
Lactic acid	mg/l	0.53 J	1.1	0.73 J	< 5.0 U	NA	1.0	< 5.0 U
Propionic Acid	mg/l	< 1.0 U	< 1.0 U	< 1.0 U	< 5.0 U	NA	110 E	< 5.0 U
Pyruvic Acid	mg/l	< 1.0 U	< 1.0 U	< 1.0 U	< 5.0 U	NA	< 1.0 U	< 5.0 U

Notes:
U: Compound is below laboratory detection limits
J: Estimated concnetration; below laboratory detection limit and above method detection limit
H: Hold time exceeded
NA: Not analyzed
ug/l: micrograms per liter
mg/l: miligrams per liter

Table 4A
Groundwater Analytical Results
Site Investigation Report
Freedom Industries-Etowah Terminal

	Location ID	MW-4	MW-4	MW-4	MW-4	MW-5	MW-5	MW-5
	Sample ID	MW-4 (10-21-2014)	MW-4 (12-03-2014)	MW-4 (01-13-2015)	MW-4 (02-10-2015)	MW-5 (02-07-2014)	MW-5 DUP (02-07-2014)	MW-5/(08-21-2014)
	Date Collected	10/21/2014	12/3/2014	1/13/2015	2/10/2015	2/7/2014	2/7/2014	8/21/2014
	Parent Sample ID						MW-5 (02-07-2014)	
Chemical	**Units**							
SVOCs								
4-Methyl-1-cyclohexane methanol (MCHM)	ug/l	< 25 U	6.7 J	< 9.6 U	< 24 U	1.5 J	0.78 J	< 17 U
Propylene glycol phenyl ether (PPH)	ug/l	87	< 39 U	11	15 J	< 0.37 U	< 0.37 U	< 17 U
TPH								
2-Methyl-1-propanol	mg/l	< 10 U	< 10 U	< 10 U	< 10 U	NA	NA	< 10 U
Ethanol	mg/l	< 10 U	< 10 U	< 10 U	< 10 U	NA	NA	< 10 U
Ethylene Glycol	mg/l	< 10 U	< 10 U	< 10 U	< 10 U	NA	NA	< 10 U
Isopropyl alcohol	mg/l	< 10 U	< 10 U	< 10 U	< 10 U	NA	NA	< 10 U
Methanol	mg/l	< 10 U	< 10 U	< 10 U	< 10 U	NA	NA	< 10 U
N-Propyl Alcohol	mg/l	< 10 U	< 10 U	< 10 U	< 10 U	NA	NA	< 10 U
Propylene Glycol	mg/l	< 10 U	< 10 U	< 10 U	< 10 U	NA	NA	< 10 U
Gases								
Ethane	ug/l	NA	NA	NA	NA	NA	NA	1.2 J
Ethene	ug/l	NA	NA	NA	NA	NA	NA	< 0.50 U
Methane	ug/l	NA	NA	NA	NA	NA	NA	320
Metals								
Lead	ug/l	NA	16	NA	NA	NA	NA	NA
Miscellaneous								
Acetaldehyde	ug/l	< 50 U	< 50 U	NA	< 50 U	NA	NA	< 100 U
Acetic acid	mg/l	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	NA	< 1.0 U
Butyric Acid	mg/l	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	NA	NA
Formaldehyde	ug/l	< 50 U	< 50 U	NA	< 50 U	NA	NA	< 50 U
Formic Acid	mg/l	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	NA	< 1.0 U
Lactic acid	mg/l	< 1.0 U	0.27 J	0.78 J	< 1.0 U	NA	NA	0.70 J
Propionic Acid	mg/l	69	44	< 1.0 U	< 1.0 U	NA	NA	< 1.0 U
Pyruvic Acid	mg/l	38	< 1.0 U	< 1.0 U	< 1.0 U	NA	NA	< 1.0 U

Notes:
U: Compound is below laboratory detection limits
J: Estimated concnetration; below laboratory detection limit and above method detection limit
H: Hold time exceeded
NA: Not analyzed
ug/l: micrograms per liter
mg/l: miligrams per liter

Table 4A
Groundwater Analytical Results
Site Investigation Report
Freedom Industries-Etowah Terminal

	Location ID	MW-5	MW-5	MW-5	MW-5	MW-6	MW-6	MW-6
	Sample ID	MW-5 (10-21-2014)	MW-5 (12-01-2014)	MW-5 (01-13-2015)	MW-5 (02-09-2015)	MW-6 (02-07-2014)	MW-6	MW-6/(08-21-2014)
	Date Collected	10/21/2014	12/1/2014	1/13/2015	2/9/2015	2/7/2014	8/4/2014	8/21/2014
	Parent Sample ID							
Chemical	**Units**							
SVOCs								
4-Methyl-1-cyclohexane methanol (MCHM)	ug/l	< 9.8 U	< 9.5 U	< 9.8 U	< 9.8 U	< 0.22 U	< 9.5 U	0.78 J
Propylene glycol phenyl ether (PPH)	ug/l	< 9.8 U	< 9.5 U	< 9.8 U	< 9.8 U	3.5 J	NA	< 11 U
TPH								
2-Methyl-1-propanol	mg/l	NA	NA	< 10 U	< 100 U	NA	< 10 U	< 10 U
Ethanol	mg/l	NA	NA	< 10 U	< 100 U	NA	< 10 U	< 10 U
Ethylene Glycol	mg/l	NA	NA	< 10 U	< 100 U	NA	< 10 U	< 10 U
Isopropyl alcohol	mg/l	NA	NA	< 10 U	< 100 U	NA	< 10 U	< 10 U
Methanol	mg/l	NA	NA	< 10 U	< 100 U	NA	< 10 U	< 10 U
N-Propyl Alcohol	mg/l	NA	NA	< 10 U	< 100 U	NA	< 10 U	< 10 U
Propylene Glycol	mg/l	NA	NA	< 10 U	< 100 U	NA	< 10 U	< 10 U
Gases								
Ethane	ug/l	NA	NA	NA	NA	NA	NA	5.3 J
Ethene	ug/l	NA	NA	NA	NA	NA	NA	< 0.50 U
Methane	ug/l	NA	NA	NA	NA	NA	NA	200 J
Metals								
Lead	ug/l	NA	NA	NA	NA	NA	NA	NA
Miscellaneous								
Acetaldehyde	ug/l	NA	NA	NA	NA	NA	< 100 UH	< 100 U
Acetic acid	mg/l	NA	NA	< 1.0 U	< 1.0 U	NA	< 1.0 U	< 1.0 U
Butyric Acid	mg/l	NA	NA	< 1.0 U	< 1.0 U	NA	NA	NA
Formaldehyde	ug/l	NA	NA	NA	NA	NA	< 50 UH	17 J
Formic Acid	mg/l	NA	NA	< 1.0 U	< 1.0 U	NA	< 1.0 U	< 1.0 U
Lactic acid	mg/l	NA	NA	0.91 J	< 1.0 U	NA	< 1.0 U	0.57 J
Propionic Acid	mg/l	NA	NA	< 1.0 U	< 1.0 U	NA	47	42 J
Pyruvic Acid	mg/l	NA	NA	< 1.0 U	< 1.0 U	NA	< 1.0 U	1.1

Notes:
U: Compound is below laboratory detection limits
J: Estimated concnetration; below laboratory detection limit and above method detection limit
H: Hold time exceeded
NA: Not analyzed
ug/l: micrograms per liter
mg/l: miligrams per liter

Table 4A
Groundwater Analytical Results
Site Investigation Report
Freedom Industries-Etowah Terminal

	Location ID	MW-6	MW-6	MW-6	MW-6	MW-6	MW-7	MW-7	MW-7
	Sample ID	DUP-01/(08-21-2014)	MW-6 (10-21-2014)	MW-6 (12-03-2014)	MW-6 (01-13-2015)	MW-6 (02-10-2015)	MW-7 (02-06-2014)	MW-7	MW-7 (8-20-2014)
	Date Collected	8/21/2014	10/21/2014	12/3/2014	1/13/2015	2/10/2015	2/6/2014	8/5/2014	8/20/2014
	Parent Sample ID	MW-6/08212014							
Chemical	**Units**								
SVOCs									
4-Methyl-1-cyclohexane methanol (MCHM)	ug/l	< 11 U	< 9.9 U	< 10 U	< 9.6 U	< 9.5 U	3.5 J	< 9.5 U	< 12 U
Propylene glycol phenyl ether (PPH)	ug/l	< 11 U	< 9.9 U	< 10 U	< 9.6 U	< 9.5 U	< 0.34 U	NA	< 12 U
TPH									
2-Methyl-1-propanol	mg/l	NA	< 10 U	< 10 U	< 10 U	< 10 U	NA	< 10 U	< 10 U
Ethanol	mg/l	NA	< 10 U	< 10 U	< 10 U	< 10 U	NA	< 10 U	< 10 U
Ethylene Glycol	mg/l	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	NA	< 10 U	< 10 U
Isopropyl alcohol	mg/l	NA	< 10 U	< 10 U	< 10 U	< 10 U	NA	< 10 U	< 10 U
Methanol	mg/l	NA	< 10 U	< 10 U	< 10 U	< 10 U	NA	< 10 U	< 10 U
N-Propyl Alcohol	mg/l	NA	< 10 U	< 10 U	< 10 U	< 10 U	NA	< 10 U	< 10 U
Propylene Glycol	mg/l	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	NA	< 10 U	< 10 U
Gases									
Ethane	ug/l	7.1 J	NA	NA	NA	NA	NA	NA	< 0.50 U
Ethene	ug/l	< 0.50 U	NA	NA	NA	NA	NA	NA	< 0.50 U
Methane	ug/l	260	NA	NA	NA	NA	NA	NA	0.81
Metals									
Lead	ug/l	NA	NA	24	NA	NA	NA	NA	NA
Miscellaneous									
Acetaldehyde	ug/l	< 100 U	< 50 U	< 50 U	NA	< 50 U	NA	< 100 U	< 100 U
Acetic acid	mg/l	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U	< 1.0 U
Butyric Acid	mg/l	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	NA	< 1.0 U
Formaldehyde	ug/l	15 J	< 50 U	< 50 U	NA	< 50 U	NA	< 50 U	22 J
Formic Acid	mg/l	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U	< 1.0 U
Lactic acid	mg/l	< 5.0 U	2.9	0.34 J	1.6	< 1.0 U	NA	1.8	0.25 J
Propionic Acid	mg/l	< 5.0 UJ	4.4 J	< 5.0 U	< 1.0 U	< 1.0 U	NA	2.4	6.9
Pyruvic Acid	mg/l	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	0.44 J	< 1.0 U

Notes:
U: Compound is below laboratory detection limits
J: Estimated concnetration; below laboratory detection limit and above method detection limit
H: Hold time exceeded
NA: Not analyzed
ug/l: micrograms per liter
mg/l: miligrams per liter

Table 4A
Groundwater Analytical Results
Site Investigation Report
Freedom Industries-Etowah Terminal

	Location ID	MW-7	MW-7	MW-7	MW-7	MW-8	MW-8	MW-8
	Sample ID	MW-07 (10-22-2014)	MW-7 (12-03-2014)	MW-7 (01-14-2015)	MW-7 (02-11-2015)	MW-8 (10-20-2014)	MW-8 (12-02-2014)	MW-8 (01-14-2015)
	Date Collected	10/22/2014	12/3/2014	1/14/2015	2/11/2015	10/20/2014	12/2/2014	1/14/2015
	Parent Sample ID							
Chemical	**Units**							
SVOCs								
4-Methyl-1-cyclohexane methanol (MCHM)	ug/l	< 9.5 U	< 9.8 U	< 9.6 U	< 9.5 U	< 9.5 U	< 9.7 U	< 9.6 U
Propylene glycol phenyl ether (PPH)	ug/l	< 9.5 U	< 9.8 U	< 9.6 U	< 9.5 U	< 9.5 U	< 9.7 U	< 9.6 U
TPH								
2-Methyl-1-propanol	mg/l	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Ethanol	mg/l	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Ethylene Glycol	mg/l	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Isopropyl alcohol	mg/l	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Methanol	mg/l	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
N-Propyl Alcohol	mg/l	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Propylene Glycol	mg/l	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Gases								
Ethane	ug/l	NA	NA	NA	NA	NA	NA	NA
Ethene	ug/l	NA	NA	NA	NA	NA	NA	NA
Methane	ug/l	NA	NA	NA	NA	NA	NA	NA
Metals								
Lead	ug/l	NA	< 10 U	NA	NA	NA	12	NA
Miscellaneous								
Acetaldehyde	ug/l	< 50 U	< 50 U	<50 UH	< 50 U	< 50 U	< 50 U	< 50 UH
Acetic acid	mg/l	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Butyric Acid	mg/l	< 1.0 U	< 1.0 U	1.3	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Formaldehyde	ug/l	< 50 U	< 50 U	<50 UH	< 50 U	< 50 U	< 50 U	< 50 UH
Formic Acid	mg/l	0.13 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Lactic acid	mg/l	3.5	0.72 J	2.0	< 1.0 U	< 1.0 U	< 1.0 U	1.6
Propionic Acid	mg/l	8.5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	30	< 1.0 U
Pyruvic Acid	mg/l	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U

Notes:
U: Compound is below laboratory detection limits
J: Estimated concnetration; below laboratory detection limit and above method detection limit
H: Hold time exceeded
NA: Not analyzed
ug/l: micrograms per liter
mg/l: miligrams per liter

Table 4A
Groundwater Analytical Results
Site Investigation Report
Freedom Industries-Etowah Terminal

	Location ID	MW-8	MW-8S	MW-8S	MW-8S	MW-8S	MW-9	MW-9
	Sample ID	MW-8 (02-09-2015)	MW-8S (10-21-2014)	MW-8S (12-02-2014)	MW-8S (01-14-2015)	MW-8S (02-09-2015)	MW-9 (10-20-2014)	MW-9 (12-02-2014)
	Date Collected	2/9/2015	10/21/2014	12/2/2014	1/14/2015	2/9/2015	10/20/2014	12/2/2014
	Parent Sample ID							
Chemical	**Units**							
SVOCs								
4-Methyl-1-cyclohexane methanol (MCHM)	ug/l	< 10 U	< 10 U	< 9.5 U	< 10 U	< 10 U	< 9.5 U	< 9.9 U
Propylene glycol phenyl ether (PPH)	ug/l	< 10 U	< 10 U	< 9.5 U	< 10 U	< 10 U	< 9.5 U	< 9.9 U
TPH								
2-Methyl-1-propanol	mg/l	< 10 U	NA	NA	< 10 U	< 10 U	< 10 U	< 10 U
Ethanol	mg/l	< 10 U	NA	NA	< 10 U	< 10 U	< 10 U	< 10 U
Ethylene Glycol	mg/l	< 10 U	NA	NA	< 10 U	< 10 U	< 10 U	< 10 U
Isopropyl alcohol	mg/l	< 10 U	NA	NA	< 10 U	< 10 U	< 10 U	< 10 U
Methanol	mg/l	< 10 U	NA	NA	< 10 U	< 10 U	< 10 U	< 10 U
N-Propyl Alcohol	mg/l	< 10 U	NA	NA	< 10 U	< 10 U	< 10 U	< 10 U
Propylene Glycol	mg/l	< 10 U	NA	NA	< 10 U	< 10 U	< 10 U	< 10 U
Gases								
Ethane	ug/l	NA	NA	NA	NA	NA	NA	NA
Ethene	ug/l	NA	NA	NA	NA	NA	NA	NA
Methane	ug/l	NA	NA	NA	NA	NA	NA	NA
Metals								
Lead	ug/l	NA	NA	6.9 J	NA	NA	NA	6.8 J
Miscellaneous								
Acetaldehyde	ug/l	< 50 U	NA	NA	NA	< 50 U	< 50 U	< 50 U
Acetic acid	mg/l	< 1.0 U	NA	NA	< 1.0 U	< 1.0 U	< 1.0 U	0.36 J
Butyric Acid	mg/l	< 1.0 U	NA	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Formaldehyde	ug/l	< 50 U	NA	NA	NA	< 50 U	22 J	< 50 U
Formic Acid	mg/l	< 1.0 U	NA	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Lactic acid	mg/l	< 1.0 U	NA	NA	1.5	< 1.0 U	2.9	1.0
Propionic Acid	mg/l	< 1.0 U	NA	NA	< 1.0 U	< 1.0 U	24	26
Pyruvic Acid	mg/l	< 1.0 U	NA	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U

Notes:
U: Compound is below laboratory detection limits
J: Estimated concnetration; below laboratory detection limit and above method detection limit
H: Hold time exceeded
NA: Not analyzed
ug/l: micrograms per liter
mg/l: miligrams per liter

Table 4A
Groundwater Analytical Results
Site Investigation Report
Freedom Industries-Etowah Terminal

	Location ID	MW-9	MW-9	MW-10	MW-10	MW-10	MW-10	MW-11
	Sample ID	MW-9 (01-13-2015)	MW-9 (02-11-2015)	MW-10 (10-20-2014)	MW-10 (12-02-2014)	MW-10 (01-13-2015)	MW-10 (02-10-2015)	MW-11 (10-22-2014)
	Date Collected	1/13/2015	2/11/2015	10/20/2014	12/2/2014	1/13/2015	2/10/2015	10/22/2014
	Parent Sample ID							
Chemical	**Units**							
SVOCs								
4-Methyl-1-cyclohexane methanol (MCHM)	ug/l	< 10 U	< 10 U	< 9.5 U	< 9.7 U	< 9.6 U	< 9.5 U	5.5 J
Propylene glycol phenyl ether (PPH)	ug/l	< 10 U	< 10 U	< 9.5 U	< 9.7 U	< 9.6 U	< 9.5 U	< 9.5 U
TPH								
2-Methyl-1-propanol	mg/l	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Ethanol	mg/l	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Ethylene Glycol	mg/l	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Isopropyl alcohol	mg/l	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Methanol	mg/l	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
N-Propyl Alcohol	mg/l	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Propylene Glycol	mg/l	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Gases								
Ethane	ug/l	NA	NA	NA	NA	NA	NA	NA
Ethene	ug/l	NA	NA	NA	NA	NA	NA	NA
Methane	ug/l	NA	NA	NA	NA	NA	NA	NA
Metals								
Lead	ug/l	NA	NA	NA	< 10 U	NA	NA	NA
Miscellaneous								
Acetaldehyde	ug/l	NA	< 50 U	< 50 U	< 50 U	NA	< 50 U	NA
Acetic acid	mg/l	7.2	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Butyric Acid	mg/l	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Formaldehyde	ug/l	NA	< 50 U	< 50 U	< 50 U	NA	< 50 U	NA
Formic Acid	mg/l	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.22 J
Lactic acid	mg/l	0.26 J	< 1.0 U	0.30 J	0.21 J	0.20 J	< 1.0 U	3.7
Propionic Acid	mg/l	< 1.0 U	< 1.0 U	34	48	< 1.0 U	< 1.0 U	47
Pyruvic Acid	mg/l	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U

Notes:
U: Compound is below laboratory detection limits
J: Estimated concnetration; below laboratory detection limit and above method detection limit
H: Hold time exceeded
NA: Not analyzed
ug/l: micrograms per liter
mg/l: miligrams per liter

Table 4A
Groundwater Analytical Results
Site Investigation Report
Freedom Industries-Etowah Terminal

	Location ID	MW-11	MW-11	MW-11	MW-12	MW-12	MW-12	MW-12
	Sample ID	MW-11 (12-03-2014)	MW-11 (01-14-2015)	MW-11 (02-11-2015)	MW-12 (10-20-2014)	MW-12 (12-02-2014)	MW-12 (01-13-2015)	MW-12 (02-10-2015)
	Date Collected	12/3/2014	1/14/2015	2/11/2015	10/20/2014	12/2/2014	1/13/2015	2/10/2015
	Parent Sample ID							
Chemical	**Units**							
SVOCs								
4-Methyl-1-cyclohexane methanol (MCHM)	ug/l	1.4 J	< 11 U	0.28 J	< 9.7 U	< 9.5 U	< 10 U	< 9.7 U
Propylene glycol phenyl ether (PPH)	ug/l	< 9.5 U	< 11 U	< 10 U	< 9.7 U	< 9.5 U	< 10 U	< 9.7 U
TPH								
2-Methyl-1-propanol	mg/l	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Ethanol	mg/l	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Ethylene Glycol	mg/l	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Isopropyl alcohol	mg/l	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Methanol	mg/l	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
N-Propyl Alcohol	mg/l	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Propylene Glycol	mg/l	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Gases								
Ethane	ug/l	NA	NA	NA	NA	NA	NA	NA
Ethene	ug/l	NA	NA	NA	NA	NA	NA	NA
Methane	ug/l	NA	NA	NA	NA	NA	NA	NA
Metals								
Lead	ug/l	11	NA	NA	NA	5.8 J	NA	NA
Miscellaneous								
Acetaldehyde	ug/l	< 50 U	< 50 UH	< 50 U	< 50 U	< 50 U	NA	< 50 U
Acetic acid	mg/l	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.74 J	< 1.0 U	< 1.0 U
Butyric Acid	mg/l	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Formaldehyde	ug/l	< 50 U	< 50 UH	< 50 U	< 50 U	< 50 U	NA	< 50 U
Formic Acid	mg/l	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Lactic acid	mg/l	< 1.0 U	1.5	< 1.0 U	3.1	< 1.0 U	0.36 J	< 1.0 U
Propionic Acid	mg/l	53	< 1.0 U	< 1.0 U	17	23	< 1.0 U	< 1.0 U
Pyruvic Acid	mg/l	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U

Notes:
U: Compound is below laboratory detection limits
J: Estimated concnetration; below laboratory detection limit and above method detection limit
H: Hold time exceeded
NA: Not analyzed
ug/l: micrograms per liter
mg/l: miligrams per liter

Table 4A
Groundwater Analytical Results
Site Investigation Report
Freedom Industries-Etowah Terminal

	Location ID	MW-12	MW-13	MW-13	MW-13	MW-13	MW-13	SW-01
	Sample ID	DUP-1 (02-10-2015)	MW-13 (10-21-2014)	DUP-01 (10-21-2014)	MW-13 (12-04-2014)	MW-13 (01-12-2015)	MW-13 (02-10-2015)	SW-01 (10-07-2014)
	Date Collected	2/10/2015	10/21/2014	10/21/2014	12/4/2014	1/12/2015	2/10/2015	10/7/2014
	Parent Sample ID	MW-12 (02-10-2015)		MW-13 (10-21-2014)				
Chemical	**Units**							
SVOCs								
4-Methyl-1-cyclohexane methanol (MCHM)	ug/l	< 9.9 U	9.5	8.7 J	< 11 U	< 9.5 U	< 9.6 U	< 9.5 U
Propylene glycol phenyl ether (PPH)	ug/l	4.0 J	3.9 J	4.0 J	2.4 J	6.3 J	3.9 J	< 9.5 U
TPH								
2-Methyl-1-propanol	mg/l	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Ethanol	mg/l	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Ethylene Glycol	mg/l	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Isopropyl alcohol	mg/l	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Methanol	mg/l	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
N-Propyl Alcohol	mg/l	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Propylene Glycol	mg/l	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Gases								
Ethane	ug/l	NA	NA	NA	NA	NA	NA	NA
Ethene	ug/l	NA	NA	NA	NA	NA	NA	NA
Methane	ug/l	NA	NA	NA	NA	NA	NA	NA
Metals								
Lead	ug/l	NA	NA	NA	5.9 J	NA	NA	< 10 U
Miscellaneous								
Acetaldehyde	ug/l	< 50 U	< 50 U	< 50 U	< 50 U	< 50 UH	< 50 U	< 50 U
Acetic acid	mg/l	< 1.0 U	< 5.0 U	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Butyric Acid	mg/l	< 1.0 U	< 5.0 U	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.50 J
Formaldehyde	ug/l	< 50 U	< 50 U	< 50 U	< 50 U	< 50 UH	< 50 U	< 50 U
Formic Acid	mg/l	< 1.0 U	< 5.0 U	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Lactic acid	mg/l	< 1.0 U	< 5.0 U	< 5.0 U	0.93 J	0.65 J	< 1.0 U	1.9
Propionic Acid	mg/l	< 1.0 U	5.4	3.6 J	0.40 J	< 1.0 U	< 1.0 U	22
Pyruvic Acid	mg/l	< 1.0 U	< 5.0 U	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U

Notes:
U: Compound is below laboratory detection limits
J: Estimated concnetration; below laboratory detection limit and above method detection limit
H: Hold time exceeded
NA: Not analyzed
ug/l: micrograms per liter
mg/l: miligrams per liter

Table 4A
Groundwater Analytical Results
Site Investigation Report
Freedom Industries-Etowah Terminal

	Location ID	SW-02	SW-03
	Sample ID	SW-02 (10-07-2014)	SW-03 (10-08-2014)
	Date Collected	10/7/2014	10/8/2014
	Parent Sample ID		
Chemical	**Units**		
SVOCs			
4-Methyl-1-cyclohexane methanol (MCHM)	ug/l	< 9.7 U	< 9.7 U
Propylene glycol phenyl ether (PPH)	ug/l	< 9.7 U	< 9.7 U
TPH			
2-Methyl-1-propanol	mg/l	< 10 U	< 10 U
Ethanol	mg/l	< 10 U	< 10 U
Ethylene Glycol	mg/l	< 10 U	< 10 U
Isopropyl alcohol	mg/l	< 10 U	< 10 U
Methanol	mg/l	< 10 U	< 10 U
N-Propyl Alcohol	mg/l	< 10 U	< 10 U
Propylene Glycol	mg/l	< 10 U	< 10 U
Gases			
Ethane	ug/l	NA	NA
Ethene	ug/l	NA	NA
Methane	ug/l	NA	NA
Metals			
Lead	ug/l	< 10 U	NA
Miscellaneous			
Acetaldehyde	ug/l	< 50 U	< 50 U
Acetic acid	mg/l	< 1.0 U	< 1.0 U
Butyric Acid	mg/l	0.36 J	2.3
Formaldehyde	ug/l	< 50 U	< 50 U
Formic Acid	mg/l	< 1.0 U	< 1.0 U
Lactic acid	mg/l	< 1.0 U	< 1.0 U
Propionic Acid	mg/l	20	21
Pyruvic Acid	mg/l	< 1.0 U	< 1.0 U

Notes:
U: Compound is below laboratory detection limits
J: Estimated concnetration; below laboratory detection limit and above method detection limit
H: Hold time exceeded
NA: Not analyzed
ug/l: micrograms per liter
mg/l: miligrams per liter

Table 4B
Sump, Diversion Trench, and Surface Water Analytical Results
Site Investigation Report
Freedom Industries-Etowah Terminal

Location ID Sample ID Date Collected Parent Sample ID		CU (Culvert Upstrm) CU (01/29/2014) 1/29/2014	CU (Culvert Upstrm) CU DUP (01/29/2014) 1/29/2014 CU (01/29/2014)	CU-1 FOOTING CU-1 FOOTING (03/24/2014) 3/24/2014	CU-1 FOOTING CU-1 FOOTING (04/02/2014) 4/2/2014	CU-1 FOOTING CU-1 FOOTING (04/16/2014) 4/16/2014	CU-1 FOOTING CU-1 FOOTING DUP (03/24/2014) 3/24/2014 CU-1 FOOTING (03/24/2014)
Chemical	**Units**						
VOCs							
4-Methyl-1-cyclohexane methanol	ug/l	NA	NA	NA	NA	NA	NA
Propylene glycol phenyl ether	ug/l	NA	NA	NA	NA	NA	NA
SVOCs							
4-Methyl-1-cyclohexane methanol	ug/l	39	30	13	< 9.5 U	< 9.8 U	< 9.5 U
Propylene glycol phenyl ether	ug/l	0.35 J	0.32 J	< 9.5 U	< 9.5 U	< 9.8 U	< 9.5 U

Notes:
ug/l : micrograms per liter
mg/l: miligrams per liter
U: Concentration is below laboratory detection limits
J: Estimated concentration; below laboratory detection limits and above method detection limit.
The Diversion Trench Sump sample from 5/12/2014 was collected by CEC and likely refers to Treat-1V. This does not represent the stormwater diversion trench installed by ARCADIS.

Table 4B
Sump, Diversion Trench, and Surface Water Analytical Results
Site Investigation Report
Freedom Industries-Etowah Terminal

Location ID Sample ID Date Collected Parent Sample ID		CU-FOOTING CU FOOTING 8/18/2014	CU-FOOTING CU FOOTING (07-28-2014) 7/28/2014	CU-FOOTING CU FOOTING (08-18-2014) 8/18/2014	CU-FOOTING CU FOOTING (09-02-2014) 9/2/2014	CU-FOOTING CU FOOTING (09-09-2014) 9/9/2014	CU-FOOTING CU FOOTING (09-16-2014) 9/16/2014
Chemical	**Units**						
VOCs							
4-Methyl-1-cyclohexane methanol	ug/l	NA	NA	NA	NA	NA	NA
Propylene glycol phenyl ether	ug/l	NA	NA	NA	NA	NA	NA
SVOCs							
4-Methyl-1-cyclohexane methanol	ug/l	< 11 U	NA	NA	20 J	< 9.5 U	< 9.6 U
Propylene glycol phenyl ether	ug/l	1.0 J	NA	NA	590	4.2 J	3.5 J

Notes:
ug/l : micrograms per liter
mg/l: miligrams per liter
U: Concentration is below laboratory detection limits
J: Estimated concentration; below laboratory detection limits and above method detection limit.
The Diversion Trench Sump sample from 5/12/2014 was collected by CEC and likely refers to Treat-1V. This does not represent the stormwater diversion trench installed by ARCADIS.

Table 4B
Sump, Diversion Trench, and Surface Water Analytical Results
Site Investigation Report
Freedom Industries-Etowah Terminal

Location ID Sample ID Date Collected Parent Sample ID		CU-FOOTING CU FOOTING (7-28-2014) 7/28/2014	CU-FOOTING CU FOOTING DUP (03/26/2014) 3/26/2014 CU-FOOTING (03/26/2014)	CU-FOOTING CU-FOOTING (02/28/2014) 2/28/2014	CU-FOOTING CU-FOOTING (03/12/2014) 3/12/2014	CU-FOOTING CU-FOOTING (03/18/2014) 3/18/2014	CU-FOOTING CU-FOOTING (03/26/2014) 3/26/2014
Chemical	**Units**						
VOCs							
4-Methyl-1-cyclohexane methanol	ug/l	NA	NA	NA	NA	NA	NA
Propylene glycol phenyl ether	ug/l	NA	NA	NA	NA	NA	NA
SVOCs							
4-Methyl-1-cyclohexane methanol	ug/l	130	45	< 9.5 U	12	23	16
Propylene glycol phenyl ether	ug/l	480	< 38 U	< 9.5 U	< 10 U	< 9.5 U	< 9.5 U

Notes:
ug/l : micrograms per liter
mg/l: miligrams per liter
U: Concentration is below laboratory detection limits
J: Estimated concentration; below laboratory detection limits and above method detection limit.
The Diversion Trench Sump sample from 5/12/2014 was collected by CEC and likely refers to Treat-1V. This does not represent the stormwater diversion trench installed by ARCADIS.

Table 4B
Sump, Diversion Trench, and Surface Water Analytical Results
Site Investigation Report
Freedom Industries-Etowah Terminal

Location ID Sample ID Date Collected Parent Sample ID		CU-FOOTING CU-FOOTING (04/09/2014) 4/9/2014	CU-FOOTING CU-FOOTING (04/18/2014) 4/18/2014	CU-FOOTING CU-FOOTING (04/23/2014) 4/23/2014	CU-FOOTING CU-FOOTING (04/30/2014) 4/30/2014	CU-FOOTING CU-FOOTING (05/14/2014) 5/14/2014	CU-FOOTING CU-FOOTING (05/19/2014) 5/19/2014
Chemical	**Units**						
VOCs							
4-Methyl-1-cyclohexane methanol	ug/l	NA	NA	NA	NA	NA	NA
Propylene glycol phenyl ether	ug/l	NA	NA	NA	NA	NA	NA
SVOCs							
4-Methyl-1-cyclohexane methanol	ug/l	< 9.5 U	< 9.5 U	< 10 U	530	250	19000
Propylene glycol phenyl ether	ug/l	< 9.5 U	< 9.5 U	< 10 U	< 380 U	< 120 U	< 6100 U

Notes:
ug/l : micrograms per liter
mg/l: miligrams per liter
U: Concentration is below laboratory detection limits
J: Estimated concentration; below laboratory detection limits and above method detection limit.
The Diversion Trench Sump sample from 5/12/2014 was collected by CEC and likely refers to Treat-1V. This does not represent the stormwater diversion trench installed by ARCADIS.

Table 4B
Sump, Diversion Trench, and Surface Water Analytical Results
Site Investigation Report
Freedom Industries-Etowah Terminal

Location ID Sample ID Date Collected Parent Sample ID		CU-FOOTING CU-FOOTING (05/21/2014) 5/21/2014	CU-FOOTING CU-FOOTING (05/28/2014) 5/28/2014	CU-FOOTING CU-FOOTING (06/04/2014) 6/4/2014	CU-FOOTING CU-FOOTING (06/11/2014) 6/11/2014	CU-FOOTING CU-FOOTING (06/19/2014) 6/19/2014	CU-FOOTING CU-FOOTING (06/25/2014) 6/25/2014
Chemical	**Units**						
VOCs							
4-Methyl-1-cyclohexane methanol	ug/l	NA	NA	NA	NA	NA	NA
Propylene glycol phenyl ether	ug/l	NA	NA	NA	NA	NA	NA
SVOCs							
4-Methyl-1-cyclohexane methanol	ug/l	25000	8400	< 50 U	< 24 U	< 9.5 U	< 9.5 U
Propylene glycol phenyl ether	ug/l	< 9600 U	< 3900 U	170	62	< 9.5 U	< 9.5 U

Notes:
ug/l : micrograms per liter
mg/l: miligrams per liter
U: Concentration is below laboratory detection limits
J: Estimated concentration; below laboratory detection limits and above method detection limit.
The Diversion Trench Sump sample from 5/12/2014 was collected by CEC and likely refers to Treat-1V. This does not represent the stormwater diversion trench installed by ARCADIS.

Table 4B
Sump, Diversion Trench, and Surface Water Analytical Results
Site Investigation Report
Freedom Industries-Etowah Terminal

Location ID Sample ID Date Collected Parent Sample ID		CU-FOOTING CU-FOOTING (07/02/2014) 7/2/2014	CU-FOOTING CU-FOOTING (07/09/2014) 7/9/2014	CU-FOOTING CU-FOOTING (09-25-2014) 9/25/2014	CU-FOOTING CU-FOOTING (7-16-2014) 7/16/2014	CU-FOOTING CU-FOOTING 07162014 7/16/2014	CU-FOOTING CU-FOOTING DUP (03/12/2014) 3/12/2014 CU-FOOTING (03/12/2014)
Chemical	**Units**						
VOCs							
4-Methyl-1-cyclohexane methanol	ug/l	NA	NA	NA	NA	NA	NA
Propylene glycol phenyl ether	ug/l	NA	NA	NA	NA	NA	NA
SVOCs							
4-Methyl-1-cyclohexane methanol	ug/l	< 10 U	< 9.5 U	< 11 U	8900 J	NA	15
Propylene glycol phenyl ether	ug/l	< 10 U	< 9.5 U	< 11 U	3200 J	NA	< 11 U

Notes:
ug/l : micrograms per liter
mg/l: miligrams per liter
U: Concentration is below laboratory detection limits
J: Estimated concentration; below laboratory detection limits and above method detection limit.
The Diversion Trench Sump sample from 5/12/2014 was collected by CEC and likely refers to Treat-1V. This does not represent the stormwater diversion trench installed by ARCADIS.

Table 4B
Sump, Diversion Trench, and Surface Water Analytical Results
Site Investigation Report
Freedom Industries-Etowah Terminal

Location ID Sample ID Date Collected Parent Sample ID		CU-FOOTING CU-FOOTING DUP (03/18/2014) 3/18/2014 CU-FOOTING (03/18/2014)	CU-FOOTING CV FOOTING (11-17-2014) 11/17/2014	CU-FOOTING CV-FOOTING 11/12/2014	CU-FOOTING CV-FOOTING (10-16-2014) 10/16/2014	CU-FOOTING CV-FOOTING (11-03-2014) 11/3/2014	CULVERT DOWNSTREAM CD (01-29-2014) 1/29/2014
Chemical	**Units**						
VOCs							
4-Methyl-1-cyclohexane methanol	ug/l	NA	NA	NA	NA	NA	120
Propylene glycol phenyl ether	ug/l	NA	NA	NA	NA	NA	< 1.3 U
SVOCs							
4-Methyl-1-cyclohexane methanol	ug/l	12	< 9.6 U	14 < 9.8 U	< 9.5 U	< 9.5 U	120
Propylene glycol phenyl ether	ug/l	< 9.5 U	0.63 J	< 9.8 U 3.0 J	1.3 J	< 9.5 U	< 1.3 U

Notes:
ug/l : micrograms per liter
mg/l: miligrams per liter
U: Concentration is below laboratory detection limits
J: Estimated concentration; below laboratory detection limits and above method detection limit.
The Diversion Trench Sump sample from 5/12/2014 was collected by CEC and likely refers to Treat-1V. This does not represent the stormwater diversion trench installed by ARCADIS.

Table 4B
Sump, Diversion Trench, and Surface Water Analytical Results
Site Investigation Report
Freedom Industries-Etowah Terminal

Location ID Sample ID Date Collected Parent Sample ID		CULVERT INSIDE WALL CULVERT INSIDE WALL(02-06-2014) 2/6/2014	CU-SUMP CU-SUMP (05-19-2014) 5/19/2014	DiversionTrenchSump DIVERSIONTRENCHSUMP (05/12/2014) 5/12/2014	DiversionTrenchSump DIVERSION TRENCH SUMP (12-01-2014) 12/1/2014
Chemical	**Units**				
VOCs					
4-Methyl-1-cyclohexane methanol	ug/l	180	< 9.7 U	NA	NA
Propylene glycol phenyl ether	ug/l	3.5 J	< 9.7 U	NA	NA
SVOCs					
4-Methyl-1-cyclohexane methanol	ug/l	180	< 9.7 U	< 9.5 U	< 9.5 U
Propylene glycol phenyl ether	ug/l	3.5 J	< 9.7 U	9.8	< 9.5 U

Notes:
ug/l : micrograms per liter
mg/l: miligrams per liter
U: Concentration is below laboratory detection limits
J: Estimated concentration; below laboratory detection limits and above method detection limit.
The Diversion Trench Sump sample from 5/12/2014 was collected by CEC and likely refers to Treat-1V. This does not represent the stormwater diversion trench installed by ARCADIS.

Table 4B
Sump, Diversion Trench, and Surface Water Analytical Results
Site Investigation Report
Freedom Industries-Etowah Terminal

Location ID Sample ID Date Collected Parent Sample ID		DiversionTrenchWater DIVERSION TRENCH WATER 1 11/11/2014	DiversionTrenchWater DIVERSION TRENCH WATER 2 11/13/2014	DiversionTrenchWater DIVERSION TRENCH WATER 3 (11-17-2014) 11/17/2014	OFF-SITE CULVERT OFF-SITE CULVERT (02-19-2014) 2/19/2014
Chemical	**Units**				
VOCs					
4-Methyl-1-cyclohexane methanol	ug/l	NA	NA	NA	< 9.5 U
Propylene glycol phenyl ether	ug/l	NA	NA	NA	< 9.5 U
SVOCs					
4-Methyl-1-cyclohexane methanol	ug/l	< 9.9 U*	< 10 U	< 9.9 U	< 9.5 U
Propylene glycol phenyl ether	ug/l	< 9.9 U*	< 10 U	< 9.9 U	< 9.5 U

Notes:
ug/l : micrograms per liter
mg/l: miligrams per liter
U: Concentration is below laboratory detection limits
J: Estimated concentration; below laboratory detection limits and above method detection limit.
The Diversion Trench Sump sample from 5/12/2014 was collected by CEC and likely refers to Treat-1V. This does not represent the stormwater diversion trench installed by ARCADIS.

Table 4B
Sump, Diversion Trench, and Surface Water Analytical Results
Site Investigation Report
Freedom Industries-Etowah Terminal

	Location ID	OFF-SITE CULVERT	OFF-SITE SEEP	SUMP-1	SUMP-1	SUMP-2	SUMP-2	SUMP-2
	Sample ID	OFF-SITE CULVERT DUP (02-19-2014)	OFF-SITE SEEP (03-18-2014)	SUMP-1 (01-31-2014)	SUMP-1/DUPLICATE (01-31-2014)	SUMP #2	SUMP 2	SUMP 2 (07-28-2014)
	Date Collected	2/19/2014	3/18/2014	1/31/2014	1/31/2014	9/9/2014	8/18/2014	7/28/2014
	Parent Sample ID	OFF-SITE CULVERT (02-19-2014)			SUMP-1 (01-31-2014)			
Chemical	**Units**							
VOCs								
4-Methyl-1-cyclohexane methanol	ug/l	< 9.6 U	NA	970	1000	NA	NA	NA
Propylene glycol phenyl ether	ug/l	< 9.6 U	< 9.9 U	38	33	NA	NA	NA
SVOCs								
4-Methyl-1-cyclohexane methanol	ug/l	< 9.6 U	NA	970	1000	5.3 J	55	NA
Propylene glycol phenyl ether	ug/l	< 9.6 U	< 9.9 U	38	33	34	42	NA

Notes:
ug/l : micrograms per liter
mg/l: miligrams per liter
U: Concentration is below laboratory detection limits
J: Estimated concentration; below laboratory detection limits and above method detection limit.
The Diversion Trench Sump sample from 5/12/2014 was collected by CEC and likely refers to Treat-1V. This does not represent the stormwater diversion trench installed by ARCADIS.

Table 4B
Sump, Diversion Trench, and Surface Water Analytical Results
Site Investigation Report
Freedom Industries-Etowah Terminal

Location ID Sample ID Date Collected Parent Sample ID		SUMP-2 SUMP 2 (08-18-2014) 8/18/2014	SUMP-2 SUMP 2 (09-02-2014) 9/2/2014	SUMP-2 SUMP 2 (09-16-2014) 9/16/2014	SUMP-2 SUMP 2 (11-03-2014) 11/3/2014	SUMP-2 SUMP 2 (11-17-2014) 11/17/2014	SUMP-2 SUMP 2 (7-28-2014) 7/28/2014	SUMP-2 SUMP-2 11/12/2014	SUMP-2 SUMP-2 (04-16-2014) 4/16/2014
Chemical	**Units**								
VOCs									
4-Methyl-1-cyclohexane methanol	ug/l	NA	NA	NA	NA	NA	NA	NA	240
Propylene glycol phenyl ether	ug/l	NA	NA	NA	NA	NA	NA	NA	< 140 U
SVOCs									
4-Methyl-1-cyclohexane methanol	ug/l	NA	7.1 J	4.2 J	65	27	210000	140 0.53 J	240
Propylene glycol phenyl ether	ug/l	NA	120	73	63	6.8 J	< 100000 U	78 5.9 J	< 140 U

Notes:
ug/l : micrograms per liter
mg/l: miligrams per liter
U: Concentration is below laboratory detection limits
J: Estimated concentration; below laboratory detection limits and above method detection limit.
The Diversion Trench Sump sample from 5/12/2014 was collected by CEC and likely refers to Treat-1V. This does not represent the stormwater diversion trench installed by ARCADIS.

Table 4B
Sump, Diversion Trench, and Surface Water Analytical Results
Site Investigation Report
Freedom Industries-Etowah Terminal

Location ID Sample ID Date Collected Parent Sample ID		SUMP-2 SUMP-2 (04-23-2014) 4/23/2014	SUMP-2 SUMP-2 (04-30-2014) 4/30/2014	SUMP-2 SUMP-2 (05-15-2014) 5/15/2014	SUMP-2 SUMP-2 (05-21-2014) 5/21/2014	SUMP-2 SUMP-2 (05-28-2014) 5/28/2014	SUMP-2 SUMP-2 (06-04-2014) 6/4/2014	SUMP-2 SUMP-2 (06-11-2014) 6/11/2014
Chemical	**Units**							
VOCs								
4-Methyl-1-cyclohexane methanol	ug/l	250	91	71	150	< 24 U	71	120
Propylene glycol phenyl ether	ug/l	< 120 U	< 49 U	< 48 U	93	83	46	< 49 U
SVOCs								
4-Methyl-1-cyclohexane methanol	ug/l	250	91	71	150	< 24 U	71	120
Propylene glycol phenyl ether	ug/l	< 120 U	< 49 U	< 48 U	93	83	46	< 49 U

Notes:
ug/l : micrograms per liter
mg/l: miligrams per liter
U: Concentration is below laboratory detection limits
J: Estimated concentration; below laboratory detection limits and above method detection limit.
The Diversion Trench Sump sample from 5/12/2014 was collected by CEC and likely refers to Treat-1V. This does not represent the stormwater diversion trench installed by ARCADIS.

Table 4B
Sump, Diversion Trench, and Surface Water Analytical Results
Site Investigation Report
Freedom Industries-Etowah Terminal

Location ID Sample ID Date Collected Parent Sample ID		SUMP-2 SUMP-2 (06-19-2014) 6/19/2014	SUMP-2 SUMP-2 (06-25-2014) 6/25/2014	SUMP-2 SUMP-2 (07-02-2014) 7/2/2014	SUMP-2 SUMP-2 (07-09-2014) 7/9/2014	SUMP-2 SUMP-2 (09-25-2014) 9/25/2014	SUMP-2 SUMP-2 (10-16-2014) 10/16/2014	SUMP-2 SUMP-2 (7-16-2014) 7/16/2014	SUMP-2 SUMP-2 07162014 7/16/2014
Chemical	**Units**								
VOCs									
4-Methyl-1-cyclohexane methanol	ug/l	9100	3100	15000	38000	NA	NA	NA	NA
Propylene glycol phenyl ether	ug/l	< 3800 U	< 1900 U	< 6000 U	< 24000 U	NA	NA	NA	NA
SVOCs									
4-Methyl-1-cyclohexane methanol	ug/l	9100	3100	15000	38000	1.4 J	50	440000 J	NA
Propylene glycol phenyl ether	ug/l	< 3800 U	< 1900 U	< 6000 U	< 24000 U	85	26	< 200000 UJ	NA

Notes:
ug/l : micrograms per liter
mg/l: miligrams per liter
U: Concentration is below laboratory detection limits
J: Estimated concentration; below laboratory detection limits and above method detection limit.
The Diversion Trench Sump sample from 5/12/2014 was collected by CEC and likely refers to Treat-1V. This does not represent the stormwater diversion trench installed by ARCADIS.

Table 4B
Sump, Diversion Trench, and Surface Water Analytical Results
Site Investigation Report
Freedom Industries-Etowah Terminal

Location ID Sample ID Date Collected Parent Sample ID		SW-01 SW-01 (10-07-2014) 10/7/2014	SW-02 SW-02 (10-07-2014) 10/7/2014	SW-03 SW-03 (10-08-2014) 10/8/2014
Chemical	**Units**			
VOCs				
4-Methyl-1-cyclohexane methanol	ug/l	NA	NA	NA
Propylene glycol phenyl ether	ug/l	NA	NA	NA
SVOCs				
4-Methyl-1-cyclohexane methanol	ug/l	< 9.5 U	< 9.7 U	< 9.7 U
Propylene glycol phenyl ether	ug/l	< 9.5 U	< 9.7 U	< 9.7 U

Notes:
ug/l : micrograms per liter
mg/l: miligrams per liter
U: Concentration is below laboratory detection limits
J: Estimated concentration; below laboratory detection limits and above method detection limit.
The Diversion Trench Sump sample from 5/12/2014 was collected by CEC and likely refers to Treat-1V. This does not represent the stormwater diversion trench installed by ARCADIS.

Table 4C
Stormwater Outfall Analytical Results
Site Investigation Report
Freedom Industries-Etowah Terminal

	Location ID	OF002	OF002	OF002	OF002	OF002	OF002
	Sample ID	OF002-001-042514	OF002-002-050314	OF002-003 (5-06-2014)	OF002-051414	OF002-052114	OF002-CS1GS 1-8 COMPOSITE
	Date Collected	4/25/2014	5/3/2014	5/6/2014	5/14/2014	5/21/2014	4/28/2014
Chemical	**Units**						
SVOCs							
4-Methyl-1-cyclohexane methanol	ug/l	< 9.8 U	< 9.5 U	70	28	21	610
Propylene glycol phenyl ether	ug/l	< 9.8 U	< 9.5 U	< 38 U	14	18	< 400 U
TPH							
SGT-HEM (Oil and Grease)	mg/l	NA	NA	NA	NA	NA	NA
Miscellaneous							
Total Kjeldahl Nitrogen	mg/l	NA	NA	NA	NA	NA	NA
Anions							
Nitrate/Nitrite	mg/l	NA	NA	NA	NA	NA	NA
Field							
pH	pH units	NA	NA	NA	NA	NA	NA
Chemical Oxygen Demand	mg/l	NA	NA	NA	NA	NA	NA
General Chemistry							
Biological Oxygen Demand	mg/l	NA	NA	NA	NA	NA	NA
Total Phosphorous as PO4	mg/l	NA	NA	NA	NA	NA	NA
Total Suspended Solids	mg/l	NA	NA	NA	NA	NA	NA

Notes:
ug/l : micrograms per liter
mg/l: miligrams per liter
U: Concentration is below laboratory detection limits
J: Estimated concentration; below laboratory detection limits and above method detection limit
H: Hold time exceeded

Table 4C
Stormwater Outfall Analytical Results
Site Investigation Report
Freedom Industries-Etowah Terminal

	Location ID	OF002	OF002	OUTFALL-02	OUTFALL-03
	Sample ID	OUTFALL #002 (5-07-2014)	OUTFALL #002 (5-12-2014)	OUTFALL-02 09112014	OUTFALL-03 09112014
	Date Collected	5/7/2014	5/12/2014	9/11/2014	9/11/2014
Chemical	**Units**				
SVOCs					
4-Methyl-1-cyclohexane methanol	ug/l	71	70	NA	NA
Propylene glycol phenyl ether	ug/l	< 38 U	< 38 U	NA	NA
TPH					
SGT-HEM (Oil and Grease)	mg/l	NA	NA	1.4 JB	1.7 JB
Miscellaneous					
Total Kjeldahl Nitrogen	mg/l	NA	NA	1.7 J	< 5.0 U
Anions					
Nitrate/Nitrite	mg/l	NA	NA	0.16	0.077
Field					
pH	pH units	NA	NA	8.62 HF	8.87 HF
Chemical Oxygen Demand	mg/l	NA	NA	26	30
General Chemistry					
Biological Oxygen Demand	mg/l	NA	NA	< 2.0 U	< 2.0 U
Total Phosphorous as PO4	mg/l	NA	NA	0.15	0.052 J
Total Suspended Solids	mg/l	NA	NA	93	62

Notes:
ug/l : micrograms per liter
mg/l: miligrams per liter
U: Concentration is below laboratory detection limits
J: Estimated concentration; below laboratory detection limits and above method detection limit
H: Hold time exceeded

Table 5
Blank Sample Analytical Results
Site Investigation Report
Freedom Industries-Etowah Terminal

Location ID	CU-FOOTING	CU-FOOTING	FIELD BLANK	FIELD BLANK	FIELD BLANK	FIELD BLANK	FIELD BLANK	FIELD BLANK
Sample Name	CU-FOOTING-FB (7-16-2014)	CU-FOOTING-FB 07162014	CU FOOTING FB (05-28-2014)	CU FOOTING FB (06-04-2014)	CU FOOTING FB (06-11-2014)	CU FOOTING FB (06-19-2014)	CU FOOTING FB (06-25-2014)	CU FOOTING FB (07-02-2014)
Sample Date	7/16/2014	7/16/2014	5/28/2014	6/4/2014	6/11/2014	6/19/2014	6/25/2014	7/2/2014
VOCs								
4-Methyl-1-cyclohexane methanol	--	--	--	--	--	--	--	--
Propylene glycol phenyl ether	--	--	--	--	--	--	--	--
SVOCs								
4-Methyl-1-cyclohexane methanol	< 9.7 U	--	< 9.5 U	< 9.5 U	< 9.7 U	< 9.5 U	< 9.5 U	< 9.5 U
Propylene glycol phenyl ether	< 9.7 U	--	< 9.5 U	< 9.5 U	< 9.7 U	< 9.5 U	< 9.5 U	< 9.5 U
Metals								
Lead	--	--	--	--	--	--	--	--
TPH								
2-Methyl-1-propanol	--	--	--	--	--	--	--	--
Ethanol	--	--	--	--	--	--	--	--
Ethylene Glycol	--	--	--	--	--	--	--	--
Isopropyl alcohol	--	--	--	--	--	--	--	--
Methanol	--	--	--	--	--	--	--	--
N-Propyl Alcohol	--	--	--	--	--	--	--	--
Propylene Glycol	--	--	--	--	--	--	--	--
Miscellaneous								
Acetaldehyde	--	--	--	--	--	--	--	--
Acetic acid	--	--	--	--	--	--	--	--
Butyric Acid	--	--	--	--	--	--	--	--
Formaldehyde	--	--	--	--	--	--	--	--
Formic Acid	--	--	--	--	--	--	--	--
Lactic acid	--	--	--	--	--	--	--	--
Propionic Acid	--	--	--	--	--	--	--	--
Pyruvic Acid	--	--	--	--	--	--	--	--

Table 5
Blank Sample Analytical Results
Site Investigation Report
Freedom Industries-Etowah Terminal

Location ID	FIELD BLANK	FIELD BLANK	FIELD BLANK	FIELD BLANK	FIELD BLANK	FIELD BLANK	FIELD BLANK	FIELD BLANK
Sample Name	CU FOOTING FB (07-09-2014)	CU FOOTING, FB (05-21-2014)	CU-1 FOOTING FB (04-02-2014)	CU-1 FOOTING, FB (04-16-2014)	CU-1 FOOTING, FB (04-23-2014)	CU-1 FOOTING, FB (04-30-2014)	CU-1 FOOTING, FB (05-19-2014)	CU-FOOTING FB (02-28-2014)
Sample Date	7/9/2014	5/21/2014	4/2/2014	4/16/2014	4/23/2014	4/30/2014	5/19/2014	2/28/2014
VOCs								
4-Methyl-1-cyclohexane methanol	--	--	--	--	--	--	--	--
Propylene glycol phenyl ether	--	--	--	--	--	--	--	--
SVOCs								
4-Methyl-1-cyclohexane methanol	< 9.6 U	< 10 U	< 9.5 U	< 9.5 U	< 9.8 U	< 9.5 U	< 9.6 U	< 9.5 U
Propylene glycol phenyl ether	< 9.6 U	< 10 U	< 9.5 U	< 9.5 U	< 9.8 U	< 9.5 U	< 9.6 U	< 9.5 U
Metals								
Lead	--	--	--	--	--	--	--	--
TPH								
2-Methyl-1-propanol	--	--	--	--	--	--	--	--
Ethanol	--	--	--	--	--	--	--	--
Ethylene Glycol	--	--	--	--	--	--	--	--
Isopropyl alcohol	--	--	--	--	--	--	--	--
Methanol	--	--	--	--	--	--	--	--
N-Propyl Alcohol	--	--	--	--	--	--	--	--
Propylene Glycol	--	--	--	--	--	--	--	--
Miscellaneous								
Acetaldehyde	--	--	--	--	--	--	--	--
Acetic acid	--	--	--	--	--	--	--	--
Butyric Acid	--	--	--	--	--	--	--	--
Formaldehyde	--	--	--	--	--	--	--	--
Formic Acid	--	--	--	--	--	--	--	--
Lactic acid	--	--	--	--	--	--	--	--
Propionic Acid	--	--	--	--	--	--	--	--
Pyruvic Acid	--	--	--	--	--	--	--	--

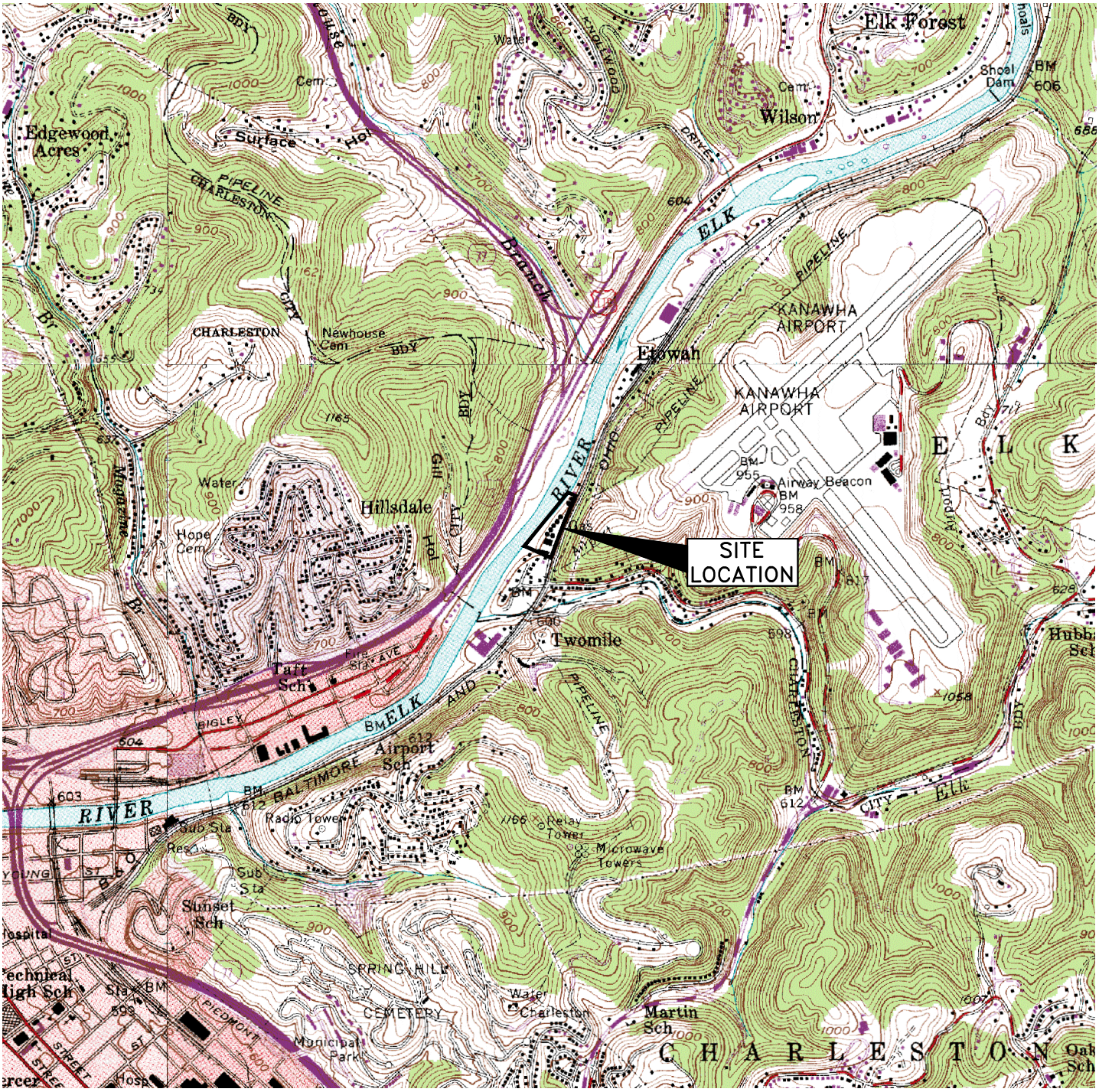
Table 5
Blank Sample Analytical Results
Site Investigation Report
Freedom Industries-Etowah Terminal

Location ID	FIELD BLANK	FIELD BLANK	FIELD BLANK	FIELD BLANK	FIELD BLANK	FIELD BLANK	FIELD BLANK	FIELD BLANK	FIELD BLANK
Sample Name	CU-FOOTING, FB (04-09-2014)	FIELD BLANK (01-29-2014)	FIELD BLANK (01-31-2014)	FIELD-BLANK (8-20-2014)	FIELD-BLANK/08202014	OF002-051414 FB (05-14-2014)	TREAT 1C FB (02-27-2014)	TREAT 1D FB (03-05-2014)	TREAT 1E FB (03-12-2014)
Sample Date	4/9/2014	1/29/2014	1/31/2014	8/20/2014	8/20/2014	5/14/2014	2/27/2014	3/5/2014	3/12/2014
VOCs									
4-Methyl-1-cyclohexane methanol	--	< 0.19 U	17	--	--	--	--	--	< 9.5 U
Propylene glycol phenyl ether	--	< 0.31 U	< 0.32 U	--	--	--	--	--	< 9.5 U
SVOCs									
4-Methyl-1-cyclohexane methanol	< 9.5 U	--	--	< 11 U	--	< 9.5 U	< 11 U	< 9.5 U	--
Propylene glycol phenyl ether	< 9.5 U	--	--	< 11 U	--	< 9.5 U	< 11 U	< 9.5 U	--
Metals									
Lead	--	--	--	--	--	--	< 1 U	< 1 U	--
TPH									
2-Methyl-1-propanol	--	--	--	< 10 U	--	--	--	--	--
Ethanol	--	--	--	< 10 U	--	--	--	--	--
Ethylene Glycol	--	--	--	< 10 U	--	--	--	--	--
Isopropyl alcohol	--	--	--	< 10 U	--	--	--	--	--
Methanol	--	--	--	< 10 U	--	--	--	--	--
N-Propyl Alcohol	--	--	--	< 10 U	--	--	--	--	--
Propylene Glycol	--	--	--	< 10 U	--	--	--	--	--
Miscellaneous									
Acetaldehyde	--	--	--	< 100 U	--	--	--	--	--
Acetic acid	--	--	--	< 1.0 U	--	--	--	--	--
Butyric Acid	--	--	--	< 1.0 U	--	--	--	--	--
Formaldehyde	--	--	--	< 50 U	--	--	--	--	--
Formic Acid	--	--	--	< 1.0 U	--	--	--	--	--
Lactic acid	--	--	--	0.43 J	--	--	--	--	--
Propionic Acid	--	--	--	< 1.0 U	--	--	--	--	--
Pyruvic Acid	--	--	--	< 1.0 U	--	--	--	--	--

Table 5
Blank Sample Analytical Results
Site Investigation Report
Freedom Industries-Etowah Terminal

Location ID	FIELD BLANK	FIELD BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK
Sample Name	TREAT 1F FB (03-18-2014)	TREAT 1G FB (03-26-2014)	BLANK (02-02-2015)	BLANK (12-03-2014)	BLANK (12-30-2014)	BLANK (292015)	BLANK 01142015	TRIP BLANK (02-14-2014)	TRIP BLANK (10-06-2014)
Sample Date	3/18/2014	3/26/2014	2/2/2015	12/3/2014	12/30/2014	2/9/2015	1/14/2015	2/14/2014	10/6/2014
VOCs									
4-Methyl-1-cyclohexane methanol	--	--	--	--	--	--	--	--	--
Propylene glycol phenyl ether	--	--	--	--	--	--	--	--	--
SVOCs									
4-Methyl-1-cyclohexane methanol	< 9.5 U	< 9.5 U	< 9.5 U	< 9.7 U	< 9.5 U	--	< 9.6 U	--	--
Propylene glycol phenyl ether	< 9.5 U	< 9.5 U	< 9.5 U	< 9.7 U	< 9.5 U	--	< 9.6 U	--	--
Metals									
Lead	--	--	--	< 10 U	--	--	--	--	--
TPH									
2-Methyl-1-propanol	--	--	--	< 10 U	--	--	< 10 U	--	--
Ethanol	--	--	--	< 10 U	--	--	< 10 U	--	--
Ethylene Glycol	--	--	--	< 10 U	--	--	< 10 U	--	--
Isopropyl alcohol	--	--	--	< 10 U	--	--	< 10 U	--	--
Methanol	--	--	--	< 10 U	--	--	< 10 U	--	--
N-Propyl Alcohol	--	--	--	< 10 U	--	--	< 10 U	--	--
Propylene Glycol	--	--	--	< 10 U	--	--	< 10 U	--	--
Miscellaneous									
Acetaldehyde	--	--	--	< 50 U	--	< 50 U	< 50 UH	--	--
Acetic acid	--	--	--	< 1.0 U	--	--	< 1.0 U	--	--
Butyric Acid	--	--	--	< 1.0 U	--	--	< 1.0 U	--	--
Formaldehyde	--	--	--	< 50 U	--	37 J	< 50 UH	--	--
Formic Acid	--	--	--	< 1.0 U	--	--	< 1.0 U	--	--
Lactic acid	--	--	--	< 1.0 U	--	--	2.1	--	--
Propionic Acid	--	--	--	0.68 J	--	--	< 1.0 U	--	--
Pyruvic Acid	--	--	--	< 1.0 U	--	--	< 1.0 U	--	--

Figures



SCALE 1:24 000

1 1/2 0 1

SCALE IN MILE

1000 0 1000 2000 3000 4000 5000 6000 7000

SCALE IN FEET

WEST VIRGINIA QUADRANGLE LOCATION

REFERENCE: USGS 7.5 MINUTE QUADRANGLE; EAST CHARLESTON, WEST VIRGINIA 1958, PHOTO REVISED 1971 AND 1976

□REEDOM INDUSTRIES
□□□□ □ARLOW DRI□E□C□ARLESTON□WEST □IRGINIA

O□ □□□□□□□□□□□□

SITE LOCATION MA□

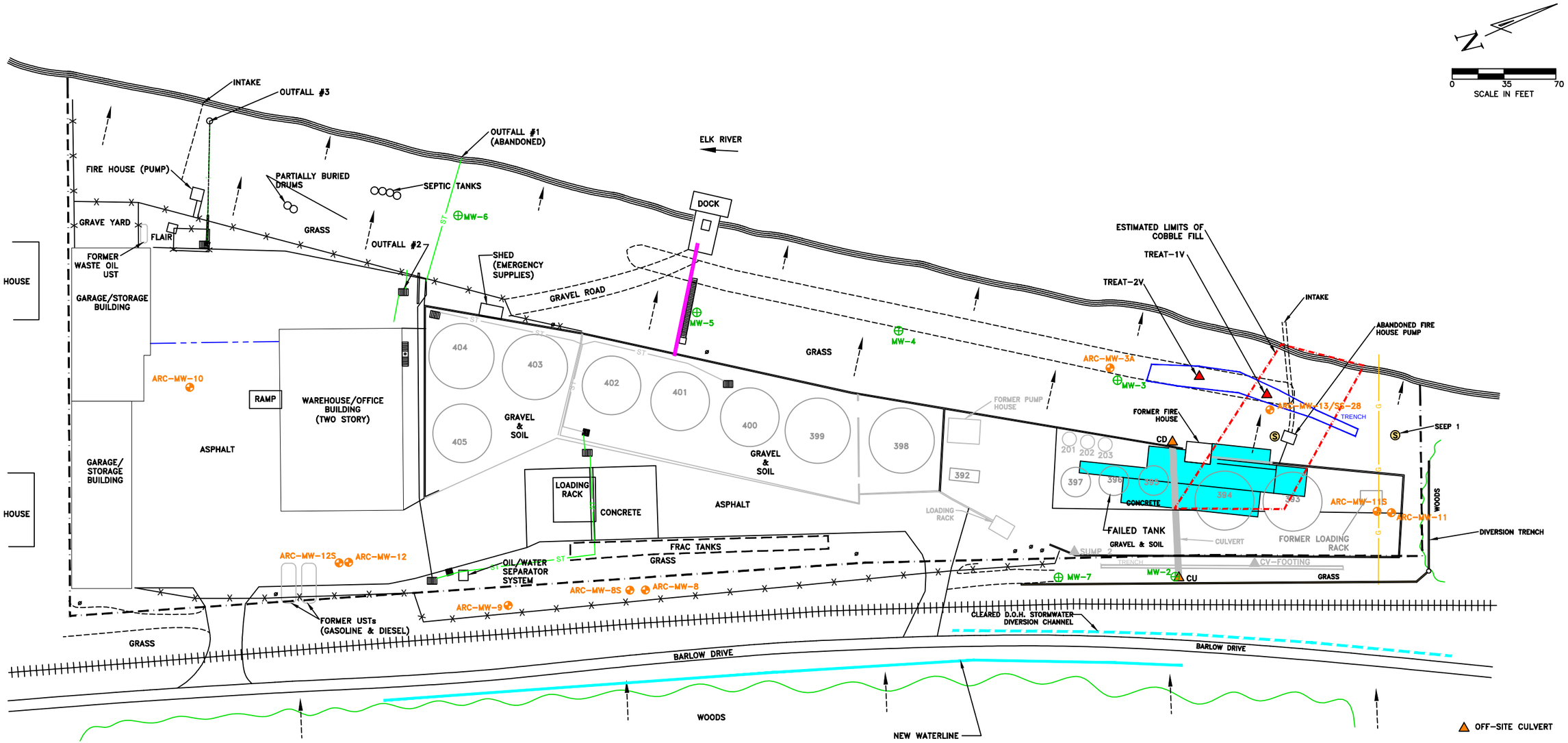
ARCADIS

□IGURE

□

CITY□COLUM□US□ DI□GROU□□MD □□ LAYOUT□□IG □□SITE LOCATION MA□ SA□ED □□□□□□□□□□□□ AM ACAD□ER□8□S LMS TEC□□ □AGESETU□□□□ □LOTSTYLETA□LE□ACAD CT□ □LOTTED□□□□□□□□□□□□8 AM □Y□SMIT□□□O□

□RE S□



LEGEND

- EXISTING WELL
- SEEP
- CULVERT SAMPLE
- SUMP SAMPLE
- MONITORING WELL (ARCADIS)
- HISTORICAL SITE FEATURES
- SOIL EXCAVATION
- PROPERTY BOUNDARY
- FENCE
- RAILROAD TRACKS
- PRODUCT PIPING
- DIKE WALL
- STEEP SLOPE
- TREE LINE
- STORM SEWER LINE
- NATURAL GAS LINE
- STEAM LINE
- DRAIN
- POLE

NOTES:
1. ALL ASTs HAVE BEEN REMOVED.
2. FLAIR AND PIPING REMOVED.
3. FUEL LOCADING RACK REMOVED.
4. OIL LOADING RACK REMOVED.

REFERENCE: DRAWING CREATED FROM SHAW ENVIRONMENTAL, INC. BASE MAP DATED 10/31/05.

FREEDOM INDUSTRIES
1015 BARLOW DRIVE, CHARLESTON, WEST VIRGINIA

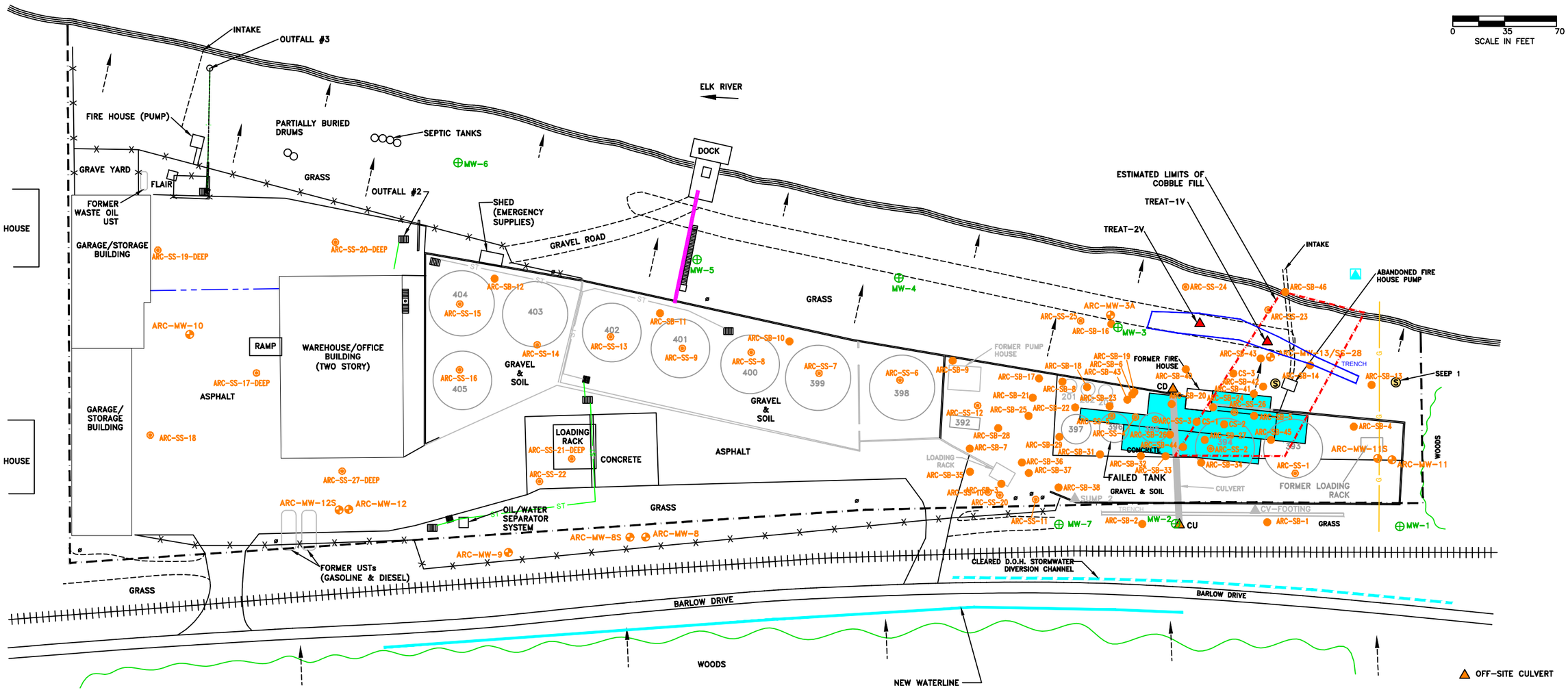
OH003003.0001

SITE FEATURES MAP

ARCADIS

FIGURE

CITY:(Columbus,Oh) DIV/GROUP:(IM/DV) DB:(R. Smith) LD:(Opt) PIC:(Opt) PM:(J. Manzo) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\Columbus-OH\ACT\OH003003 - FREEDOM INDUSTRIES\0011000\3\OH3003-1-3-2015-01.dwg LAYOUT: FIG 2 SITE-FEATURES SAVED: 4/29/2015 1:55 PM ACADVER: 18.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ACAD.CTB PLOTTED: 4/29/2015 1:55 PM BY: SMITH, BOB
XREFS:



LEGEND

- EXISTING WELL
- SEEP
- CULVERT SAMPLE
- SUMP SAMPLE
- MW — MONITORING WELL
- SB — DEEP SOIL BORING
- SS — SURFACE SOIL SAMPLE
- SURFACE WATER SAMPLE
- PROPERTY BOUNDARY
- FENCE
- RAILROAD TRACKS
- PRODUCT PIPING
- DIKE WALL
- STEEP SLOPE
- TREE LINE
- ST — STORM SEWER LINE
- G — NATURAL GAS LINE
- STEAM LINE
- DRAIN
- POLE

NOTE: FORMER SITE FEATURE SHOWN IN GRAY

REFERENCE: DRAWING CREATED FROM SHAW ENVIRONMENTAL, INC. BASE MAP DATED 10/31/05.

FREEDOM INDUSTRIES
1015 BARLOW DRIVE, CHARLESTON, WEST VIRGINIA

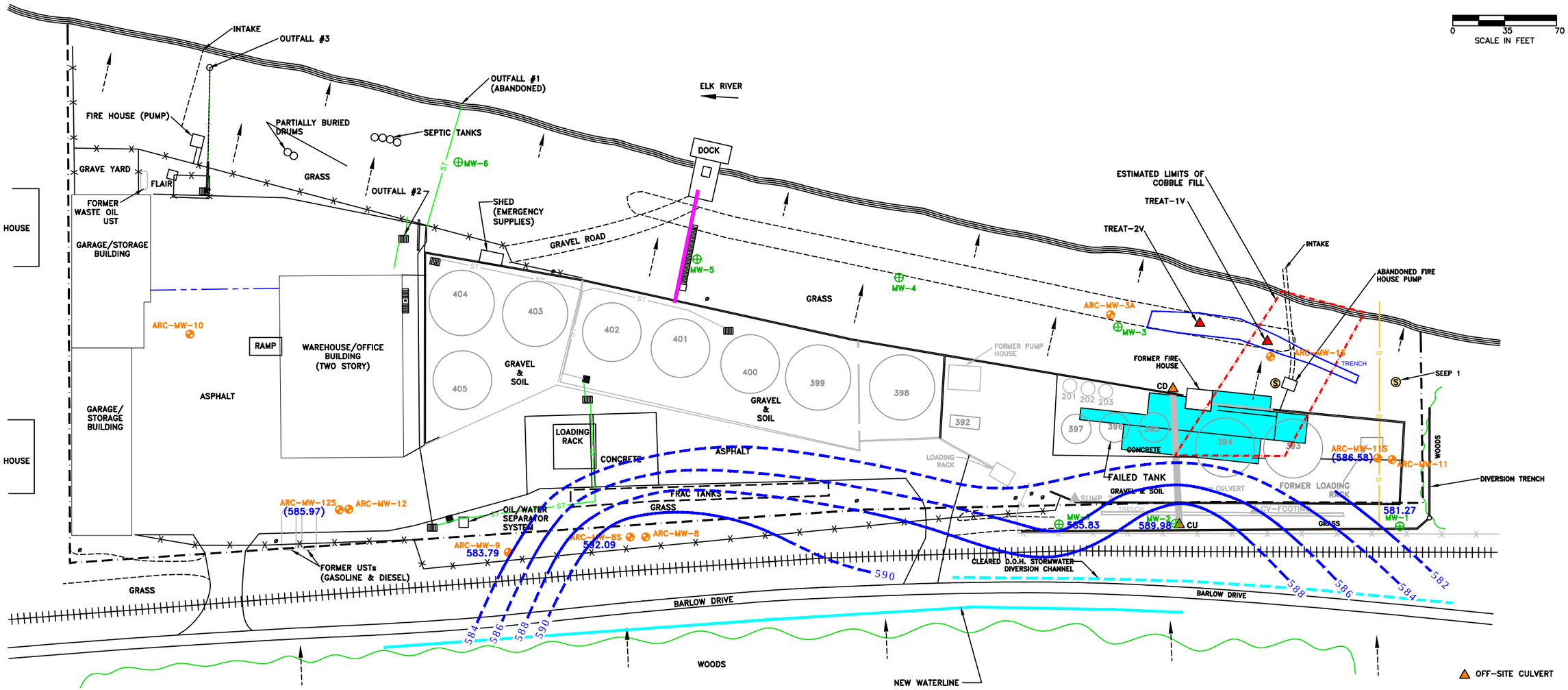
OH003003.0001

SITE MA□ WIT□ SAM□LE LOCATION

ARCADIS

FIGURE
□

CITY:(Columbus Oh) DIV/GROUP:(IM/DV) DB:(R. Smith) LD:(Opt) PIC:(Opt) PM:(J. Manzo) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\Columbus-OH\ACT\OH003003 - FREEDOM INDUSTRIES\00010003\OH3003-1-3-2015-01.dwg LAYOUT: FIG 3 SM - ALL-SAMPLES SAVED: 4/29/2015 1:55 PM ACADVER: 18.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ACAD.CTB PLOTTED: 4/29/2015 1:59 PM BY: SMITH, BOB
XREFS:



LEGEND

- EXISTING WELL
- SEEP
- CULVERT SAMPLE
- SUMP SAMPLE
- MW — MONITORING WELL (ARCADIS)
- HISTORICAL SITE FEATURES
- SOIL EXCAVATION
- 581.27 — GROUNDWATER ELEVATION
- 582 — GROUNDWATER ELEVATION CONTOUR (DASHED WHERE INFERRED)
- ( ) — NOT USED FOR CONTOURING
- PROPERTY BOUNDARY
- FENCE
- RAILROAD TRACKS
- PRODUCT PIPING
- DIKE WALL
- STEEP SLOPE
- TREE LINE
- ST — STORM SEWER LINE
- G — NATURAL GAS LINE
- STEAM LINE
- DRAIN
- POLE

NOTES:
1. ALL ASTs HAVE BEEN REMOVED.
2. FLAIR AND PIPING REMOVED.
3. FUEL LOCADING RACK REMOVED.
4. OIL LOADING RACK REMOVED.

FREEDOM INDUSTRIES
1015 BARLOW DRIVE, CHARLESTON, WEST VIRGINIA

OH003003.0001

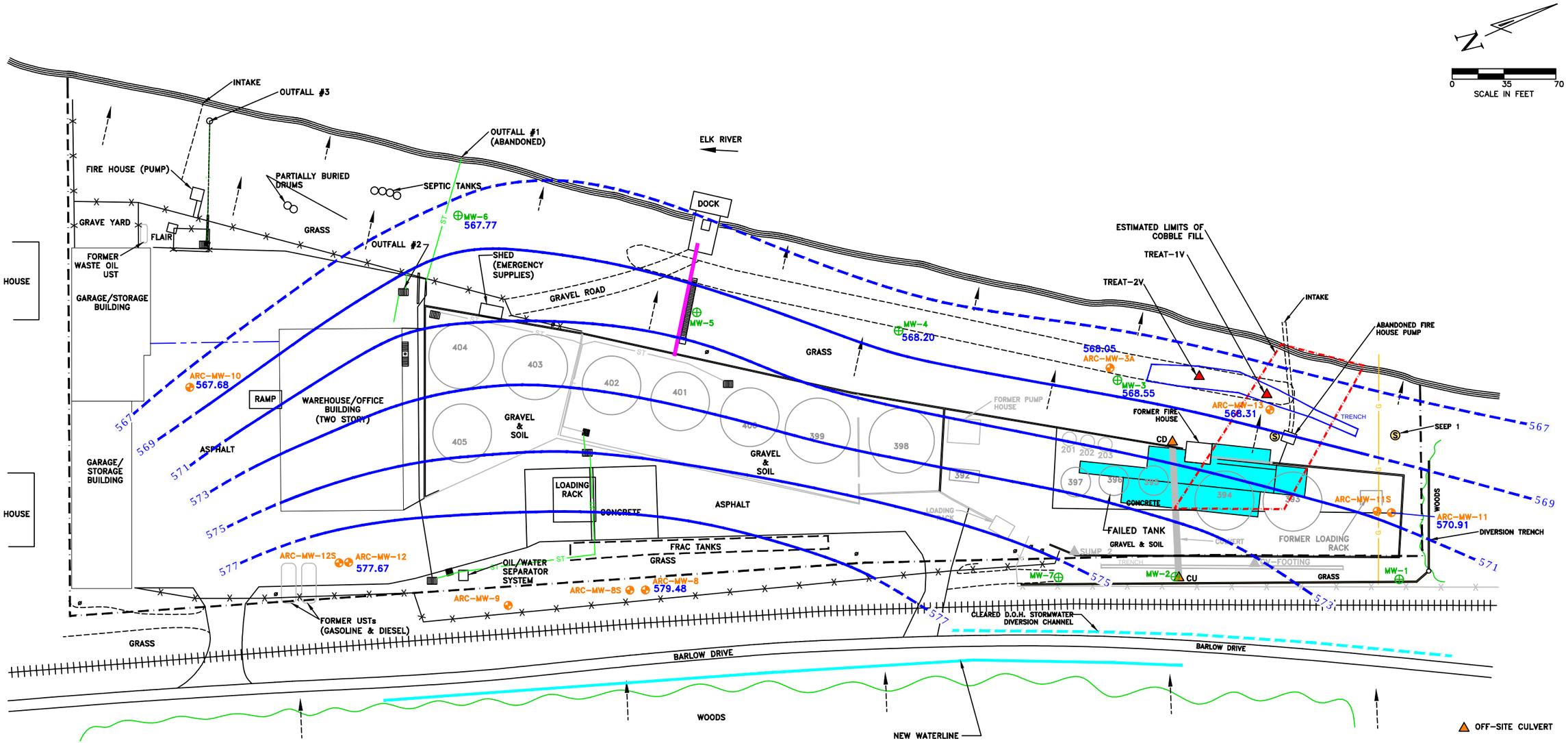
□OTENTIOMETRIC SUR□ACE MA□
S□ALLOW A□UI□ER
DECEM□ER □□□□□□□□

ARCADIS

FIGURE
□A

REFERENCE: DRAWING CREATED FROM SHAW ENVIRONMENTAL, INC. BASE MAP DATED 10/31/05.

CITY:(Columbus, OH) DIV/GROUP:(IMIDV) DB:(R. Smith) LD:(Opt) PIC:(Opt) PM:(J. Manzo) TM:(Opt) LYR:(Off)ON=*;OFF=*REF*
G:\ENVCAD\Columbus-OH\ACTIONS\003 - FREEDOM INDUSTRIES\001\003\OH3003-1-3-2015-01.dwg LAYOUT: FIG 4A GW ELEV 120014 SHAL SAVED: 4/29/2015 1:55 PM ACADVER: 18.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ACAD.CTB PLOTTED: 4/29/2015 1:59 PM BY: SMITH, B2B
XREFS:



LEGEND

- EXISTING WELL
- SEEP
- CULVERT SAMPLE
- SUMP SAMPLE
- MW MONITORING WELL (ARCADIS)
- HISTORICAL SITE FEATURES
- SOIL EXCAVATION
- 567.89 GROUNDWATER ELEVATION
- 582 GROUNDWATER ELEVATION CONTOUR (DASHED WHERE INFERRED)
- PROPERTY BOUNDARY
- FENCE
- RAILROAD TRACKS
- PRODUCT PIPING
- DIKE WALL
- STEEP SLOPE
- TREE LINE
- ST STORM SEWER LINE
- G NATURAL GAS LINE
- STEAM LINE
- DRAIN
- POLE

NOTES:
1. ALL ASTs HAVE BEEN REMOVED.
2. FLAIR AND PIPING REMOVED.
3. FUEL LOCADING RACK REMOVED.
4. OIL LOADING RACK REMOVED.

FREEDOM INDUSTRIES
1015 BARLOW DRIVE, CHARLESTON, WEST VIRGINIA

OH003003.0001

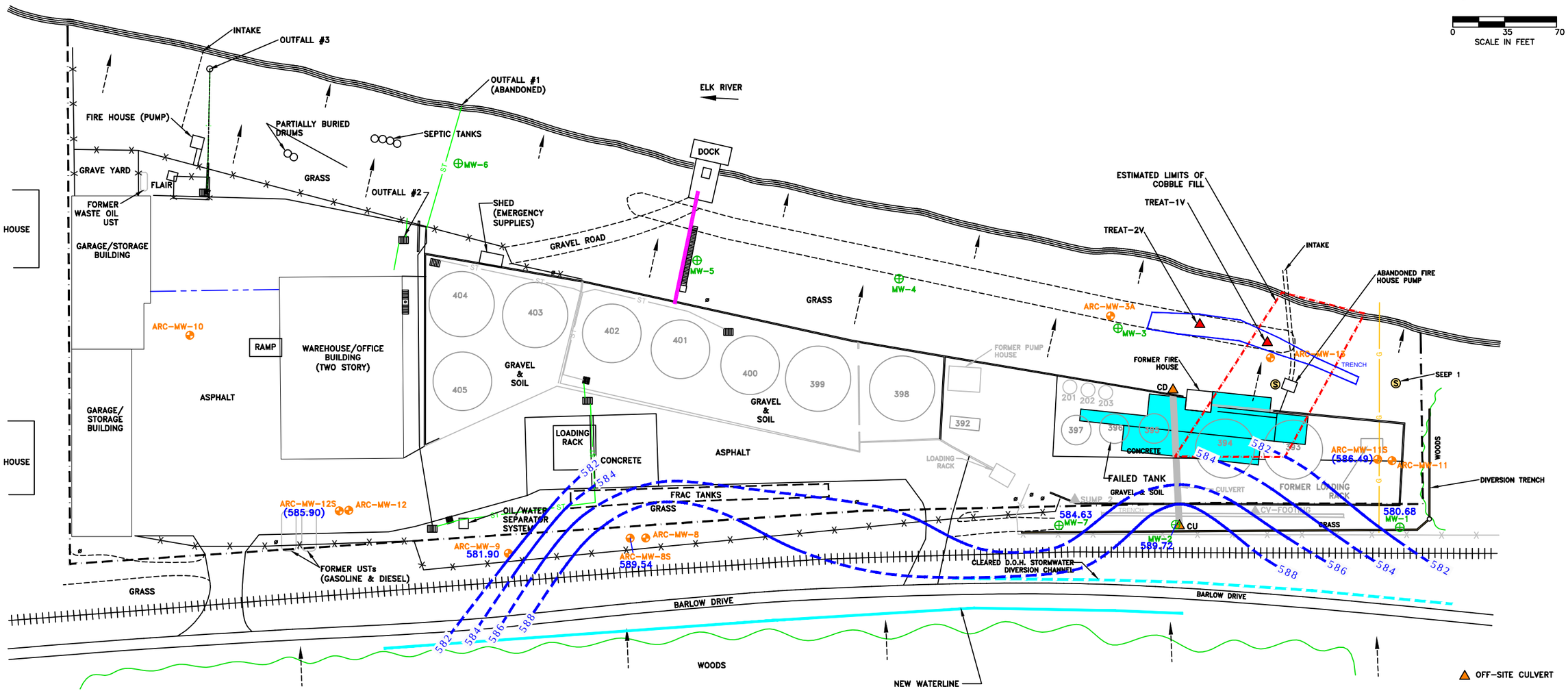
□OTENTIOMETRIC SUR□ACE MA□
DEE□ □□□□□□□□

ARCADIS

FIGURE
□□

REFERENCE: DRAWING CREATED FROM SHAW ENVIRONMENTAL, INC. BASE MAP DATED 10/31/05.

CITY:(Columbus, Oh) DIV/GROUP:(IM/DV) DB:(R. Smith) LD:(Opt) PIC:(Opt) PM:(J. Marra) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\Columbus-OH\ACTIONS\003003 - FREEDOM INDUSTRIES\001\003\OH003-1-3-2015-01.dwg LAYOUT: FIG 4B GW ELEV 120014 DEEP SAVED: 4/29/2015 1:55 PM ACADVER: 18.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ACAD.CTB PLOTTED: 4/29/2015 2:00 PM BY: SMITH, BOB
XREFS:



LEGEND

- EXISTING WELL
- SEEP
- CULVERT SAMPLE
- SUMP SAMPLE
- MW MONITORING WELL (ARCADIS)
- HISTORICAL SITE FEATURES
- SOIL EXCAVATION
- 581.90 GROUNDWATER ELEVATION
- 582 GROUNDWATER ELEVATION CONTOUR (DASHED WHERE INFERRED)
- ( ) NOT USED FOR CONTOURING
- PROPERTY BOUNDARY
- FENCE
- RAILROAD TRACKS
- PRODUCT PIPING
- DIKE WALL
- STEEP SLOPE
- TREE LINE
- ST STORM SEWER LINE
- G NATURAL GAS LINE
- STEAM LINE
- DRAIN
- POLE

NOTES:
1. ALL ASTs HAVE BEEN REMOVED.
2. FLAIR AND PIPING REMOVED.
3. FUEL LOCADING RACK REMOVED.
4. OIL LOADING RACK REMOVED.

FREEDOM INDUSTRIES
1015 BARLOW DRIVE, CHARLESTON, WEST VIRGINIA

OH003003.0001

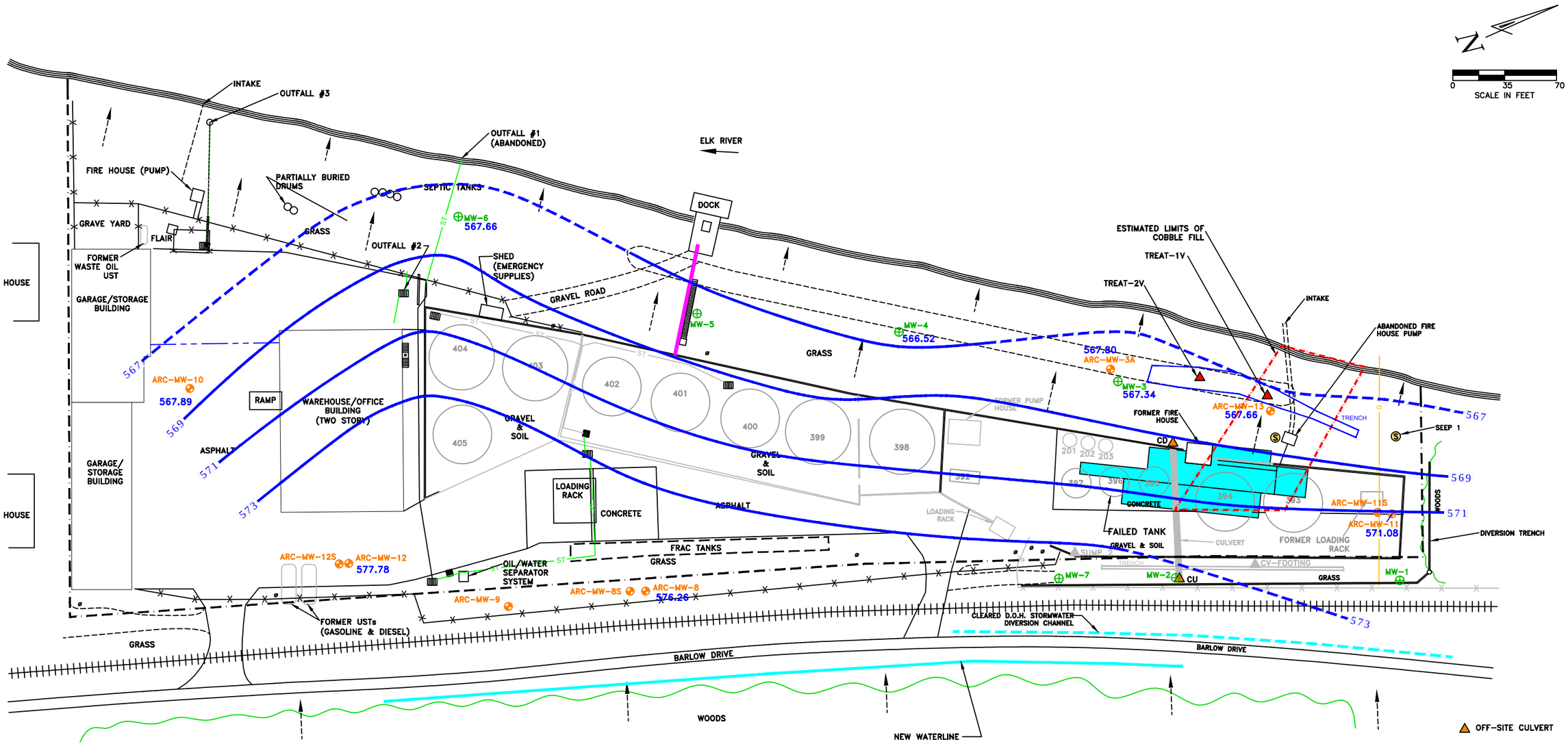
□OTENTIOMETRIC SUR□ACE MA□
S□ALLOW A□UI□ER
□ANUARY □□□□□□□□□

ARCADIS

FIGURE
□A

REFERENCE: DRAWING CREATED FROM SHAW ENVIRONMENTAL, INC. BASE MAP DATED 10/31/05.

CITY:(Columbus, Oh) DIV/GROUP:(IM/DV) DB:(R. Smith) LD:(Opt) PIC:(Opt) PM:(J. Marra) TM:(Opt) LYR:(Off)ON=*;OFF=*REF*
G:\ENVCAD\Columbus-OH\ACTIVE\003003 - FREEDOM INDUSTRIES\0010\003\OH003-1-3-2015-01.dwg LAYOUT: FIG SA GWFELEV 010015 SHAL SAVED: 4/29/2015 1:55 PM ACADVER: 18.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ACAD.CTB PLOTTED: 4/29/2015 2:00 PM BY: SMITH, BOB
XREFS:



LEGEND

- EXISTING WELL
- SEEP
- CULVERT SAMPLE
- SUMP SAMPLE
- MW MONITORING WELL (ARCADIS)
- HISTORICAL SITE FEATURES
- SOIL EXCAVATION
- 567.89 GROUNDWATER ELEVATION
- 582 GROUNDWATER ELEVATION CONTOUR (DASHED WHERE INFERRED)
- PROPERTY BOUNDARY
- FENCE
- RAILROAD TRACKS
- PRODUCT PIPING
- DIKE WALL
- STEEP SLOPE
- TREE LINE
- ST STORM SEWER LINE
- G NATURAL GAS LINE
- STEAM LINE
- DRAIN
- POLE

NOTES:
1. ALL ASTs HAVE BEEN REMOVED.
2. FLAIR AND PIPING REMOVED.
3. FUEL LOCADING RACK REMOVED.
4. OIL LOADING RACK REMOVED.

FREEDOM INDUSTRIES
1015 BARLOW DRIVE, CHARLESTON, WEST VIRGINIA

OH003003.0001

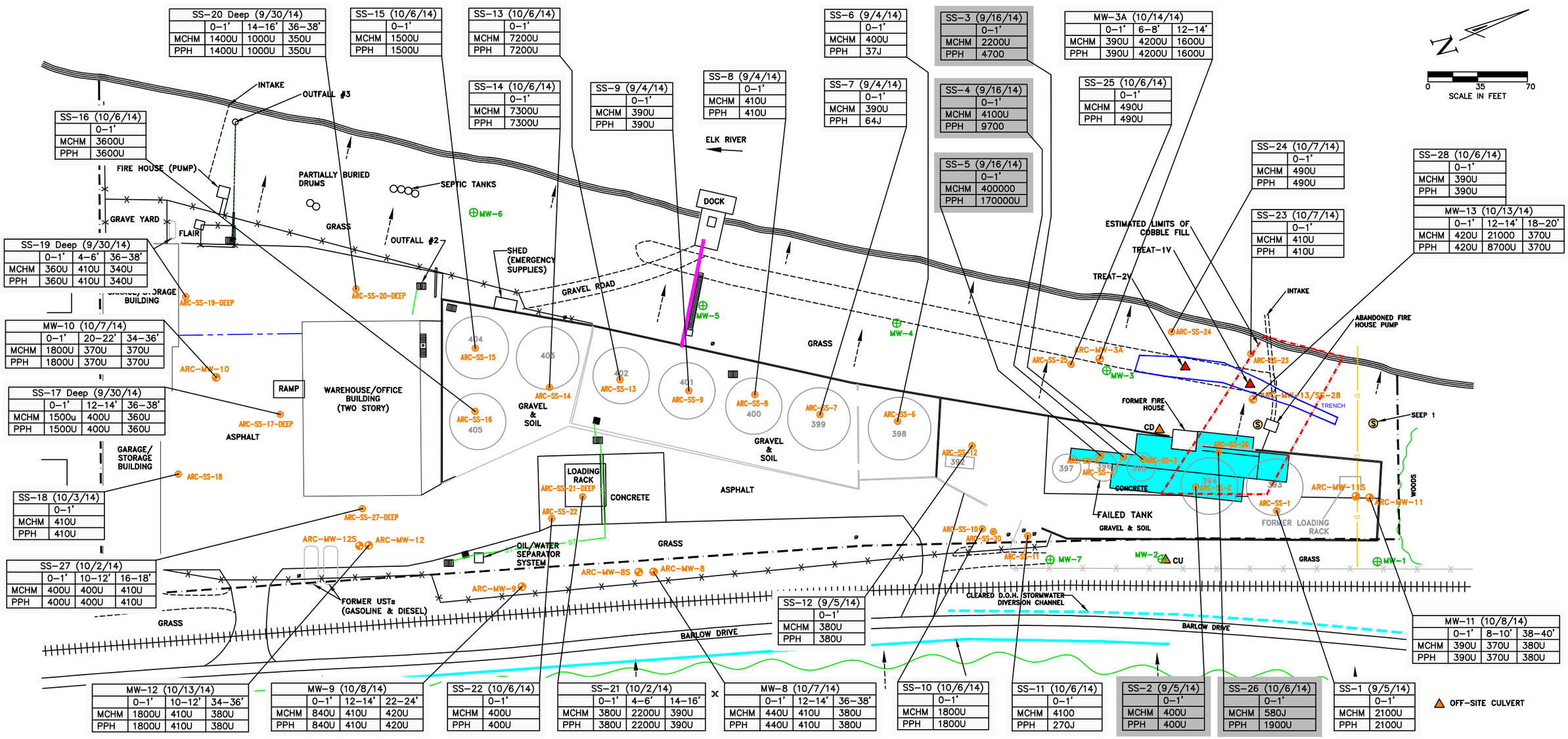
□OTENTIOMETRIC SUR□ACE MA□
DEE□ A□UI□ER
□ANUARY □□□□□□□□□□

ARCADIS

FIGURE
□□

REFERENCE: DRAWING CREATED FROM SHAW ENVIRONMENTAL, INC. BASE MAP DATED 10/31/05.

CITY:(Columbus, OH) DIV/GROUP:(IM/DV) DB:(R. Smith) LD:(Opt) PIC:(Opt) PM:(J. Manzo) TM:(Opt) LYR:(Off)On=*;OFF=REF*
G:\ENVCAD\Columbus-OH\ACT\OH003003 - FREEDOM INDUSTRIES\0001\0003\OH3003-1-3-2015-01.dwg LAYOUT: FIG 5B GW ELEV 010015 DEEP SAVED: 4/29/2015 1:55 PM ACADVER: 18.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ACAD.CTB PLOTTED: 4/29/2015 2:01 PM BY: SMITH, BOB
XREFS:



FREEDOM INDUSTRIES
1015 BARLOW DRIVE, CHARLESTON, WEST VIRGINIA

OH003003.0001

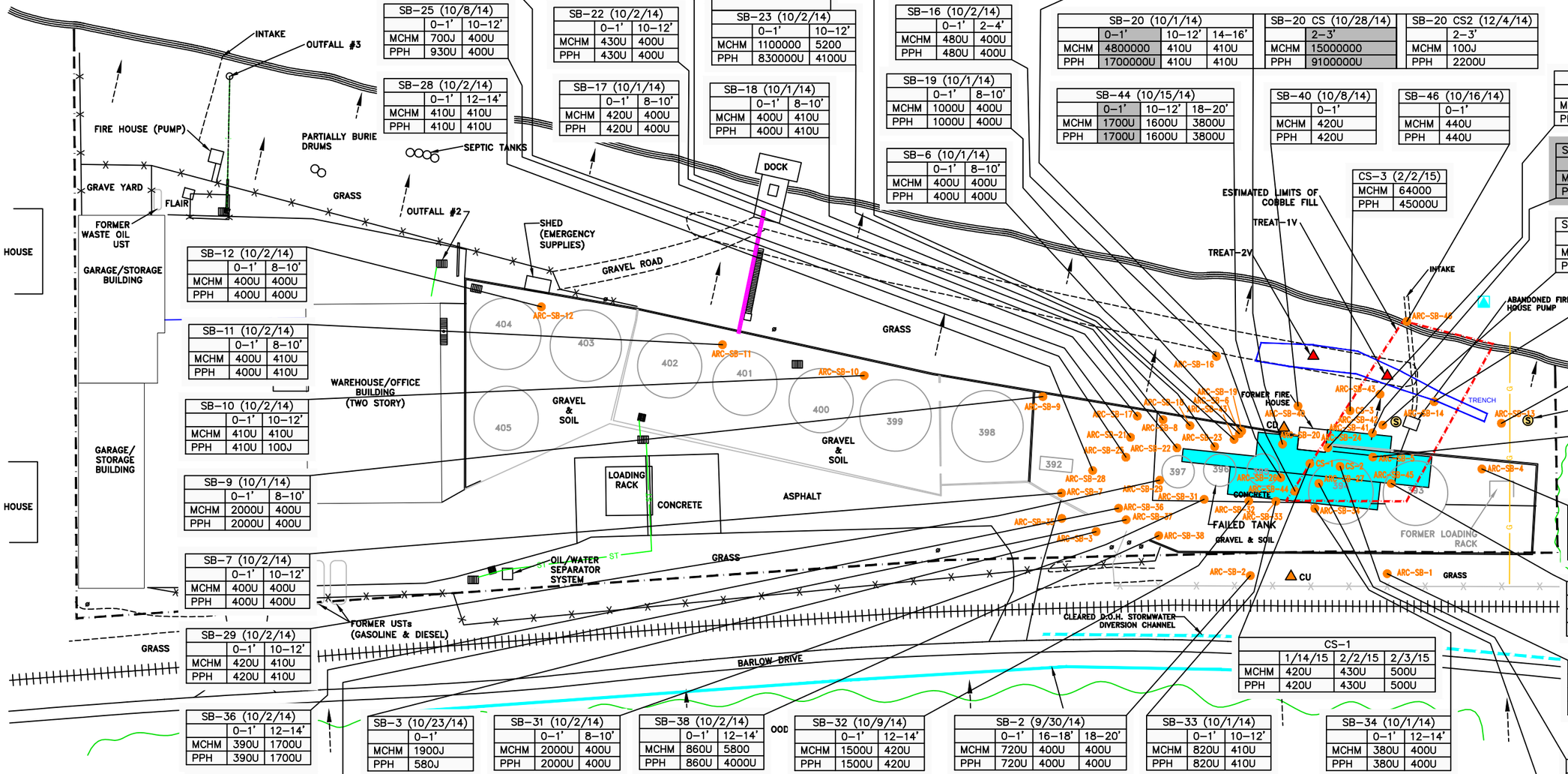
SOIL ANALYTICAL RESULTS

ARCADIS

FIGURE A

REFERENCE: DRAWING CREATED FROM SHAW ENVIRONMENTAL, INC. BASE MAP DATED 10/31/05.

CITY:(Columbus, Oh) DIV/GROUP:(IM/DV) DB:(R. Smith) LD:(Opt) PIC:(Opt) PM:(J. Marzo) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\Columbus-OH\ACT\OH003003 - FREEDOM INDUSTRIES\0001\003\OH3003-1-3-2015-01.dwg LAYOUT: FIG 6A - SS-MW-SW-SED SAMPLE DATA 2014 (2) SAVED: 4/29/2015 1:55 PM ACADVER: 18.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ACAD.CTB PLOTTED: 4/29/2015 2:08
PM BY: SMITH, BOB
XREFS:



SB-21 (10/2/14)	0-1'	8-10'
MCHM	400U	410U
PPH	400U	410U

SB-8 (10/1/14)	0-1'	8-10'
MCHM	410U	410U
PPH	410U	410U

SB-23CS (10/8/14)	0-1'
MCHM	2900
PPH	630J

SB-43 (10/15/14)	0-1'	6-8'	22-24'
MCHM	490000	20000	1900U
PPH	260000U	660J	1900U

SB-26 (10/1/14)	0-1'	8-10'	14-16'
MCHM	800000	3700	400U
PPH	400000U	2700U	400U

SB-26-CS (10/8/14)	0-1'
MCHM	1400000
PPH	1000000U

SB-25 (10/8/14)	0-1'	10-12'
MCHM	700J	400U
PPH	930U	400U

SB-22 (10/2/14)	0-1'	10-12'
MCHM	430U	400U
PPH	430U	400U

SB-23 (10/2/14)	0-1'	10-12'
MCHM	1100000	5200
PPH	830000U	4100U

SB-16 (10/2/14)	0-1'	2-4'
MCHM	480U	400U
PPH	480U	400U

SB-20 (10/1/14)	0-1'	10-12'	14-16'
MCHM	4800000	410U	410U
PPH	1700000U	410U	410U

SB-20 CS (10/28/14)	2-3'
MCHM	15000000
PPH	9100000U

SB-20 CS2 (12/4/14)	2-3'
MCHM	100J
PPH	2200U

SB-24 (10/1/14)	0-1'	10-12'	14-16'
MCHM	220000	400U	420U
PPH	100000U	400U	420U

SB-28 (10/2/14)	0-1'	12-14'
MCHM	410U	410U
PPH	410U	410U

SB-17 (10/1/14)	0-1'	8-10'
MCHM	420U	400U
PPH	420U	400U

SB-18 (10/1/14)	0-1'	8-10'
MCHM	400U	410U
PPH	400U	410U

SB-19 (10/1/14)	0-1'	8-10'
MCHM	1000U	400U
PPH	1000U	400U

SB-44 (10/15/14)	0-1'	10-12'	18-20'
MCHM	1700U	1600U	3800U
PPH	1700U	1600U	3800U

SB-40 (10/8/14)	0-1'
MCHM	420U
PPH	420U

SB-46 (10/16/14)	0-1'
MCHM	440U
PPH	440U

SB-41 (10/9/14)	0-1'
MCHM	420U
PPH	420U

CS-3 (2/2/15)	
MCHM	64000
PPH	45000U

SB-42 (10/9/14)	0-1'
MCHM	1800U
PPH	1800U

SB-6 (10/1/14)	0-1'	8-10'
MCHM	400U	400U
PPH	400U	400U

SB-14 (10/8/14)	0-1'
MCHM	420U
PPH	420U

SB-12 (10/2/14)	0-1'	8-10'
MCHM	400U	400U
PPH	400U	400U

SB-13 (10/8/14)	0-1'
MCHM	410U
PPH	410U

SB-11 (10/2/14)	0-1'	8-10'
MCHM	400U	410U
PPH	400U	410U

SB-10 (10/2/14)	0-1'	10-12'
MCHM	410U	410U
PPH	410U	100J

SB-5 (9/30/14)	0-1'	12-14'
MCHM	2000U	490U
PPH	2000U	490U

SB-9 (10/1/14)	0-1'	8-10'
MCHM	2000U	400U
PPH	2000U	400U

SB-4 (9/30/14)	0-1'	12-14'	22-24'
MCHM	410U	2000U	370U
PPH	410U	2000U	370U

SB-7 (10/2/14)	0-1'	10-12'
MCHM	400U	400U
PPH	400U	400U

SB-45 (10/16/14)	0-1'	12-14'	14-16'
MCHM	400U	440	370U
PPH	400U	380U	370U

SB-29 (10/2/14)	0-1'	10-12'
MCHM	420U	410U
PPH	420U	410U

CS-1	1/14/15	2/2/15	2/3/15
MCHM	420U	430U	500U
PPH	420U	430U	500U

SB-1 (9/30/14)	0-1'	16-18'	24-26'
MCHM	380U	420U	440U
PPH	380U	420U	440U

SB-36 (10/2/14)	0-1'	12-14'
MCHM	390U	1700U
PPH	390U	1700U

SB-3 (10/23/14)	0-1'
MCHM	1900J
PPH	580J

SB-31 (10/2/14)	0-1'	8-10'
MCHM	2000U	400U
PPH	2000U	400U

SB-38 (10/2/14)	0-1'	12-14'
MCHM	860U	5800
PPH	860U	4000U

OOD

SB-32 (10/9/14)	0-1'	12-14'
MCHM	1500U	420U
PPH	1500U	420U

SB-2 (9/30/14)	0-1'	16-18'	18-20'
MCHM	720U	400U	400U
PPH	720U	400U	400U

SB-33 (10/1/14)	0-1'	10-12'
MCHM	820U	410U
PPH	820U	410U

SB-34 (10/1/14)	0-1'	12-14'
MCHM	380U	400U
PPH	380U	400U

OFF-SITE CULVERT

CS-2	1/14/15	2/2/15
MCHM	2400	400U
PPH	1100U	400U

SB-37 (10/2/14)	0-1'	8-10'
MCHM	400U	420U
PPH	400U	420U

SB-27 (10/1/14)	0-1'
MCHM	3700U
PPH	3700U

LEGEND

- SEEP
- CULVERT SAMPLE
- SUMP SAMPLE
- SB DEEP SOIL BORING (38)
- HISTORICAL SITE FEATURES
- SOIL EXCAVATION
- GRAY SHADING INDICATES SOILS FROM THESE DEPTHS HAS BEEN EXCAVATED
- PROPERTY BOUNDARY
- FENCE
- RAILROAD TRACKS
- PRODUCT PIPING
- DIKE WALL
- STEEP SLOPE
- TREE LINE
- ST STORM SEWER LINE
- G NATURAL GAS LINE
- STEAM LINE
- DRAIN
- POLE

ARC-SB-7 (10/2/14)	SAMPLE IDENTIFICATION (DATE)
0-1'	SAMPLE DEPTH IN FEET
MCHM	4-METHYLCYCOHEXANEMETHANOL
PPH	GLYCOL ETHER
ug/kg	MICROGRAMS PER KILOGRAMS
WV DEP	WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION
U	NON DETECT

REFERENCE: DRAWING CREATED FROM SHAW ENVIRONMENTAL, INC. BASE MAP DATED 10/31/05.

FREEDOM INDUSTRIES
1015 BARLOW DRIVE, CHARLESTON, WEST VIRGINIA

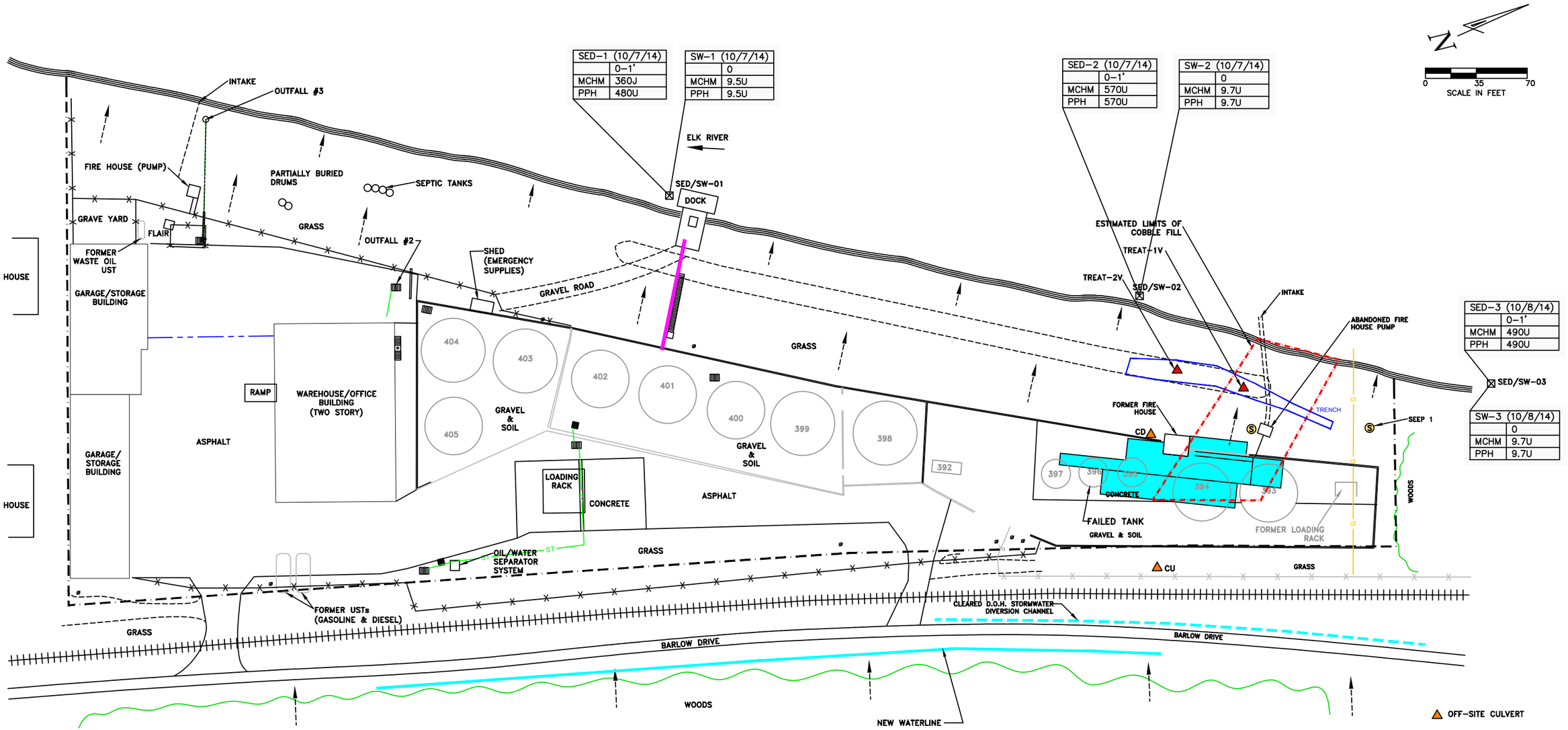
OH003003.0001

SOIL ANALYTICAL RESULTS

ARCADIS

FIGURE

CITY:(Columbus, OH) DIV/GROUP:(IM/DV) DB:(R. Smith) LD:(Opt) PIC:(Opt) PM:(J. Manzo) TM:(Opt) LYR:(On)On=*;Off=*REF*
G:\ENVCAD\Columbus-OH\ACTIVE\003003 - FREEDOM INDUSTRIES\0001\003OH-S003-1-3-2015-01.dwg LAYOUT: FIG 6B - SB SAMPLE DATA 2014 SAVED: 4/29/2015 1:55 PM ACADVER: 18.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ACAD.CTB PLOTTED: 4/29/2015 2:08 PM BY: SMITH, BOB
XREFS:



LEGEND

- SEDIMENT AND SURFACE WATER SAMPLE
- SEEP
- CULVERT SAMPLE
- SUMP SAMPLE
- HISTORICAL SITE FEATURES
- SOIL EXCAVATION
- PROPERTY BOUNDARY
- FENCE
- RAILROAD TRACKS
- PRODUCT PIPING
- DIKE WALL
- STEEP SLOPE
- TREE LINE
- STORM SEWER LINE
- NATURAL GAS LINE
- STEAM LINE
- DRAIN
- POLE

SED–1 (10/6/14)	SAMPLE IDENTIFICATION (DATE)
0–1'	SAMPLE DEPTH IN FEET
MCHM	4–METHYLCYCOHEXANEMETHANOL
PPH	GLYCOL ETHER
ug/kg	MICROGRAMS PER KILOGRAMS
WV DEP	WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION
U	NON DETECT

FREEDOM INDUSTRIES
1015 BARLOW DRIVE, CHARLESTON, WEST VIRGINIA

OH003003.0001

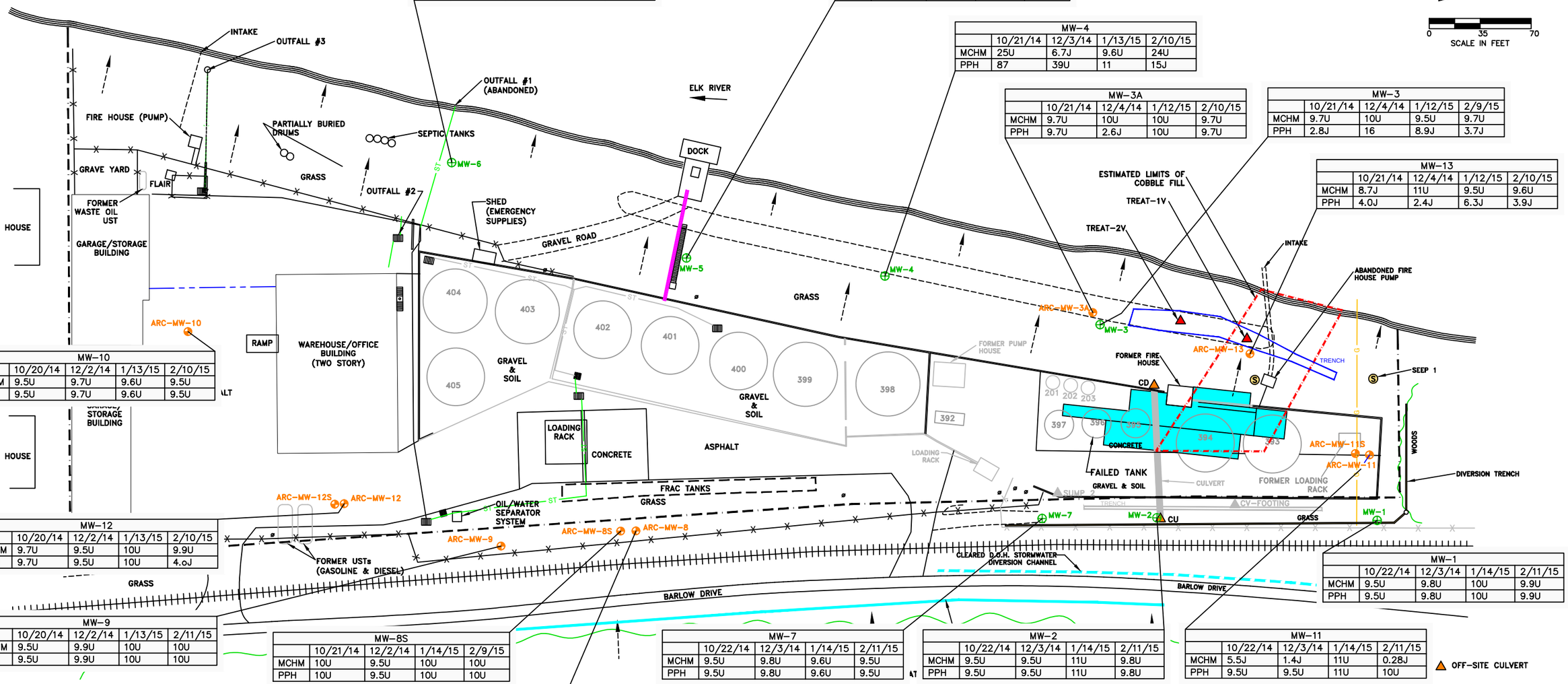
SEDIMENT AND SURFACE WATER ANALYTICAL RESULTS

ARCADIS

FIGURE

REFERENCE: DRAWING CREATED FROM SHAW ENVIRONMENTAL, INC. BASE MAP DATED 10/31/05.

CITY:(Columbus, Oh) DIV/GROUP:(IM/DV) DB:(R. Smith) LD:(Opt) PIC:(Opt) PM:(J. Marzo) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\Columbus-OH\ACTIO\H003003 - FREEDOM INDUSTRIES\0001\003\OH3003-1-3-2015-01.dwg LAYOUT: FIG 7 - SW-SED SAMPLE DATA 2014
SAVED: 4/29/2015 2:08 PM ACADVER: 18.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ACAD.CTB PLOTTED: 4/29/2015 2:10 PM BY:
SMITH, BOB
XREFS:



MW-6	10/21/14	12/3/14	1/13/15	2/10/15
MCHM	9.9U	10U	9.6U	9.5U
PPH	9.9U	10U	9.6U	9.5U

MW-5	10/21/14	12/1/14	1/13/15	2/9/15
MCHM	9.8U	9.5U	9.8U	9.8U
PPH	9.8U	9.5U	9.8U	9.8J

MW-4	10/21/14	12/3/14	1/13/15	2/10/15
MCHM	25U	6.7J	9.6U	24U
PPH	87	39U	11	15J

MW-3A	10/21/14	12/4/14	1/12/15	2/10/15
MCHM	9.7U	10U	10U	9.7U
PPH	9.7U	2.6J	10U	9.7U

MW-3	10/21/14	12/4/14	1/12/15	2/9/15
MCHM	9.7U	10U	9.5U	9.7U
PPH	2.8J	16	8.9J	3.7J

MW-13	10/21/14	12/4/14	1/12/15	2/10/15
MCHM	8.7J	11U	9.5U	9.6U
PPH	4.0J	2.4J	6.3J	3.9J

MW-10	10/20/14	12/2/14	1/13/15	2/10/15
MCHM	9.5U	9.7U	9.6U	9.5U
PPH	9.5U	9.7U	9.6U	9.5U

MW-12	10/20/14	12/2/14	1/13/15	2/10/15
MCHM	9.7U	9.5U	10U	9.9U
PPH	9.7U	9.5U	10U	4.oJ

MW-1	10/22/14	12/3/14	1/14/15	2/11/15
MCHM	9.5U	9.8U	10U	9.9U
PPH	9.5U	9.8U	10U	9.9U

MW-9	10/20/14	12/2/14	1/13/15	2/11/15
MCHM	9.5U	9.9U	10U	10U
PPH	9.5U	9.9U	10U	10U

MW-8S	10/21/14	12/2/14	1/14/15	2/9/15
MCHM	10U	9.5U	10U	10U
PPH	10U	9.5U	10U	10U

MW-7	10/22/14	12/3/14	1/14/15	2/11/15
MCHM	9.5U	9.8U	9.6U	9.5U
PPH	9.5U	9.8U	9.6U	9.5U

MW-2	10/22/14	12/3/14	1/14/15	2/11/15
MCHM	9.5U	9.5U	11U	9.8U
PPH	9.5U	9.5U	11U	9.8U

MW-11	10/22/14	12/3/14	1/14/15	2/11/15
MCHM	5.5J	1.4J	11U	0.28J
PPH	9.5U	9.5U	11U	10U

MW-8	10/20/14	12/2/14	1/14/15	2/9/15
MCHM	9.5U	9.7U	9.6U	10U
PPH	9.5U	9.7U	9.6U	10U

OFF-SITE CULVERT

LEGEND

- EXISTING WELL
- SEEP
- CULVERT SAMPLE
- SUMP SAMPLE
- MONITORING WELL (ARCADIS)
- HISTORICAL SITE FEATURES
- SOIL EXCAVATION
- PROPERTY BOUNDARY
- FENCE
- RAILROAD TRACKS
- PRODUCT PIPING
- DIKE WALL
- STEEP SLOPE
- TREE LINE
- STORM SEWER LINE
- NATURAL GAS LINE
- STEAM LINE
- DRAIN
- POLE

NOTES:
1. NO SAMPLES COLLECTED FROM MW-11S OR MW-12S DUE TO INSUFFICIENT WATER VOLUME.
2. ALL ASTs HAVE BEEN REMOVED.
3. FLAIR AND PIPING REMOVED.
4. FUEL LOCADING RACK REMOVED.
5. OIL LOADING RACK REMOVED.

FREEDOM INDUSTRIES
1015 BARLOW DRIVE, CHARLESTON, WEST VIRGINIA

OH003003.0001

GROUNDWATER ANALYTICAL RESULTS

ARCADIS

FIGURE 8

REFERENCE: DRAWING CREATED FROM SHAW ENVIRONMENTAL, INC. BASE MAP DATED 10/31/05.

CITY:(Columbus, OH) DIV/GROUP:(IM/DV) DB:(R. Smith) LD:(Opt) PIC:(Opt) PM:(J. Manzo) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\Columbus-OH\ACT\OH003003 - FREEDOM INDUSTRIES\0001\0003\OH3003-1-3-2015-01.dwg LAYOUT: FIG 8 - GW DATA SAVED: 4/29/2015 2:08 PM ACADVER: 18.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ACAD.CTB PLOTTED: 4/29/2015 2:11 PM BY: SMITH, BOB
XREFS:

ARCADIS

Appendix A

Soil Boring Logs

BORING/WELL CONSTRUCTION LOG

WELL NO.: **SB-1/MW-1**

TOTAL DEPTH: **40** **feet bgs**

PROJECT INFORMATION

CLIENT:	**Freedom Industries, Inc.**
SITE LOCATION:	**1015 Barlow Drive**
CITY, STATE:	**Charleston, West Virginia**
PROJECT NUMBER:	**OH003003.0001**
LOGGED BY:	**Lewis Eplin (CEC Consulting)**

DRILLING INFORMATION

DRILLING CO.:	**Enviroprobe**
DRILLER:	**D.K., R.C.H.**
DRILLING METHOD:	**Direct Push**
DATE STARTED:	**01/12/2014**
DATE COMPLETED:	**01/12/2014**

Depth (feet)	Recovery (inches)	PID (ppm)	Soil Symbol	USCS Classification	SOIL DESCRIPTION
0–4	NM, NM	NM, NM		FILL	(0.0 - 5.0) FILL gravelly silty sand, moist, medium dense, (based on visual observation of auger from knife/vac.). Sandstone fragments, some concrete near surface, dark brown to brown with clay at 3 feet, medium, odor from air knife hole below 3 feet.
6–8	30, 30	<1, <1		CL	(5.0 - 10.0) Silty CLAY, moist, medium stiff, brown mottled gray. Note: At 9 feet soft.
10–16	30, 30, 30	<1, <1, <1		CL	(10.0 - 17.5) Silty CLAY, moist to very moist, soft, medium plasticity, reddish brown.
18–20	30, 30	<1, 1.2		CL	(17.5 - 21.5) Silty CLAY with sand, very moist, soft, few sandstone fragments, brown.
22–28	30, 30, 30	1.2, 1.9, 1.2		CL	(21.5 - 30.0) Silty CLAY, moist to very moist, soft with gravel (rounded) at 26 feet, wet zone 27.5 to 29.0 feet.
30–36	24, 30, 30	<1, <1, 1.4		SP	(30.0 - 37.0) Gravelly clayey SAND, moist to very moist, loose, gray.
38–40	30	1.7		ML	(37.0 - 40.0) SILT, dry, stiff to very stiff, gray, siltstone fragments at 39 feet. End of boring at 40 feet.

WELL CONSTRUCTION DETAILS

- Flush Mount Concrete (0 to 1 ft)
- 2" PVC Sch 40 Casing (0 to 18.5 ft)
- Backfill natural collapse
- Bentonite pellets (15 to 18.5 ft)
- Sand Pack (18.5 to 33.5 ft)
- 2" Screen slot size 0.10 (18.5 to 33.5 ft)

Notes:

bgs: below ground surface
ppm: parts per million
USCS: Unified Soil Classification System
NM: Not measured
NA: Not Available
PID: Photo-ionization Detector
ft: feet
HA: Hand auger
*Indicates sample submitted for laboratory analysis.

Date: 2/17/2015

BORING/WELL CONSTRUCTION LOG

WELL NO.: **SB-2/MW-2**

TOTAL DEPTH: **43.5 feet bgs**

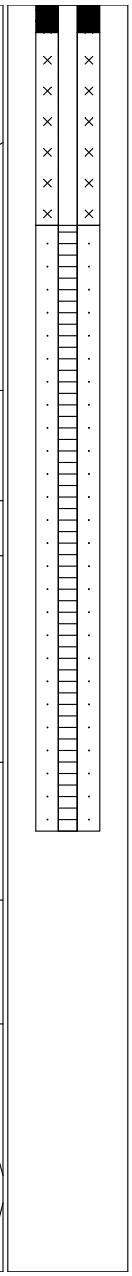
PROJECT INFORMATION

CLIENT:	**Freedom Industries, Inc.**
SITE LOCATION:	**1015 Barlow Drive**
CITY, STATE:	**Charleston, West Virginia**
PROJECT NUMBER:	**OH003003.0001**
LOGGED BY:	**Lewis Eplin (CEC Consulting)**

DRILLING INFORMATION

DRILLING CO.:	**Enviroprobe**
DRILLER:	**D.K., R.C.H.**
DRILLING METHOD:	**Direct Push**
DATE STARTED:	**1/12/2014**
DATE COMPLETED:	**1/12/2014**

Depth (feet)	Recovery (inches)	PID (ppm)	Soil Symbol	USCS Classification	SOIL DESCRIPTION
0–2	NM	NM		FILL	(0.0 - 5.0) FILL, gravelly silty sand, moist, loose, dark brown to black.
2–4	NM	NM			Note: At 2 feet brown. Note: At 3.5 feet silty clay with gravel.
4–6	30	1.6		CL	(5.0 - 14.0) Silty CLAY with sand, trace gravel, (sandstone fragments), mist, medium stiff, brown mottled gray.
6–8	30	1.1			
8–10	30	<1			Note: At 10 to 12 feet no sand.
10–12					Note: At 12 feet wet.
12–14	30	12.5		CL	(14.0 - 18.0) Silty CLAY, moist to very moist, soft, plastic, reddish brown.
14–16	24	<1			
16–18	30	<1		CL	(18.0 - 20.0) Silty CLAY with sand, very moist, soft, brown.
18–20	30	<1		CL	(20.0 - 27.5) Silty CLAY, very moist, soft, trace sand, gray.
20–22	30	<1			
22–24	24	<1			
24–26	24	<1		SP	(27.5 - 32.5) Gravelly clayey SAND, moist, medium dense, gray.
26–28	30	<1			
28–30	30	<1		CL	(32.5 - 37.0) Gravelly silty CLAY, moist, soft, brown to gray.
30–32	30	1.3			
32–34	30	1.8		ML	(37.0 - 42.5) Gravelly SILT, moist, medium stiff, siltstone fragments, gray.
34–36	30	1.4			
36–38	12	NM		STONE	(42.5 - 43.5) SILTSTONE, highly weathered, soft, dark gray to gray. End of boring at 43.5 feet, refusal.



WELL CONSTRUCTION DETAILS

- Flush Mount Concrete (0 to 1 ft)
- 2" PVC Sch 40 Casing (0 to 8 ft)
- Bentonite pellets (1 to 8 ft)
- Sand Pack (8 to 30 ft)
- 2" Screen slot size 0.10 (15 to 30 ft)

Notes:

bgs: below ground surface
USCS: Unified Soil Classification System
PID: Photo-ionization Detector
ppm: parts per million
NM: Not measured
NA: Not Available
ft: feet
HA: Hand auger
*Indicates sample submitted for laboratory analysis.

Date: 2/17/2015
Page: 1 of 1

BORING/WELL CONSTRUCTION LOG

WELL NO.: **SB-3/MW-3**

TOTAL DEPTH: **20** **feet bgs**

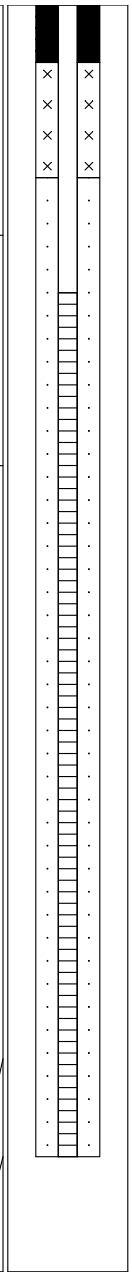
PROJECT INFORMATION

CLIENT:	**Freedom Industries, Inc.**
SITE LOCATION:	**1015 Barlow Drive**
CITY, STATE:	**Charleston, West Virginia**
PROJECT NUMBER:	**OH003003.0001**
LOGGED BY:	**Lewis Elpin (CEC Consulting)**

DRILLING INFORMATION

DRILLING CO.:	**Enviroprobe**
DRILLER:	**D.K, M.H., J.L.**
DRILLING METHOD:	**Direct Push**
DATE STARTED:	**01/13/2014**
DATE COMPLETED:	**01/13/2014**

Depth (feet)	Recovery (inches)	PID (ppm)	Soil Symbol	USCS Classification	SOIL DESCRIPTION
0	24	<1		CL	(0.0 - 4.0) Grass cover, sandy silty CLAY, moist, soft, brown. (Hand Clear to 5.0 feet).
2	NM	NM			
4				CL	(4.0 - 8.0) Clayey SAND, very moist to wet, loose, strong odor, gray.
6	18	14.4			
8	20	1.6		SP	(8.0 - 18.3) Silty SAND, moist, loose, brown.
10	30	<1			
12	30	<1			Note: At 13 feet wet.
14	30	1391			
16	30	26.7			Note: At 18 feet gray, black staining and at 18 to 18.3 feet and strong odor.
18				SP	(18.3 - 20.0) Silty SAND, wet, medium dense, gray. End of boring at 20 feet.
20					
22					



WELL CONSTRUCTION DETAILS

Flush Mount

Concrete (0 to 1 ft)

2" PVC Sch 40 Casing (0 to 5 ft)

Bentonite pellets (1 to 3 ft)

Sand Pack (3 to 20 ft)

2" Screen slot size 0.10 (5 to 20 ft)

Notes:
bgs: below ground surface USCS: Unified Soil Classification System PID: Photo-ionization Detector
ppm: parts per million NM: Not measured NA: Not Available ft: feet
*Indicates sample submitted for laboratory analysis. HA: Hand auger

Date: 2/17/2015
Page: 1 of 1

BORING/WELL CONSTRUCTION LOG

WELL NO.: **MW-3A**

TOTAL DEPTH: **25** **feet bgs**

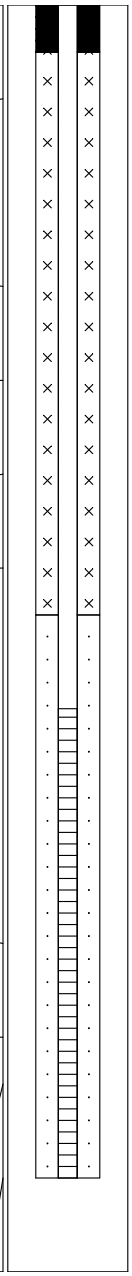
PROJECT INFORMATION

CLIENT:	**Freedom Industries, Inc.**
SITE LOCATION:	**1015 Barlow Drive**
CITY, STATE:	**Charleston, West Virginia**
PROJECT NUMBER:	**OH003003.0001**
LOGGED BY:	**C. Richardson/A. Gillespie**

DRILLING INFORMATION

DRILLING CO.:	**Cascade Drilling**
DRILLER:	**Unknown**
DRILLING METHOD:	**Sonic**
DATE STARTED:	**10/14/2014**
DATE COMPLETED:	**10/14/2014**

Depth (feet)	Recovery (inches)	PID (ppm)	Soil Symbol	USCS Classification	SOIL DESCRIPTION
0	NM	*17.3		CL	(0.0 - 2.0) Sandy CLAY, some silt, some gravel up to 1.5" diameter, moist, medium stiff, some organics, low plasticity, dark reddish brown.
2	NM	23.3		CL	(2.0 - 6.0) Silty CLAY, trace gravel, trace to little fine sand, moist, medium stiff, low plasticity, dark brown.
4	NM	212.3			Note: At 4 to 6 feet soft, very moist to wet at depth, sharp contract below.
6	NM	*718.5		CL	(6.0 - 8.0) Sandy CLAY grading downward to clayey sand, fine sand, some sub-rounded gravel, gray, wet, sharp contact below, odor.
8	NM	28.1		SP	(8.0 - 10.0) Silty SAND, fine sand, some sub-rounded gravel, few sub-rounded cobbles, reddish brown, odor, very moist, loose, contact sharp below.
10	NM	271		ML	(10.0 - 12.0) SILT, trace to little sand some clay, very soft, wet, low plasticity, contact sharp below, odor, gray
12	NM	*279.8		SP	(12.0 - 20.0) Silty SAND, fine to medium sand, trace sub-rounded gravel up to 0.5" in diameter, very moist, loose, tan-brown.
14	NM	32.3			
16	NM	25.7			
18	NM	22.3			Note: At 18 to 20 feet contact sharp below.
20	NM	14.3		SP	(20.0 - 22.0) Silty SAND, wet to saturated, some sub-rounded gravel up to 1" in diameter, loose to medium dense, contact sharp below, fine to medium sand, gray.
22	NM	18.7		SP	(22.0 - 23.0) Silty SAND with gravel, some clay, wet, sub-rounded gravel up to cobble size, medium dense, yellowish brown.
				SP	
24	NM	13.4			(23.0 - 25.0) Silty SAND with gravel, wet, with sub-rounded gravel up to 1" in diameter, gray.
26					End of boring at 25 feet.



WELL CONSTRUCTION DETAILS

Flush Mount

Concrete (0 to 1 ft)

2" PVC Sch 40 Casing (0 to 25 ft)

Bentonite pellets (1 to 13 ft)

Sand Pack (13 to 25 ft)

2" Screen slot size 0.10 (15 to 25 ft)

Notes:

bgs: below ground surface
ppm: parts per million
USCS: Unified Soil Classification System
NM: Not measured
NA: Not Available
PID: Photo-ionization Detector
ft: feet
HA: Hand auger
*Indicates sample submitted for laboratory analysis.

Date: 1/23/2015
Page: 1 of 1

BORING/WELL CONSTRUCTION LOG

WELL NO.: **SB-4/MW-4**

TOTAL DEPTH: **20** **feet bgs**

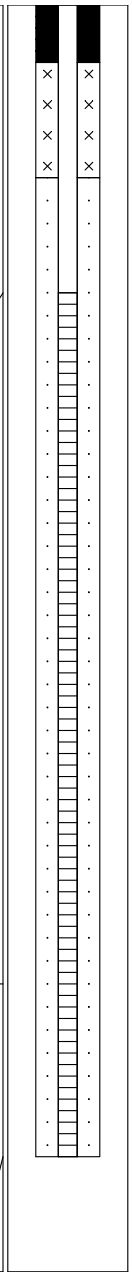
PROJECT INFORMATION

CLIENT:	**Freedom Industries, Inc.**
SITE LOCATION:	**1015 Barlow Drive**
CITY, STATE:	**Charleston, West Virginia**
PROJECT NUMBER:	**OH003003.0001**
LOGGED BY:	**Lewis Eplin (CEC Consulting)**

DRILLING INFORMATION

DRILLING CO.:	**Enviroprobe**
DRILLER:	**D.K, M.H., J.L.**
DRILLING METHOD:	**Direct Push**
DATE STARTED:	**01/13/2014**
DATE COMPLETED:	**01/13/2014**

Depth (feet)	Recovery (inches)	PID (ppm)	Soil Symbol	USCS Classification	SOIL DESCRIPTION
0	20	<1		CL	(0.0 - 5.0) Grass cover, silty CLAY, moist, soft, dark brown. (Hand Clear to 5.0 feet).
2	12	369			Note: At 4.5 feet gray, strong odor.
4	20	454		SP	(5.0 - 17.0) Silty SAND, moist, loose, medium dense, strong odor, gray.
6	20	601			
8	24	960			Note: At 10 feet trace clay. Note: At 11 feet wet.
10	24	822			
12	30	530			
14	30	NM		SP	(17.0 - 20.0) Clayey SAND, wet, loose, brown.
16					End of boring at 20 feet.
18					
20					
22					



WELL CONSTRUCTION DETAILS

- Flush Mount
- Concrete (0 to 1 ft)
- 2" PVC Sch 40 Casing (0 to 5 ft)
- Bentonite pellets (1 to 3 ft)
- Sand Pack (3 to 20 ft)
- 2" Screen slot size 0.10 (5 to 20 ft)

Notes:

bgs: below ground surface
USCS: Unified Soil Classification System
PID: Photo-ionization Detector
ppm: parts per million
NM: Not measured
NA: Not Available
ft: feet
HA: Hand auger
*Indicates sample submitted for laboratory analysis.

Date: 2/17/2015
Page: 1 of 1

BORING/WELL CONSTRUCTION LOG

WELL NO.: **MW-8**

TOTAL DEPTH: **40** **feet bgs**

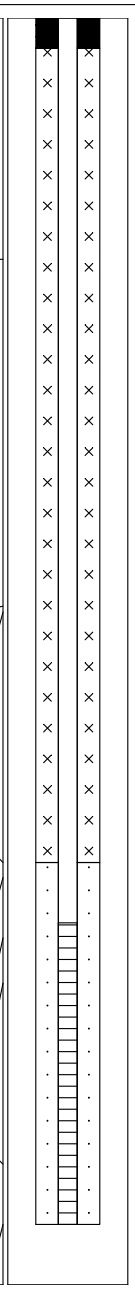
PROJECT INFORMATION

CLIENT:	**Freedom Industries, Inc.**
SITE LOCATION:	**1015 Barlow Drive**
CITY, STATE:	**Charleston, West Virginia**
PROJECT NUMBER:	**OH003003.0001**
LOGGED BY:	**J. Ferry/A. Gillespie**

DRILLING INFORMATION

DRILLING CO.:	**Cascade Drilling**
DRILLER:	**Unknown**
DRILLING METHOD:	**Sonic**
DATE STARTED:	**10/07/2014**
DATE COMPLETED:	**10/07/2014**

Depth (feet)	Recovery (inches)	PID (ppm)	Soil Symbol	USCS Classification	SOIL DESCRIPTION
0	NM	*1.2		CL	(0.0 - 8.0) Silty sandy CLAY, firm, plastic, dry, dark brown-orange.
2	NM	1.2			
4	NM	1.7			
6	NM	2.3			
8	NM	2.5		CL	(8.0 - 19.5) Silty sandy CLAY, mottled, very firm, hard, very plastic, dry. brown-red-tan.
10	NM	8.3			
12	NM	*20.4			
14	NM	5.2			
16	NM	6.7			Note: At 16 feet becomes loose, wet.
18	NM	4.0			Note: At 18 feet becomes very firm, very plastic, very hard.
20	NM	3.6		SP	(19.5 - 19.7) SAND lense, coarse 1-2 cm, red-orange-tan.
22	NM	3.6		CL	(19.7 - 28.0) Silty sandy CLAY, wet, loose, gray-green.
24	NM	2.8			
26	NM	2.7			Note: At 26 feet sand conten increasing.
28	NM	7.8		SP	(28.0 - 28.5) Clayey SAND, low plastic, dry, moderate firm, brown-gray.
30	NM	3.2		SP	(28.5 - 30.5) Coarse SAND, loose, dry, angular 1-2 cm gravels, gray.
32	NM	7.2		CL	(30.5 - 32.0) Sandy CLAY, loose, slight plastic, wet, gray-green.
34	NM	15.3		CL	(32.0 - 38.0) Sandy CLAY, silty, firm, plastic, wet, gray-green.
36	NM	*18.8			
38	NM	13.9		SANDSTONE	(38.0 - 40.0) Weathered SANDSTONE, coarse grained sand, dry, non-plastic, slight cohesive, gray-tan-white.
40					End of boring at 40 feet bedrock-sandstone.
42					



WELL CONSTRUCTION DETAILS

Flush Mount Concrete (0 to 1 ft)

2" PVC Sch 40 Casing (0 to 40 ft)

Bentonite pellets (1 to 28 ft)

Sand Pack (28 to 40 ft)

2" Screen slot size 0.10 (30 to 40 ft)

Notes:

bgs: below ground surface
ppm: parts per million
USCS: Unified Soil Classification System
NM: Not measured
NA: Not Available
PID: Photo-ionization Detector
ft: feet
HA: Hand auger
*Indicates sample submitted for laboratory analysis.

Date: 1/23/2015
Page: 1 of 1

BORING/WELL CONSTRUCTION LOG

WELL NO.: **MW-8S**

TOTAL DEPTH: **40** **feet bgs**

PROJECT INFORMATION

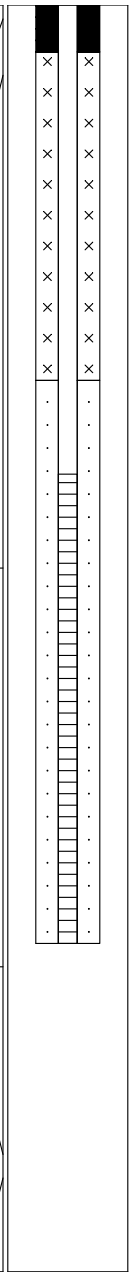
CLIENT:	**Freedom Industries, Inc.**
SITE LOCATION:	**1015 Barlow Drive**
CITY, STATE:	**Charleston, West Virginia**
PROJECT NUMBER:	**OH003003.0001**
LOGGED BY:	**J. Ferry/A. Gillespie**

DRILLING INFORMATION

DRILLING CO.:	**Cascade Drilling**
DRILLER:	**Unknown**
DRILLING METHOD:	**Sonic**
DATE STARTED:	**10/08/2014**
DATE COMPLETED:	**10/08/2014**

Depth (feet)	Recovery (inches)	PID (ppm)	Soil Symbol	USCS Classification	SOIL DESCRIPTION
0	NM	NM		GRASS	(0.0 - 0.3) GRASS, organics, dark brown, black soil.
2	NM	NM		CL	(0.3 - 1.5) Sandy silty CLAY, organic, dry, firm plastic, dark brown-black.
4	NM	NM		CL	(1.5 - 12.0) Silty sandy CLAY, firm hard, stiff, dry, very plastic, brown-orange-tan.
6	NM	NM			
8	NM	NM			
10	NM	NM			
12	NM	NM		SP	(12.0 - 20.5) SAND clayey, loose, wet, slight plastic, brown. Note: At 12.5 feet changes to moist, moderate firm.
14	NM	NM			
16	NM	NM			
18	NM	NM			
20	NM	NM		CL	(20.5 - 24.5) Sandy CLAY, moderat firm, moist, mottled, gray-brown.
22	NM	NM			
24	NM	NM		SP	(24.5 - 25.0) SAND, coarse clayey, no plastic, loose, dry, gray-green. End of boring at 25 feet.
26					

WELL CONSTRUCTION DETAILS



Flush Mount

Concrete (0 to 1 ft)

Bentonite pellets (1 to 8 ft)

2" PVC Sch 40 Casing (0 to 20 ft)

Sand Pack (8 to 20 ft)

2" Screen slot size 0.10 (10 to 20 ft)

Notes:

bgs: below ground surface
USCS: Unified Soil Classification System
PID: Photo-ionization Detector
ppm: parts per million
NM: Not measured
NA: Not Available
ft: feet
HA: Hand auger
*Indicates sample submitted for laboratory analysis.

Date: 1/23/2015
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BORING/WELL CONSTRUCTION LOG

WELL NO.: **MW-9**

TOTAL DEPTH: **35** **feet bgs**

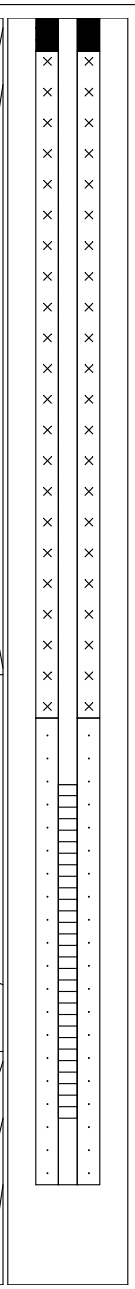
PROJECT INFORMATION

CLIENT:	**Freedom Industries, Inc.**
SITE LOCATION:	**1015 Barlow Drive**
CITY, STATE:	**Charleston, West Virginia**
PROJECT NUMBER:	**OH003003.0001**
LOGGED BY:	**J. Ferry/A. Gillespie**

DRILLING INFORMATION

DRILLING CO.:	**Cascade Drilling**
DRILLER:	**Unknown**
DRILLING METHOD:	**Sonic**
DATE STARTED:	**10/08/2014**
DATE COMPLETED:	**10/08/2014**

Depth (feet)	Recovery (inches)	PID (ppm)	Soil Symbol	USCS Classification	SOIL DESCRIPTION
0	NM	*7.5		GRASS	(0.0 - 0.3) GRASS with organic clayey soil with trace - 10% backfill pea gravel.
2	NM	9.2		CL	(0.3 - 2.0) Organic CLAYEY soil, slight plastic, firm with 10% backfill gravels, dark brown.
4	NM	19.5		CL	(2.0 - 19.5) Sandy CLAY, mottled, firm, hard, dry, very plastic, brown-orange-tan.
6	NM	22.6			
8	NM	22.9			
10	NM	23.8			
12	NM	*25.6			Note: At 12 feet becomes less firm, moist.
14	NM	23.5			
16	NM	23.9			
18	NM	24.1			(19.5 - 19.7) SAND seam, coarse, mottled, loose, clayey, non-plastic, dry, gray-tan-orange.
20	NM	24.7		SP	(19.7 - 29.0) Fine sandy silty CLAY, moderate to firm, most, very plastic, gray-green.
22	NM	*24.4		CL	Note: At 21 feet becomes ver moist.
24	NM	22.8			
26	NM	19.1			
28	NM	13.7			
30	NM	10.6		SP	(29.0 - 31.0) SAND seam, mottled coarse grained, loose, clayey with 10% gravels angular, gray-tan-orange.
32	NM	14.2		SP	(31.0 - 31.3) Coarse SAND and gravels seam, 1-2 cm, wet.
34				CL	(31.3 - 33.0) Mottled fine sandy silty CLAY, moderate to firm, moist, plastic.
36				SANDSTONE	(33.0 - 35.0) Weathered SANDSTONE. End of boring at 35 feet, sandstone and bedrock.
38					



WELL CONSTRUCTION DETAILS

- Flush Mount Concrete (0 to 1 ft)
- 2" PVC Sch 40 Casing (0 to 35 ft)
- Bentonite pellets (1 to 21 ft)
- Sand Pack (21 to 35 ft)
- 2" Screen slot size 0.10 (23 to 33 ft)

Notes:

bgs: below ground surface
ppm: parts per million
USCS: Unified Soil Classification System
NM: Not measured
NA: Not Available
PID: Photo-ionization Detector
ft: feet
HA: Hand auger
*Indicates sample submitted for laboratory analysis.

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BORING/WELL CONSTRUCTION LOG

WELL NO.: **MW-10**

TOTAL DEPTH: **45** **feet bgs**

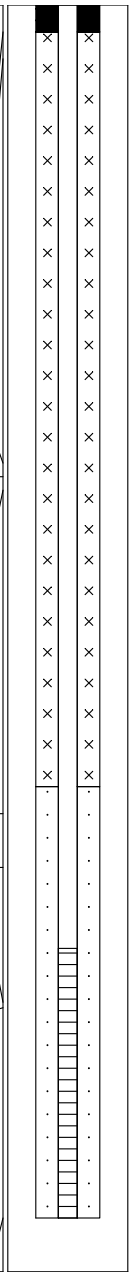
PROJECT INFORMATION

CLIENT:	**Freedom Industries, Inc.**
SITE LOCATION:	**1015 Barlow Drive**
CITY, STATE:	**Charleston, West Virginia**
PROJECT NUMBER:	**OH003003.0001**
LOGGED BY:	**J. Ferry/A. Gillespie**

DRILLING INFORMATION

DRILLING CO.:	**Cascade Drilling**
DRILLER:	**Unknown**
DRILLING METHOD:	**Sonic**
DATE STARTED:	**10/07/2014**
DATE COMPLETED:	**10/07/2014**

Depth (feet)	Recovery (inches)	PID (ppm)	Soil Symbol	USCS Classification	SOIL DESCRIPTION
0	NM	*1.5		ASPHALT	(0.0 - 1.0) ASPHALT to 0.2 feet.
2	NM	1.2		CL	CONCRETE to 0.8 feet.
4	NM	1.4		CL	GRAVEL to 1 foot.
6	NM	1.4			(1.0 - 2.0) Silty CLAY with pea gravel, firm, dry, plastic, brown.
8	NM	2.1			(2.0 - 17.0) Silty CLAY, mottled, firm, dry, plastic, 10% roots and gravels, 1" to 3" sub-angular, brown-tan-orange.
10	NM	1.4			
12	NM	0.9			
14	NM	4.2			
16	NM	2.4			(17.0 - 17.5) SAND, coarse, loose, gray-tan.
18	NM	0.4		SP	(17.5 - 18.0) Silty CLAY, mottled, firm, dry, plastic, 10% roots, sub-angular, brown-tan-orange.
20	NM	*14.2		CL	
22	NM	1.7		SP	(18.0 - 30.0) SAND, medium to coarse, dry, loose, tand-brown.
24	NM	0.9			
26	NM	2.0			
28	NM	2.2			
30	NM	28.5		CL	(30.0 - 32.0) Sandy CLAY, moderate firm, plastic, dry, brown-tan.
32	NM	62.6		SP	(32.0 - 37.0) SAND, medium to coarse, dry, loose, 10% gravels rounded, tan-brown.
34	NM	*70.1			(37.0 - 37.2) Silty sand CLAY, mottled, firm, dry, plastic, brown-orange.
36	NM	19.2		CL	
38	NM	1.1		SP	(37.2 - 45.0) SAND, medium to coarse, moist, loose, non-plastic, wet, brown.
40	NM	0.7			Note: At 37.2 feet becomes moist.
42	NM	0.3			Note: At 39 feet 2" clay seam.
44					
46					End of boring at 45 feet no bedrock.



WELL CONSTRUCTION DETAILS

Flush Mount Concrete (0 to 1 ft)

2" PVC Sch 40 Casing (0 to 45 ft)

Bentonite pellets (1 to 29 ft)

Sand Pack (29 to 45 ft)

2" Screen slot size 0.10 (35 to 45 ft)

Notes:

bgs: below ground surface
USCS: Unified Soil Classification System
PID: Photo-ionization Detector
ppm: parts per million
NM: Not measured
NA: Not Available
ft: feet
HA: Hand auger
*Indicates sample submitted for laboratory analysis.

Date: 1/23/2015
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BORING/WELL CONSTRUCTION LOG

WELL NO.: **MW-11**

TOTAL DEPTH: **40** **feet bgs**

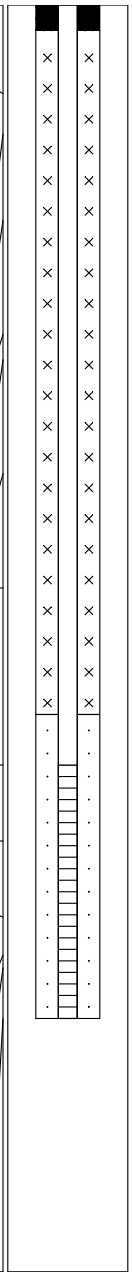
PROJECT INFORMATION

CLIENT:	**Freedom Industries, Inc.**
SITE LOCATION:	**1015 Barlow Drive**
CITY, STATE:	**Charleston, West Virginia**
PROJECT NUMBER:	**OH003003.0001**
LOGGED BY:	**J. Ferry/A. Gillespie**

DRILLING INFORMATION

DRILLING CO.:	**Cascade Drilling**
DRILLER:	**Unknown**
DRILLING METHOD:	**Sonic**
DATE STARTED:	**10/08/2014**
DATE COMPLETED:	**10/08/2014**

Depth (feet)	Recovery (inches)	PID (ppm)	Soil Symbol	USCS Classification	SOIL DESCRIPTION
0	NM	*16.3		CL	(0.0 - 3.5) Mottled silty sandy CLAY, firm, hard, no-plastic, dry, brown.
2	NM	10.4			
4	NM	17.1		CL	(3.5 - 5.1) Mottled silty sandy CLAY, dry, bronw-orange-tan. Note: At 4.0 to 4.1 feet light brown coarse sand seam.
6	NM	14.7		SP	Note: At 4.8 to 4.9 feet light brown coarse sand seam.
8	NM	*15.8		CL	(5.1 - 8.5) Clayey SAND, coarse, non-cohesive, dry, non-plastic, brown-tan-orange.
10	NM	15.2			
12	NM	12.9		SP	(8.5 - 13.0) Mottled silty sandy CLAY, firm, hard, very plastic, dry, brown-orange-tan.
14	NM	14.9		CL	(13.0 - 14.0) Clayey SAND, very low plastic, moist, medium firm, light brown.
16	NM	11.9			
18	NM	8.1		SP	(14.0 - 18.5) Mottled sandy silty CLAY, moist becomes moderate firm, brown-red-tan.
20	NM	13.1			(18.5 - 23.0) Mottled clayey SAND, coarse grained, loose, non-plastic, moist, trace angular gravels 1-2 cm. brown-tan-gray.
22	NM	No Recovery		NO RECOVERY	(23.0 - 30.0) NO RECOVERY, soft.
24	NM	No Recovery			
26	NM	No Recovery			
28	NM	No Recovery			
30	NM	12.6		CL	(30.0 - 33.0) Silty sandy CLAY, soft, wet, low plastic, fine sands, gray-green.
32	NM	13.5		CL	(33.0 - 36.0) Sandy CLAY, moderate plasticity, moderate firm, gray-green.
34	NM	12.6			
36	NM	12.8		CL	(36.0 - 37.5) Mottled coarse sand and CLAY, moderate firm, moist, brown-red-gray.
38	NM	*13.8		CL	(37.5 - 38.0) Sandy CLAY, firm, most, very plastic, trace 1-2 cm gravels, gray-green.
40				CL	(38.0 - 40.0) Mottled coarse sandy CLAY, moderate plastic, moderate firm, mosit, gray-green. Note: At 39.5 feet clay content increases, plastic, firm, moist. End of boring at 40 feet.
42					
44					
46					
48					
50					



WELL CONSTRUCTION DETAILS

Flush Mount Concrete (0 to 1 ft)

2" PVC Sch 40 Casing (0 to 40 ft)

Bentonite pellets (1 to 28 ft)

Sand Pack (28 to 40 ft)

2" Screen slot size 0.10 (30 to 40 ft)

Notes:

bgs: below ground surface
ppm: parts per million
USCS: Unified Soil Classification System
NM: Not measured
NA: Not Available
PID: Photo-ionization Detector
ft: feet
HA: Hand auger
*Indicates sample submitted for laboratory analysis.

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BORING/WELL CONSTRUCTION LOG

WELL NO.: **MW-11S**

TOTAL DEPTH: **17.5 feet bgs**

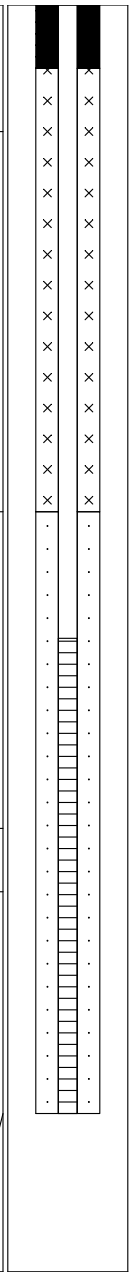
PROJECT INFORMATION

CLIENT:	**Freedom Industries, Inc.**
SITE LOCATION:	**1015 Barlow Drive**
CITY, STATE:	**Charleston, West Virginia**
PROJECT NUMBER:	**OH003003.0001**
LOGGED BY:	**J. Ferry/A. Gillespie**

DRILLING INFORMATION

DRILLING CO.:	**Cascade Drilling**
DRILLER:	**Unknown**
DRILLING METHOD:	**Sonic**
DATE STARTED:	**10/08/2014**
DATE COMPLETED:	**10/08/2014**

Depth (feet)	Recovery (inches)	PID (ppm)	Soil Symbol	USCS Classification	SOIL DESCRIPTION
0	NM	NM		CL	(0.0 - 2.0) Mottled CLAY, dry, firm, trace gravel up to 2" majority 1-2 cm, angular, brow-gray.
2	NM	NM		SP	(2.0 - 8.0) Clayey SAND, trace gravel 1-5 cm, dry, non-cohesive, non-plastic, tan-brown.
4	NM	NM			
6	NM	NM			
8	NM	NM		CL	(8.0 - 13.0) CLAY, brown-gray.
10	NM	NM			
12	NM	NM			
				CL	(13.0 - 14.0) CLAY soft, mottled, moist, orange.
14	NM	NM		SP	(14.0 - 17.5) Clayey SAND, very moist, red-brown.
16	NM	NM			
18					End of boring at 17.5 feet.
20					



WELL CONSTRUCTION DETAILS

- Flush Mount
- Concrete (0 to 1 ft)
- 2" PVC Sch 40 Casing (0 to 17.5 ft)
- Bentonite pellets (1 to 8 ft)
- Sand Pack (8 to 17.5 ft)
- 2" Screen slot size 0.10 (10 to 17.5 ft)

Notes:

bgs: below ground surface
ppm: parts per million
USCS: Unified Soil Classification System
NM: Not measured
NA: Not Available
PID: Photo-ionization Detector
ft: feet
HA: Hand auger
*Indicates sample submitted for laboratory analysis.

Date: 1/23/2015
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BORING/WELL CONSTRUCTION LOG

WELL NO.: **MW-12**

TOTAL DEPTH: **40** **feet bgs**

PROJECT INFORMATION

CLIENT:	**Freedom Industries, Inc.**
SITE LOCATION:	**1015 Barlow Drive**
CITY, STATE:	**Charleston, West Virginia**
PROJECT NUMBER:	**OH003003.0001**
LOGGED BY:	**C. Richardson/A. Gillespie**

DRILLING INFORMATION

DRILLING CO.:	**Cascade Drilling**
DRILLER:	**Unknown**
DRILLING METHOD:	**Sonic**
DATE STARTED:	**10/13/2014**
DATE COMPLETED:	**10/13/2014**

Depth (feet)	Recovery (inches)	PID (ppm)	Soil Symbol	USCS Classification	SOIL DESCRIPTION
0	NM	*4.5		SP	(0.0 - 2.0) Silty SAND, fine grained, trace clay, some rounded to angular gravel, slightly moist to dry, loose, light brown.
2	NM	5.1		CL	(2.0 - 4.0) Silty CLAY, mottled, trace fine grained sand, slightly moist to moist, stiff, low to moderate plastic, brown and gray.
4	NM	2.8		CL	(4.0 - 6.0) Silty CLAY, mottled, some fine grained sand, moist, medium stiff, reddish-brown and light greenish gray.
6	NM	14.4		CL	(6.0 - 10.0) Silty CLAY, with think sand leases (stringers), moist, stiff, low plastic, yellowish brown to reddish brown.
8	NM	14.3			Note: At 8 to 10 feet medium plastic, sandstone lense from 9 to 9.3 feet.
10	NM	*19.8		CL	(10.0 - 16.0) Silty CLAY with sand, medium stiff to stiff, medium plastiscity, tan.
12	NM	15.8			
14	NM	15.7			Note: At 14 to 16 feet transioning rading doward to sandy clay, contact sharp at 16 feet moist, medium plasticity.
16	NM	20.8		SP	(16.0 - 20.0) Poorly graded SAND with silt, fine grained sand, moist, loose, trace clay lenses, yellowish brown to tan.
18	NM	19.8			Note: At 18 to 20 feet yellowish brown to gray trace sub-rounded gravel 1 cm in diamter, few silty clay lenses.
20	NM	15.2		SP	(20.0 - 21.0) Silty SAND, fine to medium grained sand, very moist to saturated, sharp contact below, loose to firm, some sub-rounded gravel up to 1.5" diamter gray.
22	NM	12.2		CL	(21.0 - 24.0) Silty CLAY, some very fine grained sand, wet, soft to medium stiff, gray.
24					

WELL CONSTRUCTION DETAILS

Flush Mount

Concrete (0 to 1 ft)

2" PVC Sch 40 Casing (0 to 40 ft)

Bentonite pellets (1 to 28 ft)

Notes:
bgs: below ground surface
ppm: parts per million
USCS: Unified Soil Classification System
NM: Not measured
NA: Not Available
PID: Photo-ionization Detector
ft: feet
HA: Hand auger
*Indicates sample submitted for laboratory analysis.

Date: 1/23/2015

BORING/WELL CONSTRUCTION LOG

WELL NO.: **MW-12**

TOTAL DEPTH: **40** **feet bgs**

PROJECT INFORMATION

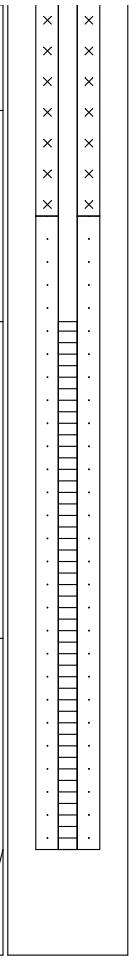
CLIENT:	**Freedom Industries, Inc.**
SITE LOCATION:	**1015 Barlow Drive**
CITY, STATE:	**Charleston, West Virginia**
PROJECT NUMBER:	**OH003003.0001**
LOGGED BY:	**C. Richardson/A. Gillespie**

DRILLING INFORMATION

DRILLING CO.:	**Cascade Drilling**
DRILLER:	**Unknown**
DRILLING METHOD:	**Sonic**
DATE STARTED:	**10/13/2014**
DATE COMPLETED:	**10/13/2014**

Depth (feet)	Recovery (inches)	PID (ppm)	Soil Symbol	USCS Classification	SOIL DESCRIPTION
24	NM	13.0		CL	(24.0 - 26.0) Sandy CLAY, grading down to silty sand with clay, wet, soft to firm, gray with yellowish brown mottling.
26	NM	16.3		CL	(26.0 - 30.0) Sitly CLAY, wet, medium to high plasticity, medium stiff, gray.
28	NM	11.5			Note: At 28 to 30 feet grading downward to silty sand with gravel, some sub-rounded gravel up to 2 cm in diameter, some clay, medium dense, wet.
30	NM	10.5		CL	(30.0 - 36.0) Sandy CLAY with gravel, moist, medium stiff to stiff, up to 1.25" diameter, sub-round gravel, gray.
32	NM	10.2			
34	NM	12.2			
36	NM	8.3		SP	(36.0 - 40.0) Clayey SAND with gravel, sub-rounded gravel, dense, slightly moist to dry, gray.
38	NM	3.9			
40					End of boring at 40 feet.
42					

WELL CONSTRUCTION DETAILS



Sand Pack (28 to 40 ft)

2" Screen slot size 0.10 (30 to 40 ft)

Notes:
bgs: below ground surface
ppm: parts per million
*Indicates sample submitted for laboratory analysis.
USCS: Unified Soil Classification System
NM: Not measured
NA: Not Available
PID: Photo-ionization Detector
ft: feet
HA: Hand auger

BORING/WELL CONSTRUCTION LOG

WELL NO.: **MW-12S**

TOTAL DEPTH: **20** **feet bgs**

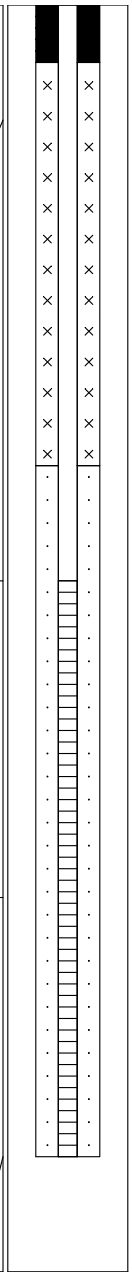
PROJECT INFORMATION

CLIENT:	**Freedom Industries, Inc.**
SITE LOCATION:	**1015 Barlow Drive**
CITY, STATE:	**Charleston, West Virginia**
PROJECT NUMBER:	**OH003003.0001**
LOGGED BY:	**C. Richardson/A. Gillespie**

DRILLING INFORMATION

DRILLING CO.:	**Cascade Drilling**
DRILLER:	**Unknown**
DRILLING METHOD:	**Sonic**
DATE STARTED:	**10/13/2014**
DATE COMPLETED:	**10/13/2014**

Depth (feet)	Recovery (inches)	PID (ppm)	Soil Symbol	USCS Classification	SOIL DESCRIPTION
0	NM	NM		SP	(0.0 - 2.0) Silty SAND with clay, some gravel, slightly moist, loose to moderate dense, brown. Note: At 1 to 2 feet some angular to sub-rounded pebbles up to 1" in diameter, sandstone lense at 2 feet.
2	NM	NM		CL	(2.0 - 10.0) Silty CLAY, mottled, some fine grained sand, moist, medium stiff to stiff, low plasticity, gray and brown.
4	NM	NM			Note: At 4 to 6 feet trace sub-rounded gravel up to 1" in diameter.
6	NM	NM			Note: At 6 to 10 feet yellowish brown to reddish brown, faint sub-horizontal laminations, some reddish brown thin sand lenses/stringers, trace locolized sub-rounded gravel, stiff, moist, some localized black manganzed staining, medium plasticity.
8	NM	NM			
10	NM	NM		CL	(10.0 - 15.5) Silty CLAY with sand, moist, medium plasticity, mediums tiff to stiff, grayish brown.
12	NM	NM			
14	NM	NM			
16	NM	NM		SP	(15.5 - 20.0) Poorly graded SAND with silt, fine grained sand, moist, loosed to localized partical cementation, some angular/sub-rounded gravel up to 1" diameter, gray to brown.
18	NM	NM			
20					End of boring at 20 feet.
22					



WELL CONSTRUCTION DETAILS

- Flush Mount
- Concrete (0 to 1 ft)
- 2" PVC Sch 40 Casing (0 to 20 ft)
- Bentonite pellets (1 to 8 ft)
- Sand Pack (8 to 20 ft)
- 2" Screen slot size 0.10 (10 to 20 ft)

Notes:

bgs: below ground surface
ppm: parts per million
USCS: Unified Soil Classification System
NM: Not measured
NA: Not Available
PID: Photo-ionization Detector
ft: feet
HA: Hand auger
*Indicates sample submitted for laboratory analysis.

Date: 1/23/2015
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BORING/WELL CONSTRUCTION LOG

WELL NO.: **MW-13**

TOTAL DEPTH: **25** **feet bgs**

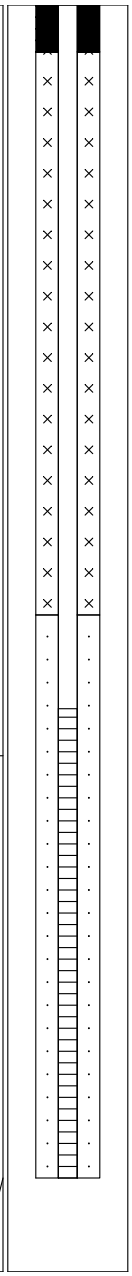
PROJECT INFORMATION

CLIENT:	**Freedom Industries, Inc.**
SITE LOCATION:	**1015 Barlow Drive**
CITY, STATE:	**Charleston, West Virginia**
PROJECT NUMBER:	**OH003003.0001**
LOGGED BY:	**C. Richardson/A. Gillespie**

DRILLING INFORMATION

DRILLING CO.:	**Cascade Drilling**
DRILLER:	**Unknown**
DRILLING METHOD:	**Sonic**
DATE STARTED:	**10/14/2014**
DATE COMPLETED:	**10/14/2014**

Depth (feet)	Recovery (inches)	PID (ppm)	Soil Symbol	USCS Classification	SOIL DESCRIPTION
0	NM	*32.9		CL	(0.0 - 16.0) Silty CLAY with sand, some fine grained sand, low plasticity, moist, soft to medium stiff, brown to brown-gray.
2	NM	18.8			Note: At 2 to 4 feet mottled gray-brown, very moist, abundent cobble sized rocks and brick fragments.
4	NM	180.5			Note: At 4 to 6 feet saturated below 5 feet, odor.
6	NM	163.4			Note: At 6 to 8 feet gray sub-rounded cobbles, odor.
8	NM	118.3			
10	NM	147.2			Note: At 10 to 12 feet very soft.
12	NM	*217			Note: At 12 to 14 feet soft.
14	NM	140.6			Note: At 14 to 16 feet soft, less cobbles.
16	NM	34.0		SP	(16.0 - 25.0) Silty SAND, fine to medium sand, very moist to saturated below 17 feet, some thin clayey zones, loose to medium dense, tract to little weathered sandstone fragments, contact sharp above, reddish-brown.
18	NM	*24.4			Note: At 18 to 19 feet saturated, content sharp below. Note: At 19 to 20 feet dark gray to olive, some localized black manganese staining.
20	NM	21.7			Note: At 20 to 22 feet gray less sandstone fragments with depth, loose.
22	NM	13.7			Note: At 22 to 24 feet trace sandstone with depth, frodational color change to yellow-yellowish brown.
24					Note: At 24 to 25 feet yellowish brown tight silty clay from 24.2 to 24.8 feet. End of boring at 25 feet.
26					



WELL CONSTRUCTION DETAILS

Flush Mount

Concrete (0 to 1 ft)

2" PVC Sch 40 Casing (0 to 25 ft)

Bentonite pellets (1 to 13 ft)

Sand Pack (13 to 25 ft)

2" Screen slot size 0.10 (15 to 25 ft)

Notes:
bgs: below ground surface
USCS: Unified Soil Classification System
ppm: parts per million
NM: Not measured
NA: Not Available
PID: Photo-ionization Detector
ft: feet
HA: Hand auger
*Indicates sample submitted for laboratory analysis.

Date: 1/23/2015
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SOIL BORING LOG

BORING NO.: **SB-5**

TOTAL DEPTH: **25** **feet bgs**

PROJECT INFORMATION

CLIENT: **Freedom Industries, Inc.**
SITE LOCATION: **1015 Barlow Drive**
CITY, STATE: **Charleston, West Virginia**
PROJECT NUMBER: **OH003003.0001**
LOGGED BY: **Lewis Eplin (CEC Consulting)**

DRILLING INFORMATION

DRILLING CO.: **Enviroprobe**
DRILLER: **D.K, M.H., J.L.**
DRILLING METHOD: **Direct Push**
DATE STARTED: **01/13/2014**
DATE COMPLETED: **01/13/2014**

DEPTH (feet)	Recovery (inches)	PID (ppm)	Soil Symbol	USCS Classification	SOIL DESCRIPTION
0	20	<1		CL	(0.0 - 4.5) Silty CLAY, moist, medium stiff, brown.
2	20	<1			
4	24	5.1		SP	(4.5 - 12.0) Gravelly silty SAND, moist, loose.
6	24	1.1			
8	30	116			Note: At 9.8 feet wet.
10	30	5.8		CL	(12.0 - 14.0) Silty CLAY, wet, soft, gray.
12	24	1.2		SP	(14.0 - 25.0) Silty SAND, moist, loose, brown.
14	24	<1			
16	20	NM			Note: At 19.5 feet wet.
18	20	NM			
20					End of boring at 25 feet.
22					
24					
26					

Notes:
bgs: below ground surface
in.: inch
*Indicates sample submitted for laboratory analysis.

NA: Not Available
NM: Not Measured
USCS: Unified Soil Classification System

ppm: parts per million
PID: Photo-ionization Detector
ft: feet

Date: 2/17/2015
Page: 1 of 1

SOIL BORING LOG

BORING NO.: **SB-6**

TOTAL DEPTH: **25** **feet bgs**

PROJECT INFORMATION

CLIENT: **Freedom Industries, Inc.**
SITE LOCATION: **1015 Barlow Drive**
CITY, STATE: **Charleston, West Virginia**
PROJECT NUMBER: **OH003003.0001**
LOGGED BY: **J. Ferry/A. Gillespie**

DRILLING INFORMATION

DRILLING CO.: **EnviroCheck**
DRILLER: **Jacob Rhudy**
DRILLING METHOD: **Geoprobe/Direct Push**
DATE STARTED: **10/01/2014**
DATE COMPLETED: **10/01/2014**

DEPTH (feet)	Recovery (inches)	PID (ppm)	Soil Symbol	USCS Classification	SOIL DESCRIPTION
0	NM	*3.5		CL	(0.0 - 9.0) Clay with sand with trace pebbles, non-native fill, dry, high platicity, moderate to firm, reddish brown.
2	NM	18.5			
4	NM	5.5			
6	NM	4.4			
8	NM	*15.5			(9.0 - 9.5) CLAY with coarse sand, gravel (0.5-3 cm), angular, firm, dry, brownish red.
				CL	
10	NM	43.1		CL	(9.5 - 18.0) Grayish Brown Tan mottled high plastic CLAY with fine sand, dry, very plastic, slight HC odor.
12	NM	*24			Note: At 12 to 14 feet increasing sand content (10%).
14	NM	NM			Note: At 14.5 feet 3 cm coarse sand lense.
16	NM	NM			
18	NM	NM		SP	(18.0 - 24.0) SAND, coarse, very firm, weathered sand stone gray. Note: At 19 feet dry lense.
20	NM	NM			
22	NM	NM			
24					End of boring at 24 feet.
26					

Notes:
bgs: below ground surface
in.: inch
*Indicates sample submitted for laboratory analysis.
NA: Not Available
NM: Not Measured
USCS: Unified Soil Classification System
ppm: parts per million
PID: Photo-ionization Detector
ft: feet

Date: 1/23/2015

SOIL BORING LOG

BORING NO.: **SB-7**

TOTAL DEPTH: **20** **feet bgs**

PROJECT INFORMATION

CLIENT: **Freedom Industries, Inc.**
SITE LOCATION: **1015 Barlow Drive**
CITY, STATE: **Charleston, West Virginia**
PROJECT NUMBER: **OH003003.0001**
LOGGED BY: **J. Ferry/C. Richardson**

DRILLING INFORMATION

DRILLING CO.: **EnviroCheck**
DRILLER: **Jacob Rhudy**
DRILLING METHOD: **Geoprobe/Direct Push**
DATE STARTED: **10/02/2014**
DATE COMPLETED: **10/02/2014**

DEPTH (feet)	Recovery (inches)	PID (ppm)	Soil Symbol	USCS Classification	SOIL DESCRIPTION
0	NM	*3.6		CL	(0.0 - 4.0) Silty CLAY, medium to large gravel, low plastic, dry, no odor, black.
2	NM	4.5			
4	NM	5.7		CL	(4.0 - 20.0) Sandy CLAY, modered firm, dry, no odor, medium plastic, grayish brown.
6	NM	6.3			
8	NM	5.7			
10	NM	*9.3			Note: At 10 feet increasing sand.
12	NM	6.7			Note: At 13 feet saturated.
14	NM	NM			
16	NM	NM			
18	NM	NM			
20					End of boring at 20 feet.
22					

Notes:
bgs: below ground surface
in.: inch
*Indicates sample submitted for laboratory analysis.
NA: Not Available
NM: Not Measured
USCS: Unified Soil Classification System
ppm: parts per million
PID: Photo-ionization Detector
ft: feet

Date: 1/23/2015

SOIL BORING LOG

BORING NO.: **SB-8**

TOTAL DEPTH: **18** **feet bgs**

PROJECT INFORMATION		DRILLING INFORMATION	
CLIENT:	**Freedom Industries, Inc.**	DRILLING CO.:	**EnviroCheck**
SITE LOCATION:	**1015 Barlow Drive**	DRILLER:	**Jacob Rhudy**
CITY, STATE:	**Charleston, West Virginia**	DRILLING METHOD:	**Geoprobe/Direct Push**
PROJECT NUMBER:	**OH003003.0001**	DATE STARTED:	**10/01/2014**
LOGGED BY:	**J. Ferry/A. Gillespie**	DATE COMPLETED:	**10/01/2014**

DEPTH (feet)	Recovery (inches)	PID (ppm)	Soil Symbol	USCS Classification	SOIL DESCRIPTION
0	NM	*16.5		CL	(0.0 - 13.0) CLAY, trace sand, modeling, high plastisc, moderate petro-chemical smell, dry, moderatly firm, reddish brown.
2	NM	134.6			
4	NM	77.7			
6	NM	51.6			
8	NM	*66.2			Note: At 8.5 feet increasing sand.
10	NM	44.3			Note: At 10.5 feet saturated.
12	NM	NM			
14	NM	NM		SP	(13.0 - 18.0) SAND with angular gravel, coarse, strong odor, gray-green.
16	NM	NM			
18					End of boring at 18 feet refusal on slighlty weathered sandstoned, light gray with orange staining.
20					

Notes:
bgs: below ground surface
in.: inch
*Indicates sample submitted for laboratory analysis.
NA: Not Available
NM: Not Measured
USCS: Unified Soil Classification System
ppm: parts per million
PID: Photo-ionization Detector
ft: feet

Date: 1/23/2015
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SOIL BORING LOG

BORING NO.: **SB-9**

TOTAL DEPTH: **21** **feet bgs**

PROJECT INFORMATION

CLIENT:	**Freedom Industries, Inc.**
SITE LOCATION:	**1015 Barlow Drive**
CITY, STATE:	**Charleston, West Virginia**
PROJECT NUMBER:	**OH003003.0001**
LOGGED BY:	**J. Ferry/A. Gillespie**

DRILLING INFORMATION

DRILLING CO.:	**EnviroCheck**
DRILLER:	**Jacob Rhudy**
DRILLING METHOD:	**Geoprobe/Direct Push**
DATE STARTED:	**10/01/2014**
DATE COMPLETED:	**10/01/2014**

DEPTH (feet)	Recovery (inches)	PID (ppm)	Soil Symbol	USCS Classification	SOIL DESCRIPTION
0	NM	*7.7		CL	(0.0 - 11.0) CLAY, trace sand, high plastic, strong petro-chemical smell, dry, moderately firm, reddish brown.
2	NM	28.6			
4	NM	191.4			
6	NM	104.2			
8	NM	*42.4			
10	NM	113.2			Note: At 9.5 feet increasing sand.
12	NM	NM		SP	(11.0 - 21.0) SAND with clay, coarse, saturated, brown.
14	NM	NM			
16	NM	NM			
18	NM	NM			
20	NM	NM			
22					End of boring at 21 feet refusal on weathered sandstone, reddish brown.

Notes:
bgs: below ground surface
in.: inch
*Indicates sample submitted for laboratory analysis.

NA: Not Available
NM: Not Measured
USCS: Unified Soil Classification System

ppm: parts per million
PID: Photo-ionization Detector
ft: feet

Date: 1/23/2015
Page: 1 of 1

SOIL BORING LOG

BORING NO.: **SB-10**

TOTAL DEPTH: **17** **feet bgs**

PROJECT INFORMATION

CLIENT: **Freedom Industries, Inc.**
SITE LOCATION: **1015 Barlow Drive**
CITY, STATE: **Charleston, West Virginia**
PROJECT NUMBER: **OH003003.0001**
LOGGED BY: **J. Ferry/C. Richardson**

DRILLING INFORMATION

DRILLING CO.: **EnviroCheck**
DRILLER: **Jacob Rhudy**
DRILLING METHOD: **Geoprobe/Direct Push**
DATE STARTED: **10/02/2014**
DATE COMPLETED: **10/02/2014**

DEPTH (feet)	Recovery (inches)	PID (ppm)	Soil Symbol	USCS Classification	SOIL DESCRIPTION
0	NM	*125		CL	(0.0 - 17.0) Sandy CLAY, no odor, medium plastic, firm, moist, medium brown.
2	NM	7.7			
4	NM	19.1			
6	NM	329.9			
8	NM	25.6			
10	NM	*336.0			
12	NM	376			Note: At 12 feet satuarted.
14	NM	NM			
16	NM	NM			
					Coarse SAND with gravel, compacted, dark tan.
18					End of boring at 17 feet.

Notes:
bgs: below ground surface
in.: inch
*Indicates sample submitted for laboratory analysis.
NA: Not Available
NM: Not Measured
USCS: Unified Soil Classification System
ppm: parts per million
PID: Photo-ionization Detector
ft: feet

Date: 1/23/2015

SOIL BORING LOG

BORING NO.: **SB-11**

TOTAL DEPTH: **18 feet bgs**

PROJECT INFORMATION		DRILLING INFORMATION	
CLIENT:	**Freedom Industries, Inc.**	DRILLING CO.:	**EnviroCheck**
SITE LOCATION:	**1015 Barlow Drive**	DRILLER:	**Jacob Rhudy**
CITY, STATE:	**Charleston, West Virginia**	DRILLING METHOD:	**Geoprobe/Direct Push**
PROJECT NUMBER:	**OH003003.0001**	DATE STARTED:	**10/02/2014**
LOGGED BY:	**J. Ferry/C. Richardson**	DATE COMPLETED:	**10/02/2014**

DEPTH (feet)	Recovery (inches)	PID (ppm)	Soil Symbol	USCS Classification	SOIL DESCRIPTION
0	NM	*81.1		CL	(0.0 - 18.0) Sandy CLAY, moist, modeling firm, low plastic, moderate odor petro, gray brown.
2	NM	20.6			
4	NM	19.4			Note: At 4 feet increasing sand.
6	NM	28.2			
8	NM	*35.3			
10	NM	897			Note: At 11 feet saturated.
12	NM	NM			
14	NM	NM			
16	NM	NM			
18					Coarse SAND with medium angular gravel, orange. End of boring at 18 feet.
20					

Notes:
bgs: below ground surface
in.: inch
*Indicates sample submitted for laboratory analysis.

NA: Not Available
NM: Not Measured
USCS: Unified Soil Classification System

ppm: parts per million
PID: Photo-ionization Detector
ft: feet

Date: 1/23/2015

SOIL BORING LOG

BORING NO.: **SB-12**

TOTAL DEPTH: **17 feet bgs**

PROJECT INFORMATION		DRILLING INFORMATION	
CLIENT:	**Freedom Industries, Inc.**	DRILLING CO.:	**EnviroCheck**
SITE LOCATION:	**1015 Barlow Drive**	DRILLER:	**Jacob Rhudy**
CITY, STATE:	**Charleston, West Virginia**	DRILLING METHOD:	**Geoprobe/Direct Push**
PROJECT NUMBER:	**OH003003.0001**	DATE STARTED:	**10/02/2014**
LOGGED BY:	**J. Ferry/C. Richardson**	DATE COMPLETED:	**10/02/2014**

DEPTH (feet)	Recovery (inches)	PID (ppm)	Soil Symbol	USCS Classification	SOIL DESCRIPTION
0	NM	*100.6		CL	(0.0 - 17.0) Coal fines on surface, sandy CLAY, modeling, moist, high plastic, moderate firm, slight petro odor, medium brown.
2	NM	110.9			
4	NM	53.2			
6	NM	20.7			
8	NM	*20.9			
10	NM	3.1			Note: At 10.5 feet saturated. Note: At 10.9 feet increasing sand.
12	NM	NM			
14	NM	NM			
16	NM	NM			
18					Coarse SAND, compacted with angular gravel, rust color. End of boring at 17 feet.
20					

Notes:
bgs: below ground surface
in.: inch
*Indicates sample submitted for laboratory analysis.

NA: Not Available
NM: Not Measured
USCS: Unified Soil Classification System

ppm: parts per million
PID: Photo-ionization Detector
ft: feet

Date: 1/23/2015
Page: 1 of 1

SOIL BORING LOG

BORING NO.: **SB-16**

TOTAL DEPTH: **25** **feet bgs**

PROJECT INFORMATION

CLIENT: **Freedom Industries, Inc.**
SITE LOCATION: **1015 Barlow Drive**
CITY, STATE: **Charleston, West Virginia**
PROJECT NUMBER: **OH003003.0001**
LOGGED BY: **J. Ferry/C. Richardson**

DRILLING INFORMATION

DRILLING CO.: **EnviroCheck**
DRILLER: **Jacob Rhudy**
DRILLING METHOD: **Geoprobe/Direct Push**
DATE STARTED: **10/02/2014**
DATE COMPLETED: **10/02/2014**

DEPTH (feet)	Recovery (inches)	PID (ppm)	Soil Symbol	USCS Classification	SOIL DESCRIPTION
0	NM	*4.8		TOPSOIL	(0.0 - 1.0) TOPSOIL, organic, loam, fine silts, dry, no odor, no plastic, dark brown.
2	NM	*5.0		CL	(1.0 - 4.0) Sandy CLAY, modeled, low plastic, moist, light brown.
4	NM	498		SP	(4.0 - 8.0) Coarse SAND with silt, moderate petrol odor, saturated, dark gray.
6	NM	NM			Note: At 6 feet, 6" sand lens.
8	NM	NM		SP	(8.0 - 25.0) Coase SAND, clean, loose, moist, petro odor, saturated, gray.
10	NM	NM			
12	NM	NM			
14	NM	NM			
16	NM	NM			
18	NM	NM			
20	NM	NM			
22	NM	NM			
24	NM	NM			
26					End of boring at 25 feet.

Notes:
bgs: below ground surface
in.: inch
*Indicates sample submitted for laboratory analysis.
NA: Not Available
NM: Not Measured
USCS: Unified Soil Classification System
ppm: parts per million
PID: Photo-ionization Detector
ft: feet

Date: 1/23/2015