

# **BROWNFIELD**

SCIENCE & TECHNOLOGY

**Conceptual Site Model Report**

**Axil Belko  
Kingsville, MD**

**MDE Case Number: 1991-0916-BA4**

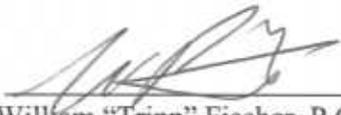
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*Prepared For:*

**The Axil Corporation  
375 Metuchen Road  
P.O. Box 98  
South Plainfield, NJ 07080**

*Prepared By:*

**Brownfield Science & Technology, Inc.  
3157 Limestone Road  
Cochranville, PA 19330**



**William "Tripp" Fischer, P.G.  
Principal Hydrogeologist**

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## 1.0 INTRODUCTION

On behalf of the Axil Corporation (Axil), Brownfield Science & Technology, Inc. (BSTI) is pleased to submit this updated Conceptual Site Model Report (CSM or Report) for the Former Axil-Belko Facility (**Figure 1**) in Kingsville, MD (1991-0916-BA4). A corrective action work plan (CAW) was submitted for the Site in December 2010. Corrective action, as described in the CAW and subsequent addendums, is now complete. An update to the original CSM dated April 14, 2010 was requested by MDE in correspondence dated October 8, 2013. This CSM Report updates the 2010 CSM and includes all previous assessments performed site wide and information gathered during assessments and corrective actions from 2010 to present. Specifically, this CSM Report includes the following:

- Description of installation and sampling of replacement monitoring wells;
- Graphical presentation of subsurface conditions both horizontally and vertically;
- A summary of data from assessments to date including:
  - Tabular and graphic presentation of soil analytical data
  - Tabular and graphic presentation of groundwater analytical data;
- An evaluation of the seven risk factors as per the MDE MEAT document;
- Evaluation of contaminant fate and transport and any data gaps; and
- Proposed steps to address data gaps and prepare for Site closure

### 1.1 Methodology

To construct this CSM Report, all monitoring wells, building corners, outfalls and sampling points were mapped in Maryland State Plane coordinates (North American Datum 1983). Data was then analyzed using various mapping software packages (ArcGIS™, Rockworks™) to generate three-dimensional models which were used to conceptualize subsurface water flow, contaminant migration, stratigraphy, and location of fill material. The analyses were then used to evaluate the seven risk factors as described in the MDE MEAT Guidance (February 2003).

## 2.0 SITE DESCRIPTION

### 2.1 Site Description

The facility functioned as a cotton mill in the late 1800's and later became a rubber products manufacturing plant owned and operated by the Belko Corporation. The Site consists of three contiguous parcels (11-10-03900, 11-10-039001 and 11-10039002) and is approximately three acres in size and irregular shaped. The Site is located along the Little Gunpowder Falls (LGF) River in Kingsville, MD. Residential properties border the Site to the west and south and state owned land to the north and east (Gunpowder Falls State Park) (**Figure 2**).

The property is located in the Piedmont physiographic province. Due to the uneven natural terrain of the metamorphic and igneous Precambrian aged bedrock in this area, the facility was extensively filled in order to accommodate industrial use (parking, construction and storage). As a result, the terrain surrounding the buildings slopes gently to the northeast with little to no rock outcropping. Where the fill terminates, the terrain drops sharply to the rocky stream bank of the LGF River. Precipitation infiltrates gently graded areas to recharge groundwater perched above bedrock. The perched groundwater discharges at the river bank through seeps and underground conduits (Outfalls 1 and 2); the course of which are approximately known. Increased flow is observed from outfalls during rain events, and large variations in water levels are also observed in some onsite monitoring wells.

A base map of the Site as it existed during operation is presented in **Figure 3**. This map illustrates potential areas of concern (Areas A through J) identified in the 2002 Phase II Environmental Site Assessment. Also illustrated are areas of concern identified during remediation (crawl space, Accumulator and fuel oil UST). As of early 2013 all above ground structures at the Site were demolished. The facility still contains paved areas, building foundations, a security fence, various storm water drains, outlets and conduits, a subsurface vault which served as a spring house and an intake pipe for stream water. Drains and pipes discharge to the southern banks of the Little Gunpowder Falls (LGF) stream. When in operation, the facility's potable water was supplied by a groundwater well located in the western portion of the property (POT-1). Another potable well was located on the eastern side of the office building

(POT-2), but was not being used for potable water when the facility closed due to bacteria concerns.

## 2.2 Environmental History

Environmental history of the Site was reviewed in detail in the original CSM and CAW from 2010. The contents of significant documents describing the environmental history of the Site are summarized below. In addition to the documents reviewed below, quarterly updates describing routine monitoring have been submitted to MDE by BSTI from the fourth quarter of 2008 through the present.

### *MDE Environmental Assessment Summary 7/27/2007*

Project chronology begins with observation of a Light Non-Aqueous Phase Liquid (LNAPL) seep into the LGF River on November 30, 1986 shortly after the apparent loss of 200 gallons of #4 oil. Between May 1991 and June 1992 remedial activities including monitoring well installation, bailing of LNAPL, vacuum extraction, and aquifer testing were reported. As much as ten inches of LNAPL was reported in MW-2. LNAPL thickness between one and two inches was observed in MW-1 and MW-2 in August 1991. Approximately 1,400 gallons of product, primarily from MW-2 was reported recovered by January 1992. Subsequent to this, periodic bailing and use of sorbent socks reportedly continued for an unknown length of time.

### *Phase I and Phase II Environmental Site Assessment (August 2001 and February 2002)*

Environmental assessments resumed with Phase I and Phase II ESAs performed by TriState Environmental. Potential areas of concern (AOCs A through J) were identified in the Phase I ESA and evaluated in the Phase II ESA. A total of 46 boreholes were advanced during the Phase II ESA and 31 soil samples were analyzed. Four existing monitoring wells in Area C and temporary monitoring wells in Areas A, C, D and H were also used to evaluate groundwater quality.

Soil samples analyzed for diesel range organics (DRO) exceeded the MDE non-residential standard at Areas A, C, D and I. Soil staining was also observed in Area B. Soil samples

collected in Area B contained concentrations of DRO below regulatory standards. Based on laboratory analysis, concentrations of DRO above the groundwater standard were only observed in Areas A and C, adjacent to the location of the 1986 seep into the LGF River. Areas A and C were identified as likely to require remediation.

*Focused Site Investigation, Interim Measures and Monitoring Activities 11/12/2004*

In February of 2004, an oil seep was observed at the LGF River at the same location as previous seepage, labeled as “Seep” in **Figure 3**. Langan Environmental was retained by the property owner to perform additional assessment work. Evidence of petroleum was observed in several test pits and fingerprint analysis indicated that subsurface contamination consisted mainly of hydraulic oil which was used on Site prior to the 1980s.

*Drinking Water Supply Well Sampling 12/16/2006*

Langan reported the results of sampling two supply wells on Site referred to as PTO-1 and PTO-2 with depths of 200 and 106 ft respectively. Both wells were non-detect for petroleum constituents.

*Supplemental Site Characterization Report 12/6/2009*

Beginning in October 2008, BSTI (then Brownfield Associates) performed work on the Site including monthly monitoring and maintenance of sorbent material at the seep location, a geophysical survey, installation of five additional monitoring wells and three test pits, surface water and outfall water sampling, and sediment sampling all in the vicinity of Area C. Results indicated that soil collected from monitoring well borings exceeded standards for Total Petroleum Hydrocarbon – DRO (TPH-DRO). One of three sediment samples also slightly exceeded standards for DRO. All groundwater samples and two out of three outfall water samples also exceeded standards for DRO. It was observed that current hydrologic conditions in Area C consist of a perched water table driven by recharge of standing water within the building foundation.

*Conceptual Site Model Report 4/14/2010*

A Site conceptual model report was submitted to MDE by BSTI on April 16, 2010. This report compiled data from past and recent site assessments in Area C to provide a graphic representation of subsurface conditions and evaluated Seven Risk Factors as per the MDE's Maryland Environmental Assessment Technology (MEAT) for Leaking Underground Storage Tanks document. LNAPL discharge to the LGF River was identified as a concern due to three potential risk factors (LNAPL distribution, Migration of Contamination, and Ecological Exposure). A remedial strategy was outlined consisting of source area removal through excavation under and in the immediate vicinity of the hydraulic system and boiler rooms of the building along with additional sampling to further characterize DRO mass flux and potential toxic effects to the LGF River.

*Corrective Action Work plan 12/22/2010*

The CAW further developed the remediation strategy with a plan for targeted remedial excavation. Environmental decommissioning of the contents of remaining buildings, and additional assessment were also recommended.

*1st Q 2011 Remedial Action Progress Report 5/15/2011*

Initial remedial excavations were carried out to remove soils impacted by petroleum hydrocarbons. Excavations were performed in Area A on the east side of the former building, Area D the location of a former drum storage area and Area I, the location of a pit for hydraulic equipment. Localized VOC impacts, primarily acetone, were discovered in Area D and fully excavated. Approximately 6,754 lb of petroleum hydrocarbons were disposed of offsite.

*MW-3 Pump Test Report 6/22/2011*

A pump test was conducted to evaluate the dewatering requirements for Area C excavation. Hydraulic conductivity of 0.071 ft/day was calculated.

*Remedial Action Progress Report Demolition Activities 2/28/2012*

This report detailed the demolition of a portion of the building (Building 8) to provide access for remediation.

*Sub slab Soil Assessment 5/9/2012*

A direct push assessment was carried out to refine the area proposed for excavation in Area C and the accumulator (Area F). A total of 48 borings were advanced and this data was combined with data from prior excavations to produce an updated 3D model of Area C. Concentrated zones of petroleum impacted soil were targeted for excavation.

*2nd Q 2012 Remedial Action Progress Report 5/1/2012*

Initial excavations were carried out in Area C focused on the vicinity of a former AST containment, reportedly collocated with a former unlined sump used for the collection of hydraulic oil. Approximately 6,239 lb of petroleum hydrocarbons were disposed of offsite.

*Remedial Action Progress Report July 2012 Excavation 8/31/2012*

Excavation in Area C was expanded to the south east. Approximately 4,081 lb of petroleum hydrocarbons were disposed of offsite.

*Remedial Action Progress Report October 2012 Excavation 12/4/2012*

Excavation in Area C was expanded to the north east. Stockpiled soil from prior excavations containing TPH-DRO in the 1000 mg/kg range was disposed offsite. Approximately 4,693 lb of petroleum hydrocarbons total were disposed of offsite.

*Remedial Action Progress Report April 2013 UST Removal 5/21/2013*

Three tanks were removed consisting of a gasoline UST and a fuel oil UST reportedly abandoned in the 1960s and 1970s and used oil AST closed in place in 1985 and subsequently partially buried. Approximately 1,311 lb of petroleum hydrocarbons total were disposed of offsite. Remediation was not completed for the fuel oil and used oil tanks.

*Remedial Action Progress Report April 2013 Excavation 5/23/2013*

Excavation in Area C expanded to the east to encompass MW-7 and to the north to include MP-13 and MP-14. Approximately 3,190 lb of petroleum hydrocarbons total were disposed of offsite.

*Remedial Action Progress Report July 2013 Excavation 9/16/2013*

Remedial excavation conducted of fuel UST and used oil tank, accumulator, and crawl space formerly used for hydraulic equipment. Approximately 11,748 lb of petroleum hydrocarbons total were disposed of offsite. Remedial excavation in Area C completed.

## 3.0 FOURTH QUARTER 2013 ACTIVITIES

### 3.1 Site Inspection

Site inspections were performed at least weekly during each month of the reporting period. BSTI personnel inspected the banks of the LGF River to identify potential petroleum seeps from the Site (along the bank) and into the River. Isolated drops of petroleum and or sheen were observed at the seep in October and November. Field notes recording the observations made during Site inspections are attached in **Appendix I**. BSTI continues to maintain and/or replace petroleum sorbent pads and booms in the area of the “seep” near MW-1 and Outfall 2.

### 3.2 Monitoring Well Installation

On November 22, 2013, replacement monitoring wells were installed as requested by MDE in an October 8, 2013 *Approval of Monitoring Well Replacement and Request for Updated Conceptual Model*. This letter specified the replacement of four monitoring wells (MW-2, MW-3, MW-7 and MW-8) removed during excavation, and requested an additional two wells within the footprint of the excavation encompassing the former used oil AST and brick raceway structure.

Monitoring wells were successfully installed in the former locations of MW-3, MW-7, and MW-8. Replacement wells were designated by the suffix "A" (e.g. MW-3A). A new well, designated MW-10, was installed at the northern edge of the raceway excavation, located between former MW-8 and MW-2. During field activities, it was observed that conditions did not allow for typical construction of a monitoring well at the location of former MW-2 or directly down gradient. For this reason, no well was installed in the location of MW-2, nor was a second well installed within the raceway footprint. A proposed plan for the completion of monitoring well installation was submitted on November 25, 2013 to MDE by BSTI. Completed monitoring wells were surveyed to determine casing elevation. Locations for all existing wells at the Site are illustrated in **Figure 3**. Boring logs describing well construction and subsurface conditions are provided in **Appendix II**.

### 3.3 Monitoring Well Sampling

On December 17 and 18, 2013, groundwater samples were collected from the existing monitoring wells. Water levels were recorded using an interface probe; no sheen was observed. For comparison purposes, monitoring wells MW-8 and MW-5 were first sampled using low flow techniques for TPH-DRO and PAHs. All wells including MW-8 and MW-5 were then purged of three casing volumes of water using a submersible pump and sampled. All monitoring wells were sampled using dedicated disposable bailers and in accordance with BSTI's Quality Assurance and Quality Control program. The field reports for groundwater sampling, including purge volumes and low flow sampling sheets are included in **Appendix III**. Samples were also collected from both Outfalls and the Seep. As each of these locations is free flowing, samples were collected directly from the water dripping from each source. Results of sampling are described below.

## 4.0 SUBSURFACE CONDITIONS

The subsurface conditions at the facility have been assessed through several environmental assessments and monitoring activities. These activities include; monitoring well installation, test pit excavations, direct push soil borings, surface water sampling, sediment sampling, outfall sampling, groundwater gauging and sampling. The following describes the stratigraphy and hydrogeology of the Site including contaminant transport based on prior assessments.

### 4.1 Subsurface Stratigraphy

Observations from the following reports have been combined to update the conceptual site model originally presented in the 2010 CSM:

- TriState Environmental *Phase II Environmental Site Assessment* (February 2002);
- Brownfield Associates *Supplemental Site Characterization Report* (November 5, 2009);
- *BSTI Sub-slab Soil Assessment* (May 2012);
- and from reports regarding remedial excavations (April 2011 to September 2013)

#### Area C

Field observations from soil borings within Area C are presented as a series of cross sections. A plan view of Area C showing the location of cross sections is illustrated in **Figure 4**. Cross Sections are provided in **Figure 5** through **Figure 12** including excavated areas and subsurface structures observed during excavation. Note that subsurface structures have been projected into the plane of the nearest cross section. Additionally, figures represent a straight line interpolation of the observations from each boring; hence depictions between borings may not fully reflect reality.

Within Area C, petroleum impacts were widespread. Soil staining was primarily limited to soils at or below the perched water levels with heavy staining and or soil with residual LNAPL observed directly above bedrock. Notable exceptions were observed in the vicinity of monitoring point MP-12 and soil boring SB-21. In these areas, heavily stained soils were observed throughout the soil column. This suggests sources of petroleum impacts are near these locations.

This is consistent with the description of former Site operations contained in the Langan *Focused Site Investigation, Interim Measures and Monitoring Activities* (November 12, 2004). In this document, the flow of oil is described through open channels, ultimately entering the hydraulic room through an opening adjacent to SB-21. Although not observed during the demolition of Building 8, the hydraulic room is described as having sumps in its floor for the recovery of this oil. In addition, a “pit” is described which received overflow of oil from pumps and vessels within the hydraulic room. This pit was approximately of the same size and location as the 10,000 gallon AST containment area which was directly adjacent to MP-12. As illustrated in the cross sections the majority of heavily petroleum impacted soils were removed during remedial excavation.

Soils with no observed petroleum impacts were present at the northern most extent of Area C (SB-34) in the direction of MW-9 and along the bank of the LGF (CHP-1, CGW-1, CHP-7, CHP-8, CHP-10, SB-27). It should be noted, however, that some of these borings may have not reached sufficient depth to encounter the water table prior to refusal. Significant petroleum impacts were also not observed in the vicinity of SB-37 or SB-38 on the south east edge of Area C. However, observations made during excavation of the adjacent used oil tank indicate that a large mass of petroleum impacted material was present in this area below the elevation of surrounding bedrock within a brick structure believed to be associated with the original mill race. MW-2 was installed into the southern end of this structure and the reported 1,400 gallons of product recovered from this well presumably was recovered from the void space within the structure.

The thickness of heavily stained soil and LNAPL bearing layers presented in cross sections is summarized in **Figure 13** along with the outline of excavated areas. This figure presents the straight line interpolation of heavily stained layers equal to or greater than two (2) feet in thickness and of LNAPL bearing layers equal to or greater than one half (0.5) foot in thickness. As also illustrated in cross sections the majority of heavily stained soils were removed from the Site during remedial excavation.

## Other Areas

Subsurface stratigraphy in other areas of the Site is similar to than observed in Area C generally consisting of one to eight feet of fill of varying age and composition overlying native soils or weathered gneiss. Refusal for direct push sampling varied from eight to twenty ft. Based on these observations, use of fill was most extensive in Area C, the lowest lying portion of the Site. Petroleum impacts were also less extensive with isolated areas of staining observed with no LNAPL apparent.

Stratigraphy of the various Areas of concern, as evidenced by Phase II soil borings and subsequent excavation, is summarized in **Table 1**. No petroleum impacted soil was observed in Areas B, E, F, G, H or J. Within Area A petroleum staining and odor was observed in some borings between 2 and 8 ft bgs. In Area D petroleum odor and moderately elevated PID readings were observed from 1 to 4 ft bgs. Subsequent excavation indicated petroleum and VOC impacts extending to approximately 7 ft bgs. Petroleum odor was observed at some locations between 2 and 8 ft bgs within Area I.

Additional direct push borings were conducted by BSTI around the accumulator (SB-39 to SB-42) and machinery pads located within the northwest corner of the building (SB-43 to SB-47). Near the accumulator, silt and sand fill with brick was observed to a maximum of 9 ft bgs above weathered gneiss with refusal at 14 to 19 ft. An isolated layer of staining was observed in only one boring. Near machinery pads up to 1 ft of fill was observed above silt and sand or weathered gneiss with refusal at 3.5 to 11 ft. A slight petroleum odor was observed in some borings. Analytical results from these borings indicated minimal petroleum impacts as described below.

## 4.2 Subsurface Hydrogeology

There are currently twelve monitoring wells on Site which are gauged monthly for liquid levels and presence of LNAPL. Monitoring wells are all installed to refusal with total depths ranging from 22 to 5 feet below grade.

Groundwater is observed between 0.5 and 10 feet below ground surface. As precipitation infiltrates the ground surface, the water migrates down to the irregular bedrock layer where it

moves laterally towards the LGF River. Depth to water measurements and calculated groundwater elevations for the monitoring wells are summarized in the attached **Table 2**. The apparent groundwater flow direction is toward the east with an average groundwater hydraulic gradient of 0.138 ft/ft. Groundwater elevation contours as observed during the most recent sampling event (December 2013) are shown in **Figure 14**. Note that to elevation control points have been surveyed near Outfall 1 and the Seep and that river levels at these locations are also depicted. These observations illustrate the steep drop in groundwater elevation which occurs in the embankment area. Hydraulic gradient across Area C was determined to be approximately 0.2 ft/ft. Flow direction observed in Area C has been consistent throughout monitoring starting in 2008, although substantial changes in water level of have been observed in Area C as a result of excavation activities. Hydrographs for Site monitoring wells are provided in **Figure 15**. Water levels decreased by a foot or more over much of Area C (wells MW-4, MW-5, and MW-6) as a result of excavation in 2012. Water levels in replacement well MW-3A are over two feet lower than observed prior to excavation, presumably due to removal of overburden and the placement of permeable gravel backfill in this up gradient location. Water levels in replacement wells MW-7A and MW-8A on the down gradient end of the excavation are higher than observed prior to excavation. This is believed to result from pooling of groundwater within the gravel filled excavation. In 2013 the abandonment of Outfall 2 resulted in sharp increases of up to two feet in water levels at MW-4, MW-5, MW-6 and MW-9 resulting from the infiltration of water which previously discharged directly to the LGF.

Area C aquifer properties are known through slug testing performed in 2010 on MW-1, MW-3, MW-4, MW-5, MW-6, MW-7, MW-8 and MW-9 and a pump test conducted at MW-3 in 2011. Slug test hydraulic conductivity values ranged from 0.22 to 0.006 ft/day with a mean of 0.013 ft/day. For the pump test, analysis of distance verses drawdown data from MW-3, MP-10, MP-11 and MP-12 resulted in an estimated hydraulic conductivity of 0.071 ft/day. Results are consistent with the likely range of hydraulic conductivity for a silty aquifer (0.001 to 0.1 ft/day). A groundwater velocity was calculated using 0.071 ft/day conductivity, 0.2 ft/ft gradient and 0.3 porosity for a value of 0.047 ft/day. While these calculations can be used to estimate the rate at which water flows through each well, they may not be useful in describing Area C overall given the extreme heterogeneity of the subsurface.

Flow of water from Outfalls 1 and 2 are believed to represent a combination of infiltrating groundwater and storm water. Greater flow is observed from outfalls and the Seep subsequent to rainfall events. Flow in Outfall 2 subsequent to its abandonment in April 2013 has ranged from 1 to 4 gpm. Flow from both outfalls has averaged 1.6 gpm since April 2013. Flow from the Seep is estimated to average less than 1 gpm.

Excavation of the used oil tank within Area C has provided additional insight into the hydrogeology of the Seep on the banks of the LGF. Heavy flow of water was observed in the Seep during and immediately after backfill of this excavation but not prior to backfill on the same day. During backfill, water levels within the excavation were elevated several feet above static levels and discharge from the seep was observed several feet higher on the bank than normal. This indicates that a direct hydraulic connection exists between the former mill race and the Seep, located approximately 50 ft to the east. This supports the supposition, previously made based on the large volume of product historically recovered from the mill race, that this area was the primary source of LNAPL discharging to the LGF.

### **4.3 Summary of Remedial Activities**

The December 2010 CAW proposed remedial excavation, environmental decommissioning of the contents of remaining buildings, and additional investigation. Target excavation areas were identified in a Sub slab Soil Assessment report submitted to MDE in May 2012. For safety reasons in response to fire damage, all above ground structures at the Site were demolished by early 2013. Absence of Site structures greatly facilitated remedial activities. Remedial excavation activities are summarized in **Table 3**. Excavated areas are illustrated in **Figure 16**. During seven remedial excavation events a total of 4,422 tons of soil were disposed of offsite. This corresponds to the removal of approximately 36,900 pounds or 5,042 gallons of hydrocarbons. Approximately 60 gallons of LNAPL and 18 lb of dissolved phase hydrocarbons were recovered during treatment and discharge or offsite disposal of 119,594 gallons of groundwater. In addition, 50 to 100 gallons of fuel/hydraulic oils, petroleum sludge, and containerized petroleum products were recovered from Site structures during environmental

decommissioning. MDE correspondence dated October 8, 2013 acknowledged that remedial activities as described in the CAW were complete.

#### **4.4 Soil Analytical Results**

A large quantity of analytical data has been collected from locations across the Site. Analytical data from all prior Site assessments is summarized in the **Table 4**. Note that locations subsequently excavated and disposed of offsite are stippled to indicate that they are no longer present. Results are presented for a total of 154 soil and sediment samples analyzed for TPH-DRO, 49 analyzed for TPH-GRO, 33 for VOCs, 16 for SVOCs, and 14 for PAHs. No VOCs, SVOCs, PAH or TPH-GRO were detected above MDE residential or non residential cleanup standards in these samples (0% above standards). In contrast TPH-DRO was detected above the MDE non residential cleanup standard in 88 or 57% of these soil samples. Only 15 samples exceed the MDE non residential criteria for TPH-DRO by more than an order of magnitude, the majority of these locations were subsequently excavated. A small number of samples for VOCs (in Areas C, D and E) and SVOCs (in Area C) slightly exceeded MDE protection of groundwater standards. None of these compounds have been detected above standards in Site groundwater and the majority of these sample locations were excavated and disposed of offsite during remediation of TPH-DRO.

These observations reinforce the assertion made in the December 22, 2011 *Corrective Action Work Plan* that TPH-DRO is the only contaminant of concern at this Site and is the only appropriate target for remedial action. Soil analytical data for TPH-DRO is presented in **Figure 16** for the entire Site. Also illustrated are remedial excavation boundaries. Note that only data corresponding to soil remaining on Site is displayed. The majority of soils with elevated TPH-DRO have been disposed of offsite. Some soil with TPH-DRO above MDE standards remain in Areas A, C, D and I. Soils which exceed MDE non residential criteria for TPH-DRO by greater than an order of magnitude remain in place in only two locations within Area C SB-15 (3-4') and NSW with concentrations of 12,200 and 6,390 mg/kg respectively. In summary, remedial assessments throughout the Site indicate that remaining petroleum impacts are limited in extent.

#### 4.5 Ground and Surface Water Analytical Results

During the Phase II assessment in 2001 groundwater samples were collected via temporary well points in Areas A, C, D and H. Samples were also collected from existing monitoring wells in Area C (MW-1, MW-3, MW-4). Results for this analysis are presented in **Table 5**. TPH-DRO exceeded MDE standards in Areas A and C and bis (2-ethylhexy) phthalate was detected above MDE standards in MW-1.

Groundwater quality analytical results within Area C from October 2008 through December 2013 are provided in **Table 6**. TPH-DRO exceeds the 47 ug/l standard for Type I and II aquifers in all Area C wells. However, the perched groundwater at this facility is not suitable for potable use. TPH-DRO ranged from 1,490 ug/l to 26,800 ug/l in Site monitoring wells in December 2013. Analytical results for MP-15 indicated no detectable PAHs, TPH-DRO concentration was 6,130 ug/l. Note that the majority of TPH-DRO is above the theoretical solubility of diesel range hydrocarbons. Solubility under 6,000 ug/l would be expected for fuel oil and for the mineral oil based hydraulic oil present at the Site solubility under 1,000 ug/l is probable. Hence, analytical measurements greater than solubility indicate the presence of a hydrocarbon sheen or colloidal suspension or polar non hydrocarbon compounds resulting from petroleum degradation. To evaluate the possibility that sampling methods mobilize separate phase petroleum, two wells (MW-5 and MW-10) were sampled using low flow purging techniques then sampled using standard three purge methods. Analytical results for both sampling methods were very similar indicating that sampling methods have not affected analytical results. Further comparison of TPH-DRO analytical results with and without a silica gel cleanup step may be warranted to evaluate the degree to which polar non hydrocarbon compounds are present.

Concentrations are observed to fluctuate widely over time in many wells. TPH-DRO concentration of MW-9 increased sharply subsequent to the abandonment of Outfall 2 during the remedial event which occurred in April of 2013. Rising groundwater elevations in the vicinity of MW-5 may have resulted in flow towards MW-9 carrying residual hydrocarbons to this location. Concentrations are expected to decrease as the system reaches equilibrium.

Concentrations of various PAHs above MDE drinking water standards have been sporadically observed in monitoring wells, most notably in MW-2 and MW-7. No PAHs were detected in replacement well MW-7A in December 2013. PAHs slightly above MDE drinking water standards have also recently been observed in MW-6 (benzo(a)pyrene) and MW-9 (naphthalene) in the last two quarters of 2013. In addition, bis (2-Ethylhexyl) phthalate was observed at low concentrations with some regularity in MW-7, on one occasion with a concentration above MDE standards.

DRO concentrations and contours for December 2013 are illustrated in **Figure 17**. TPH-DRO concentrations over time in monitoring wells are illustrated in **Figure 18**. No statistically significant trends have been observed in TPH-DRO concentrations over the monitoring period. TPH-DRO was also detected at levels which exceed the MDE standard at the Seep and outfalls as summarized in **Table 7**. TPH-DRO in outfalls and the seep over time are illustrated in **Figure 19**. No clear trends exist in TPH-DRO concentrations at these locations over time.

Three surface water samples were collected from the LGF river in 2009 and analyzed for VOCs, SVOCs, TPH-DRO and TPH-GRO. No analyses were detected other than bis(2-Ethylhexyl)phthalate which was detected in all samples, but also present in laboratory blanks.

Analytical results for potable wells are summarized in **Table 8**. No petroleum derived VOCs were observed in either well. A low level detection of chloroform, below MDE standards, has been consistently observed in POT-2. Full analytical results for all recent water samples are provided in **Appendix IV**.

In summary TPH-DRO is the only constituent of concern currently present in Site groundwater. It is expected that TPH-DRO concentrations in groundwater will decrease gradually over time in response to the remedial excavation.

## 5.0 SEVEN RISK FACTORS

In order to assess the Site based on risk and make corrective action decisions, the Site was evaluated using the “Seven Risk Factors” as described in the MDE’s MEAT Guidance Document. Each of the “Seven Risk Factors” is discussed below including recommendations for further evaluation or remediation.

### 5.1 Light Non-Aqueous Phase Liquids (LNAPL)

The first documented observation of LNAPL on Site was during December 1986 when NAPL was observed entering the LGF. Initially, up to ten (10) inches of free-phase LNAPL was measured in MW-2. Over time, LNAPL thicknesses decreased to between 1 and 2 inches in both MW-1 and MW-2. An estimated 1,350 gallons of free-phase LNAPL were removed via bailing and vacuum truck extraction from June 1991 through January 1992. Measurable product (0.01’) was last observed in Site monitoring wells in August 2009.

#### 5.1.1 LNAPL Type and Source

No singular source for the LNAPL has been identified. In 2004, Langan performed fingerprint analyses on LNAPL samples collected from the fuel oil AST, the hydraulic oil tank in the pipe room, test pit # 5, and the LGF seep. The fingerprint analyses concluded that the LNAPL which was found in the subsurface and groundwater seeps did *not* match the fuel oil in the ASTs or the water soluble hydraulic oil used after the mid-1980’s. Hydraulic oil used prior to the 1980s is presumed to be the main source of LNAPL. This is consistent with the concentration of staining and LNAPL around the former hydraulic room, outdoor sump/fuel oil AST containment and used oil AST.

#### 5.1.2 LNAPL Distribution

LNAPL has historically been observed in Area C in subsurface soils, as observed thickness' in monitoring wells, and as a discharge to the LGF at the Seep and Outfall 2. Locations with substantial thickness of LNAPL in soils have been excavated and disposed of offsite. Lesser

residual quantities are still present outside the boundaries of the excavation, as observed in borings SB-32, and SB-1 and illustrated in **Figures 5 and 8**. Residual and/or free phase LNAPL was observed in these areas just above bedrock at 8 and 13 feet below ground surface.

No LNAPL greater than sheen has been observed in Site wells since August, 2009. Moderate quantities of LNAPL were observed collecting on the water surface during excavation and recovered. The quantity of LNAPL observed decreased as excavations extended further from the former hydraulic room and AST enclosure. The largest quantity of LNAPL was observed and recovered during the excavation of the used oil AST pit near MW-2. This excavation remained open for a period of approximately one week subsequent to excavation. During this period only a small quantity of LNAPL, one to two feet square in area, was observed and recovered.

LNAPL was historically observed in two separate seeps, the riverbank east of MW-1 (Seep) and on the slope adjacent to the former used oil AST. Discharges of very small quantities of LNAPL totaling much less than a milliliter at any one time, have been observed periodically at the Seep through the present. Discharge is sometimes, but not always associated with elevated groundwater flow to the Seep. As noted above a preferential flow path has been observed between the Seep and the former used oil AST pit. LNAPL was observed more frequently and in slightly larger quantity at the Seep in the days subsequent to excavation of the AST pit but LNAPL has not been observed in unusual quantities since that time.

Available evidence indicates LNAPL has been remediated to the maximum extent possible. Any LNAPL still potentially present at the Site should be largely immobile and that the source of LNAPL discharge to the LGF has been remediated. However, as LNAPL discharge has historically been intermittent, LNAPL remains a potential concern. Hence, continued monitoring and maintenance of sorbent materials in the area of the Seep is warranted. It is expected that if no LNAPL is observed during the course of a year of monitoring this risk factor will be fully addressed.

## **5.2 Current and Future Use of Impacted Groundwater**

The groundwater at the Site is perched water located above bedrock. The facility and surrounding communities are served by non-public supply wells; however, the wells are typically 150-300 feet deep and installed into bedrock. Perched groundwater is not used for direct consumption and would not yield enough water to be used for industrial purposes.

### *5.2.1 Potable Well Sampling*

The facility's potable water was supplied primarily by a groundwater well located in the western portion of the property (POT-1). Details of the construction of the well are not available; however, it has been measured to be 200 feet deep. Another potable well (POT-2) is located on the eastern side of the office building but had not been used for potable water due to bacteria concerns. POT-2 is at a total depth of 106 feet below ground surface (bgs). Sampling of potable wells from 2006 through 2013 has detected no VOCs excepting low levels of chloroform. POT-1 was also tested for and did not contain any detectable TPH-DRO.

### *5.2.2 Use of Groundwater Concern*

Multiple sampling events performed on both potable wells, suggest that the bedrock aquifer is free of petroleum contamination. The shallow, perched, aquifer beneath the Site is not adequate for human consumption, agricultural use or industrial use. Groundwater beneath the Site is not, and shall never be, used for these purposes. Use of this perched groundwater is thus not a concern.

## **5.3 Migration of Contamination**

Groundwater flow is generally toward the east in the direction of the LGF. In addition, an apparent preferential flow path exists between the former location of the used oil AST and the Seep. Perched groundwater discharges at multiple seep and outfall locations along the river bank.

### *5.3.1 Dissolved Contaminants*

The primary dissolved phase contaminant of concern is TPH-DRO. Although individual petroleum compounds have not consistently exceeded their respective MDE-Generic Numeric Cleanup Standards (MDE-GNCS) for groundwater, the TPH-DRO MDE-GNCS (47ug/L) has been exceeded in all nine monitoring wells. This agrees with the fingerprint analysis performed by Torkelson Geochemistry (Langan November 2004 report) where the weathered hydraulic oil samples consisted mainly of unidentified peaks in the C13-C35 range.

TPH-DRO concentrations in monitoring wells from the December 2013 monitoring event ranged from 1,490 to 26,800 ug/L with an arithmetic mean of 5,730 ug/l. **Figure 17** depicts the most recent concentrations of TPH-DRO.

### *5.3.2 Migration of Contamination Concern*

The TPH-DRO detected in the dissolved phase is primarily comprised of unidentifiable peaks in the DRO carbon range and is therefore difficult to assess from a risk perspective. The MDE-GNCS for TPH-DRO in Type I and II aquifers is 47ug/L. This standard is based on the human health risk assumed to be present from an ingestion pathway in the case where all TPH-DRO is in the form of aromatic hydrocarbons, which are more toxic than aliphatic hydrocarbons. Based on the type of source material (hydraulic oil) and chemical analysis performed to date, the bulk of the TPH at this Site consists of aliphatic hydrocarbons. As such, the 47ug/L standard is highly conservative when applied to this Site for the purposes of protecting human health. In addition, the perched water bearing unit does not meet the criteria of a Type I or II aquifers and could not be used for potable water. Therefore, the groundwater cleanup standards for Type I and II aquifers are not applicable.

Rather, given that a pathway for migration of TPH-DRO to the LGF exists, this pathway should be evaluated as an exposure point to humans (dermal contact through wading) and wildlife (Section 5.4 and 5.5).

## 5.4 Human Exposure

The pathways for human exposure are inhalation, ingestion and dermal contact. Inhalation pertains to the vapor phase of the petroleum contamination while ingestion and dermal contact relate to the dissolved and adsorbed phases (soil and groundwater). Each pathway and potential exposure scenario is discussed below.

### 5.4.1 Inhalation Exposure

Due to the lack of VOCs at the Site and the nature of the petroleum product (hydraulic oil), vapor phase contamination is not expected to be a significant concern. No structures are currently present at the Site. During the installation of monitoring wells MW-5, 6, 7 and 8, PID detections were all below instrument detection limits for the first 6-10 feet of soil column during split spoon sampling. The highest PID reading for the four borings was 5 parts per million. Similarly low PID readings have been observed during excavation of source areas. As vapor phase contamination is minimal and no pathway to potential receptors exists, inhalation exposure is not a concern.

### 5.4.2 Dermal Contact

Soil analytical data for TPH-DRO as presented in **Table 3** and **Figure 16** indicate that TPH-DRO is present in some Site soils above the MDE TPH-DRO non-residential clean-up standard of 620 mg/kg. This standard is based on an ingestion pathway and the assumption that all TPH-DRO is in the form of the more toxic aromatic hydrocarbons. For these reasons this standard is not diagnostic of dermal contact risk. Based on less toxic nature of the petroleum product present at the Site, risk associated with dermal exposure is expected to be minimal. In addition no receptors currently exist at the Site and a complete pathway could only exist if soils at the Site were disturbed.

Another potential dermal exposure pathway is through recreational contact during wading activities in the LGF River. Although TPH-DRO is observed above MDE standards in water from outfall locations and in one outfall sediment sample, surface water samples were void of all petroleum contaminants of concern. Therefore, dermal contact through wad

### 5.4.3 Ingestion

The only substance of concern at the Site is TPH-DRO. TPH-DRO standards are 230 mg/kg for residential soils, 620 mg/kg for non-residential soils and 47 ug/l for groundwater. These MDE standards are based on toxicological data compiled by the State of Massachusetts (Characterizing Risks Posed by Petroleum Contaminated Sites: Implementation of MADEP VPH/EPH Approach, October 31, 2002, Policy # WSC-02-0411). The MDE standards assume 100% of hydrocarbons in the TPH-DRO range are aromatic. Given the nature of the product present on Site this is a conservative assumption considering that the MADEP guidance suggests less than 20% of hydraulic oil TPH is aromatic in nature. As such MDE state wide standards are expected to be extremely conservative relative to human health risks actually present at this Site.

The Groundwater Cleanup Standard of 47 ug/L is generally applicable to groundwater from Type I and II aquifers. As observed above groundwater observed in Area C has no potential for residential or industrial use and groundwater cleanup standards for Type I and II aquifers are not appropriate. When in use, the facility was supplied by an on-site supply well installed 200 feet into bedrock. The well has been void of all petroleum compounds. Hence, human ingestion of the petroleum impacted groundwater is not possible due to an incomplete pathway to receptors.

The applicable non-residential standard for TPH-DRO in soils is 620 mg/kg. As observed above, this standard is extremely conservative considering the product type present at the Site.

Subsequent to remediation, soils which exceed the MDE standard by greater than an order of magnitude remain only in an isolated area in the subsurface within Area C. While some human health risk could be associated with potential ingestion of these soils it is expected to be minimal given their limited extent, and the lesser toxicity of the compounds involved. Disturbance in the form of excavation would be required to create a pathway for ingestion of these soils. As the Site is currently not occupied no complete pathway is present for ingestion of soils.

## 5.5 Environmental Ecological Exposure

Individual chemicals of concern were not detected in outfall samples, surface water samples, or monitoring wells above the MDE numerical criteria for toxic substances in surface waters

(COMAR 26.08.02.03-2). This agrees with the results of the fingerprint analysis (Langan 2004) performed on the weathered LNAPL which stated that individual toxic chemicals of concern were not present. Dissolved TPH-DRO is present in monitoring wells and Outfalls and the Seep. However, surface water samples downstream of discharge points have contained no detectable levels of TPH-DRO. This is presumed to result from the small quantity of petroleum impacted ground water discharged to the LGF (averaging less than 3 gpm) compared to the mean flow of approximately 21,000 gpm reported for the LGF at the USGS gauging station at Laurel Brook. Given that TPH-DRO has not been detected in surface water, it is expected that the toxicological effect on ecological receptors in the LGF river is negligible. However, as the discharge of groundwater containing TPH-DRO may continue for an intermediate length of time additional evaluation of the potential ecological impacts of this discharge may be warranted and is addressed in the recommendations section of this Report.

Of more immediate concern, with respect to the degradation of a natural resource, is the intermittent presence of LNAPL sheen discharging through Seep to the LGF River. LNAPL sheen can impact flora and fauna via direct contact and can also inhibit natural processes. This concern is discussed above in the section regarding LNAPL and will be addressed in the Recommendations section of this document.

## **5.6 Impact to Utilities and Other Buried Services**

There are no longer active utilities at the Site. The only remaining subsurface structures within the petroleum impacted area are storm water pipes which discharge to the banks of the LGF River. A spring house and intake for stream water are located outside of the areas of concern. It has previously been observed that outfalls could potentially serve as a transport mechanism for contaminated water to the LGF River. In response Outfall 2, which has frequently contained dissolved phase TPH-DRO and was once observed to contain sheen was abandoned in April 2013. Although flow of infiltrating groundwater continues in Outfall 2 it is believed that this step should eliminate the potential for any substantial discharge of petroleum at this location. Little or

no petroleum impacts are associated with Outfall 1 and this risk factor no longer is relevant to the Site.

## **5.7 Other Sensitive Receptors**

There are no other sensitive receptors to be addressed for this project. The surface water body, Little Gunpowder Falls River, is adequately addressed in the sections above.

## 6.0 CONCLUSIONS/RECOMMENDATIONS

Of primary concern for corrective action at this facility is the discharge of LNAPL sheen to the surface water. Fingerprinting analyses revealed that the LNAPL at this facility is from historic (prior to mid 1980's) hydraulic fluid releases through supply lines and equipment leaks. Remedial actions completed under the CAW have removed the majority of LNAPL source material contributing to the Seep and elucidated the historic sources and transport mechanisms for LNAPL which discharged to the LGF River. Based on field observations, mobile LNAPL has been fully addressed. Continued maintenance and monitoring will be required to confirm that LNAPL discharges have ceased. The on-site potable well has not been impacted by these releases. Furthermore, volatile organic compounds are not present in significant quantities at this Site. Petroleum impacts at the Site consist of TPH-DRO in soil and groundwater.

Risks posed by environmental conditions at the Site were evaluated using MDEs "Seven Risk Factors" contained in the MEAT guidance. Evaluation indicates that the Site presents no current or reasonably anticipated future threat to human health. Potential concerns were identified with regard to LNAPL, contaminant migration, and ecological exposure. Additional steps required to address these concerns are described below.

Based on the above, BSTI makes the following recommendations:

1. Monitoring of Outfalls and the Seep will continue for one additional year (January 2014-January 2015). During this period BSTI will reduce the existing monitoring frequency to bi-monthly. Maintenance and replacement of sorbent pads and boom will continue as necessary. At the completion of one year of monitoring, observations will be evaluated in concert with groundwater data. A proposal will be made at that time regarding any further inspections, if warranted.
2. Groundwater monitoring will continue quarterly for a period of one year (January 2014 to January 2015). Monitoring will be performed only for TPH-DRO and PAHs. Annual sampling for VOCs will be discontinued. On completion of one year of sampling a proposal will be made regarding any further sampling at the Site, if warranted.

3. Sampling of potable wells for VOCs will be discontinued. POT-2, which was previously determined not fit for potable use due to bacterial contamination will be abandoned. POT-1 will be left in place until such time as future use of the Site is determined.
4. Potential for ecological impacts due to the continued discharge of TPH-DRO from the seep will be evaluated through the use of in-vivo ecological toxicity testing. 48-hr acute LC50 testing will be performed with *Ceriodaphnia dubia*. Two tests will be carried out three months apart. This testing protocol is similar to the toxicity testing required for the General Permit for the Discharge of Treated Ground Water from Oil Contaminated Ground Water Sources to Surface or Ground Water of the State for discharges with average flows over 40 gpm. Hence, this testing will provide for a very conservative evaluation of the potential ecological impacts of the much smaller discharge associated with natural flow of groundwater to the LGF River. Testing will be performed using pooled water collected from directly under the Seep. Results of this testing will be evaluated in concert with groundwater data to determine if additional monitoring or evaluation is required.

# TABLES

**Table 1**  
**Area of Concern Stratigraphy**  
**Axil-Belko Kingsville MD**

Area	Area A	Area B	Area D	Area E	Area F	Area G	Area H (in road)	Area I	Area J
First Unit	Silt and Sand with Rubber	Asphalt and Gravel	Asphalt and Gravel or Concrete	Concrete and Gravel	Silt and Sand with buried Asphalt layers	Silt and Sand with Brick and Concrete	Asphalt and Gravel	Concrete and Gravel	Asphalt and Gravel
Bottom of Layer (ft bgs)	1-2	0.5	0.75-1.25	0.5	2-5.25	--	0.5-1	0.5	0.5
Second Unit	Silt	Silt and Sand	Silt and Sand w/wo Rubber and Brick	Silt and Sand with Brick	Weathered Gneiss	--	Silt and Sand w/wo Rubber	Silt and Sand with Brick	Fill with wood and Brick
Bottom of Layer (ft bgs)	1-3	1.5	3-12	6-7.5	--	--	6-9	4-5	1
Third Unit	Weathered Gneiss	Weathered Gneiss	Weathered Gneiss	Weathered Gneiss	--	--	Weathered Gneiss	Weathered Gneiss	Silt
Bottom of Borings (ft bgs)	2-8.5	8	12	11	8	4	20	8	4

**Table 2**  
**Well Gauging Data**  
**Axil Belko**  
**Kingsville, MD**

Well Designation :	MW-1				MW-2			MW-3/MW-3A				MW-4		MW-5			
Casing Elevation :	94.41				98.44			99.37				97.28		99.19			
DATE	DTP	DTW	PT	*ELEV	DTP	DTW	ELEV.	DTP	DTW	PT	*ELEV	DTP	DTW	ELEV.	DTP	DTW	ELEV.
08/07/08	--	12.87	--	81.54	--	13.88	84.56	NM	NM	--	--	--	7.42	89.86	NA	NA	--
10/03/08	--	12.62	--	81.79	--	13.87	84.57	NM	NM	--	--	--	7.38	89.9	NA	NA	--
10/22/08	--	13.12	--	81.29	--	13.83	84.61	NM	NM	--	--	--	7.52	89.76	NA	NA	--
11/11/08	--	12.59	--	81.82	--	13.82	84.62	NM	NM	--	--	--	7.37	89.91	NA	NA	--
12/04/08	--	12.82	--	81.59	--	13.6	84.84	NM	NM	--	--	--	7.39	89.89	NA	NA	--
01/12/09	--	12.3	--	82.11	--	13.8	84.64	NM	NM	--	--	--	7.41	89.87	NA	NA	--
02/05/09	--	12.74	--	81.67	--	13.99	84.45	NM	NM	--	--	--	7.48	89.8	NA	NA	--
03/13/09	--	12.94	--	81.47	--	13.62	84.82	4.19	4.23	0.04	95.14	--	7.53	89.75	NA	NA	--
04/10/09	--	12.18	--	82.23	--	13.98	84.46	3.52	3.53	0.01	95.84	--	7.39	89.89	NA	NA	--
05/21/09	--	11.5	--	82.91	--	13.63	84.81	3.17	3.19	0.02	96.18	--	7.34	89.94	NA	NA	--
06/09/09	--	11.1	--	83.31	--	13.29	85.15	--	2.91	0	96.46	--	7.23	90.05	NA	NA	--
07/27/09	--	12.21	--	82.2	--	13.34	85.1	--	3.2	0	96.17	--	7.34	89.94	NA	NA	--
08/18/09	13.71	13.73	0.02	80.68	--	13.7	84.74	3.25	3.26	0.01	96.11	--	7.35	89.93	NA	NA	--
09/04/09	sheen	12.12	0	82.29	--	13.42	85.02	sheen	3.39	0	95.98	--	7.29	89.99	NA	NA	--
10/19/09	sheen	10.77	0	83.64	--	13.29	85.15	3.64	3.69	0.01	95.68	--	7.35	89.93	--	4.82	94.37
11/13/09	sheen	10.86	0	83.55	--	13.23	85.21	sheen	2.86	0	96.51	--	7.32	89.96	--	4.85	94.34
12/14/09	sheen	9.85	0	84.56	--	13.3	85.14	sheen	2.92	0	96.45	--	7.25	90.03	--	4.91	94.28
01/18/10	--	10.23	0	84.18	--	13.31	85.13	--	2.8	0	96.57	--	7.29	89.99	--	4.93	94.26
02/24/10	--	9.85	0	84.56	--	13	85.44	sheen	2.81	0	96.56	--	7.25	90.03	--	4.75	94.44
04/01/10	--	10.19	0	84.22	--	13.09	85.35	--	2.77	0	96.60	--	7.21	90.07	--	4.5	94.69
05/27/10	--	11.17	0	83.24	--	13.13	85.31	sheen	3.03	0	96.34	--	7.47	89.81	--	5.07	94.12
06/15/10	--	12.34	0	82.07	--	13.27	85.17	sheen	3.22	0	96.15	--	7.53	89.75	--	5.19	94
08/09/10	--	13.09	0	81.32	--	13.41	85.03	sheen	3.51	0	95.86	--	7.52	89.76	--	5.37	93.82
09/22/10	sheen	13.36	0	81.05	sheen	13.81	84.63	sheen	3.78	0	95.59	--	7.58	89.7	--	5.55	93.64
12/21/10	--	12.63	0	81.78	--	13.57	84.87	sheen	3.07	0	96.30	--	7.38	89.9	--	5.23	93.96
02/18/11	--	12.08	0	82.33	--	13.55	84.89	--	2.13	0	97.24	--	7.3	89.98	--	5.18	94.01
03/22/11	--	11.27	0	83.14	--	13.38	85.06	--	3.06	0	96.31	--	7.23	90.05	--	4.71	94.48
04/26/11	--	11.35	0	83.06	--	13.31	85.13	sheen	2.83	0	96.54	--	7.19	90.09	--	4.22	94.97
05/11/11	--	11.83	0	82.58	--	13.4	85.04	--	2.96	0	96.41	--	7.3	89.98	--	4.41	94.78
05/26/11	--	11.89	0	82.52	--	13.52	84.92	sheen	3.19	0	96.18	--	7.27	90.01	sheen	4.44	94.75
06/15/11	sheen	12.18	0	82.23	--	13.71	84.73	sheen	3.24	0	96.13	--	7.31	89.97	sheen	4.63	94.56
07/06/11	--	--	0	--	--	13.61	84.83	sheen	3.54	0	95.83	--	7.36	89.92	--	4.91	94.28
07/20/11	--	12.94	0	81.47	--	13.65	84.79	--	3.58	0	95.79	--	7.32	89.96	--	4.89	94.3
08/02/11	--	12.98	0	81.43	--	13.94	84.5	sheen	3.7	0	95.67	--	7.35	89.93	--	5.01	94.18
08/30/11	sheen	11.1	0	83.31	--	13.4	85.04	--	3.19	0	96.18	--	7	90.28	--	4.16	95.03
09/15/11	--	11.14	0	83.27	--	13.43	85.01	--	3.25	0	96.12	--	6.93	90.35	--	4.02	95.17
10/31/2011	--	10.94	0	83.47	--	13.33	85.11	--	2.67	0	96.70	--	6.92	90.36	--	4.21	94.98
11/21/2011	--	12	0	82.41	--	13.42	85.02	--	2.91	0	96.46	--	7.07	90.21	--	4.45	94.74
12/8/2011	--	9.78	0	84.63	--	13.05	85.39	--	2.72	0	96.65	--	7.02	90.26	--	4.17	95.02
1/25/2012	--	11	0	83.41	--	13.58	84.86	--	NM	--	--	--	7.11	90.17	--	4.79	94.4
2/7/2012	--	11.82	0	82.59	--	13.35	85.09	--	3.34	0	96.03	--	7.19	90.09	--	4.93	94.26
3/8/2012	--	11.65	0	82.76	--	13.4	85.04	--	3.55	0	95.82	--	7.22	90.06	--	4.93	94.26
4/6/2012	--	12.33	0	82.08	--	13.28	85.16	--	3.29	0	96.08	--	7.27	90.01	--	5.01	94.18
4/23/2012	--	10.71	0	83.70	--	13.01	85.43	--	NM	--	--	--	7.13	90.15	--	4.74	94.45
5/3/2012	--	11.18	0	83.23	--	12.14	86.3	--	NM	--	--	--	7.24	90.04	--	5.17	94.02
6/7/2012	--	12.18	0	82.23	--	13.15	85.29	--	NM	--	--	--	7.25	90.03	--	4.98	94.21
6/15/2012	--	11.65	0	82.76	--	13.12	85.32	--	NM	--	--	--	7.48	89.8	--	6.1	93.09
6/21/2012	--	11.75	0	82.66	--	13.06	85.38	--	NM	--	--	--	7.27	90.01	--	5.88	93.31
7/6/2012	--	11.74	0	82.67	--	13.06	85.38	--	NM	--	--	--	7.15	90.13	--	5.82	93.37
8/20/2012	--	10.27	0	84.14	--	12.98	85.46	--	NM	--	--	--	7.89	89.39	--	6.02	93.17
9/19/2012	--	10.32	0	84.09	--	13.01	85.43	--	NM	--	--	--	7.92	89.36	--	6.03	93.16
10/18/2012	--	12.14	0	82.27	--	13.15	85.29	--	NM	--	--	--	7.95	89.33	--	6	93.19
11/21/2012	--	10.48	0	83.93	--	13.09	85.35	--	NM	--	--	--	8.18	89.1	trace	6.34	92.85
12/11/2012	--	10.34	0	84.07	--	12.98	85.46	--	NM	--	--	--	8.2	89.08	--	6.26	92.93
1/9/2013	--	10.37	0	84.04	--	13.05	85.39	--	NM	--	--	--	8.24	89.04	--	6.43	92.76
2/11/2013	--	9.82	0	84.59	--	12.94	85.5	--	NM	--	--	--	8.25	89.03	--	6.32	92.87
3/21/2013	--	9.85	0	84.56	--	13.93	84.51	--	NM	--	--	--	8.31	88.97	--	6.31	92.88
4/15/2013	--	9.85	0	84.56	--	NM	--	--	NM	--	--	--	8.44	88.84	--	6.4	92.79
5/7/2013	--	10.89	0	83.52	--	NM	--	--	NM	--	--	--	7.31	89.97	--	6.33	92.86
6/4/2013	--	9.41	0	85.00	--	NM	--	--	NM	--	--	--	6.73	90.55	--	5.36	93.83
6/21/2013	--	9.49	0	84.92	--	NM	--	--	NM	--	--	--	6.74	90.54	--	5.24	93.95
7/15/2013	--	9.64	0	84.77	--	NM	--	--	NM	--	--	--	6.76	90.52	--	5.08	94.11
8/15/2013	--	10.13	0	84.28	--	NM	--	--	NM	--	--	--	6.74	90.54	--	5.12	94.07
9/24/2013	--	10.78	0	83.63	--	NM	--	--	NM	--	--	--	6.96	90.32	--	5.45	93.74
10/21/2013	--	10.39	0	84.02	--	NM	--	--	NM	--	--	--	7.04	90.24	--	5.35	93.84
11/11/2013	--	11.26	0	83.15	--	NM	--	--	NM	--	--	--	7.1	90.18	--	5.41	93.78
12/17/2013	--	9.41	0	85.00	--	NM	--	--	6.48	--	93.13	--	6.81	90.47	--	5.02	94.17

Note: MW-3A, MW-7A, MW-8A and MW-10 Installed November 2013  
DTW: Depth to water  
DTP: Depth to product  
PT: Product thickness  
ELEV: Water table elevation (\* corrected for product thickness)  
NM: Not measured  
NA: Not Applicable

**Table 2**  
**Well Gauging Data**  
**Axil Belko**  
**Kingsville, MD**

Well Designation :	MW-6			MW-7/MW-7A			MW-8/MW-8A			MW-9			MW-10			MP-15			MP-16		
Casing Elevation :	96.33			95.84			98.71			97.85			91.02			102.04			101.04		
DATE	DTP	DTW	ELEV.	DTP	DTW	ELEV.	DTP	DTW	ELEV.	DTP	DTW	ELEV.	DTP	DTW	ELEV.	DTP	DTW	ELEV.	DTP	DTW	ELEV.
08/07/08	NA	NA	--	NA	NA	--	NA	NA	--	NA	NA	--	NA	NA	--	NA	NA	--	NA	NA	--
10/03/08	NA	NA	--	NA	NA	--	NA	NA	--	NA	NA	--	NA	NA	--	NA	NA	--	NA	NA	--
10/22/08	NA	NA	--	NA	NA	--	NA	NA	--	NA	NA	--	NA	NA	--	NA	NA	--	NA	NA	--
11/11/08	NA	NA	--	NA	NA	--	NA	NA	--	NA	NA	--	NA	NA	--	NA	NA	--	NA	NA	--
12/04/08	NA	NA	--	NA	NA	--	NA	NA	--	NA	NA	--	NA	NA	--	NA	NA	--	NA	NA	--
01/12/09	NA	NA	--	NA	NA	--	NA	NA	--	NA	NA	--	NA	NA	--	NA	NA	--	NA	NA	--
02/05/09	NA	NA	--	NA	NA	--	NA	NA	--	NA	NA	--	NA	NA	--	NA	NA	--	NA	NA	--
03/13/09	NA	NA	--	NA	NA	--	NA	NA	--	NA	NA	--	NA	NA	--	NA	NA	--	NA	NA	--
04/10/09	NA	NA	--	NA	NA	--	NA	NA	--	NA	NA	--	NA	NA	--	NA	NA	--	NA	NA	--
05/21/09	NA	NA	--	NA	NA	--	NA	NA	--	NA	NA	--	NA	NA	--	NA	NA	--	NA	NA	--
06/09/09	NA	NA	--	NA	NA	--	NA	NA	--	NA	NA	--	NA	NA	--	NA	NA	--	NA	NA	--
07/27/09	NA	NA	--	NA	NA	--	NA	NA	--	NA	NA	--	NA	NA	--	NA	NA	--	NA	NA	--
08/18/09	NA	NA	--	NA	NA	--	NA	NA	--	NA	NA	--	NA	NA	--	NA	NA	--	NA	NA	--
09/04/09	NA	NA	--	NA	NA	--	NA	NA	--	NA	NA	--	NA	NA	--	NA	NA	--	NA	NA	--
10/19/09	--	7.27	89.06	--	9.5	86.34	--	7.5	91.21	--	6.94	90.91	NA	--	NA	NA	--	NA	NA	--	
11/13/09	--	7.19	89.14	--	9.69	86.15	--	7.51	91.2	--	6.81	91.04	NA	--	NA	NA	--	NA	NA	--	
12/14/09	--	7	89.33	--	9.6	86.24	--	7.35	91.36	--	6.8	91.05	NA	--	NA	NA	--	NA	NA	--	
01/18/10	--	7.18	89.15	--	9.7	86.14	--	7.55	91.16	--	6.83	91.02	NA	--	NA	NA	--	NA	NA	--	
02/24/10	--	7.13	89.2	--	9.65	86.19	--	7.75	90.96	--	6.81	91.04	NA	--	NA	NA	--	NA	NA	--	
04/01/10	--	7.14	89.19	--	9.48	86.36	--	7.42	91.29	--	6.82	91.03	NA	--	NA	NA	--	NA	NA	--	
05/27/10	--	7.54	88.79	--	10.28	85.56	--	7.77	90.94	--	6.77	91.08	NA	--	NA	NA	--	NA	NA	--	
06/15/10	--	7.61	88.72	--	10.37	85.47	--	7.9	90.81	--	6.76	91.09	NA	--	NA	NA	--	NA	NA	--	
08/09/10	--	7.63	88.7	--	10.82	85.02	--	8.23	90.48	--	6.67	91.18	NA	--	NA	NA	--	NA	NA	--	
09/22/10	--	7.65	88.68	--	11.04	84.8	sheen	8.45	90.26	--	6.6	91.25	NA	--	NA	NA	--	NA	NA	--	
12/21/10	--	7.45	88.88	--	10.59	85.25	sheen	8.13	90.58	--	6.48	91.37	NA	--	NA	NA	--	NA	NA	--	
02/18/11	--	7.39	88.94	--	10.35	85.49	--	8.23	90.48	--	6.59	91.26	NA	--	NA	NA	--	NA	NA	--	
03/22/11	--	7.29	89.04	--	9.5	86.34	--	8.05	90.66	--	6.55	91.3	NA	--	2.8	99.24	--	5.56	95.48	--	
04/26/11	--	7.17	89.16	sheen	9.81	86.03	--	7.84	90.87	--	6.49	91.36	NA	--	2.58	99.46	--	4.97	96.07	--	
05/11/11	--	7.31	89.02	--	9.92	85.92	--	7.95	90.76	--	6.4	91.45	NA	--	2.7	99.34	--	5.11	95.93	--	
05/26/11	--	7.29	89.04	--	9.87	85.97	--	8.01	90.7	--	6.38	91.47	NA	--	2.67	99.37	--	5.12	95.92	--	
06/15/11	--	7.36	88.97	--	10.01	85.83	--	8.17	90.54	--	6.36	91.49	NA	--	2.87	99.17	--	5.4	95.64	--	
07/06/11	--	7.38	88.95	--	10.37	85.47	sheen	8.34	90.37	sheen	6.33	91.52	NA	--	3.39	98.65	--	5.71	95.33	--	
07/20/11	--	7.33	89	--	10.25	85.59	--	8.3	90.41	--	6.31	91.54	NA	--	3.48	98.56	--	5.68	95.36	--	
08/02/11	--	7.35	88.98	--	10.56	85.28	--	8.36	90.35	--	6.3	91.55	NA	--	3.79	98.25	--	5.8	95.24	--	
08/30/11	--	7.08	89.25	--	9.44	86.4	--	7.95	90.76	sheen	6.25	91.6	NA	--	2.31	99.73	--	4.85	96.19	--	
09/15/11	--	7.05	89.28	--	9.5	86.34	--	7.83	90.88	--	6.16	91.69	NA	--	2.2	99.84	--	4.77	96.27	--	
10/31/2011	sheen	7.02	89.31	--	9.54	86.3	--	7.78	90.93	--	6.11	91.74	NA	--	2.43	99.61	--	4.94	96.1	--	
11/21/2011	--	7.02	89.31	--	10.05	85.79	--	8.1	90.61	--	6.11	91.74	NA	sheen	2.67	99.37	--	5.19	95.85	--	
12/8/2011	--	7.03	89.3	--	9.51	86.33	--	NM	--	--	6.31	91.54	NA	--	2.16	99.88	--	5.01	96.03	--	
1/25/2012	--	NM	--	--	9.49	86.35	--	NM	--	--	6.26	91.59	NA	--	2.84	99.2	--	5.47	95.57	--	
2/7/2012	--	7.32	89.01	--	9.93	85.91	--	8.29	90.42	--	6.29	91.56	NA	--	3.23	98.81	--	5.69	95.35	--	
3/8/2012	--	7.31	89.02	--	10	85.84	--	8.35	90.36	--	6.14	91.71	NA	--	3.31	98.73	--	5.74	95.3	--	
4/6/2012	--	7.42	88.91	--	10.23	85.61	--	8.45	90.26	--	6.18	91.67	NA	--	3.32	98.72	--	5.81	95.23	--	
4/23/2012	--	7.35	88.98	--	9.75	86.09	--	8.41	90.3	--	6.09	91.76	NA	--	2.65	99.39	--	5.51	95.53	--	
5/3/2012	--	7.35	88.98	--	10.02	85.82	--	NM	--	--	6.15	91.7	NA	--	3.77	98.27	--	6.04	95	--	
6/7/2012	--	7.43	88.9	--	10.38	85.46	--	NM	--	--	6.04	91.81	NA	--	3.71	98.33	--	5.87	95.17	--	
6/15/2012	--	7.44	88.89	--	NM	--	--	NM	--	--	6.43	91.42	NA	--	7.75	94.29	--	7.42	93.62	--	
6/21/2012	--	7.27	89.06	--	NM	--	--	NM	--	--	6.36	91.49	NA	--	7.06	94.98	--	7.08	93.96	--	
7/6/2012	--	7.16	89.17	--	NM	--	--	NM	--	--	6.26	91.59	NA	--	7.21	94.83	--	7.02	94.02	--	
8/20/2012	--	7.82	88.51	--	NM	--	--	NM	--	--	6.18	91.67	NA	--	7.55	94.49	--	7.1	93.94	--	
9/19/2012	--	7.85	88.48	--	NM	--	--	NM	--	--	6.23	91.62	NA	--	7.55	94.49	--	NM	--	--	
10/18/2012	--	7.89	88.44	--	NM	--	--	NM	--	--	6.43	91.42	NA	--	7.58	94.46	--	7.22	93.82	--	
11/21/2012	--	7.91	88.42	--	NM	--	--	NM	--	--	6.41	91.44	NA	--	7.67	94.37	--	9.28	91.76	--	
12/11/2012	--	7.83	88.5	--	NM	--	--	NM	--	--	6.29	91.56	NA	--	7.65	94.39	--	9.19	91.85	--	
1/9/2013	--	7.91	88.42	--	NM	--	--	NM	--	--	6.51	91.34	NA	--	7.69	94.35	--	9.29	91.75	--	
2/11/2013	--	7.91	88.42	--	NM	--	--	NM	--	--	6.48	91.37	NA	--	7.61	94.43	--	9.2	91.84	--	
3/21/2013	--	7.92	88.41	--	NM	--	--	NM	--	--	6.41	91.44	NA	--	7.6	94.44	--	9.21	91.83	--	
4/15/2013	--	7.96	88.37	--	NM	--	--	NM	--	--	6.47	91.38	NA	--	7.62	94.42	--	9.29	91.75	--	
5/7/2013	--	7.82	88.51	--	NM	--	--	NM	--	--	5.89	91.96	NA	--	7.62	94.42	--	9.28	91.76	--	
6/4/2013	--	7.39	88.94	--	NM	--	--	NM	--	--	4.32	93.53	NA	--	7.43	94.61	--	8.52	92.52	--	
6/21/2013	--	7.44	88.89	--	NM	--	--	NM	--	--	4.04	93.81	NA	--	7.56	94.48	--	7.12	93.92	--	
7/15/2013	--	7.45	88.88	--	NM	--	--	NM	--	--	3.9	93.95	NA	--	7.53	94.51	--	7.63	93.41	--	
8/15/2013	--	7.48	88.85	--	NM	--	--	NM	--	--	3.86	93.99	NA	--	7.58	94.46	--	NM	--	--	
9/24/2013	--	6.2	90.13	--	NM	--	--	NM	--	--	3.9	93.95	NA	--	7.65	94.39	--	8.45	92.59	--	
10/21/2013	--	7.68	88.65	--	NM	--	--	NM	--	--	3.85	94	NA	--	7.64	94.4	--	8.25	92.79	--	
11/11/2013	--	7.79	88.54	--	NM	--	--	NM	--	--	3.9	93.95	NA	--	8.2	93.84	--	7.79	93.25	--	
12/17/2013	--	7.72	88.61	--	7.69	86.48	--	4.43	91.48	--	3.54	94.31	4.56	86.46	--	7.5	94.54	--	7.2	93.84	--

Note: MW-3A, MW-7A,  
DTW: Depth to water  
DTP: Depth to product  
PT: Product thickness  
ELEV: Water table elevat  
NM: Not measured  
NA: Not Applicable

**Table 3**  
**Remedial Activity Summary**  
**Axil-Belko Kingsville MD**

Remedial Target	Date	Soil TPH-DRO (mg/kg)	Soil Quantity (tons)	TPH-DRO Mass Removed (lb)	TPH-DRO Volume Removed (gal)	LNAPL Recovered (gal)	Water Recoverd (gal)	Water TPH-DRO (mg/l)	Aqueous Mass Removed (lb)
Area C	July-13	5,000	1182	11748	1605	20	13000	20	2.1
AST Pit Water Treatment	April-13 to May-13	-	-	-	-	15	59000	12	5.8
Area C	April-13	5,000	321	3190	436	1	-	-	-
UST/AST Locations		2,000	482	1311	179	20	19773	20	3.2
Area C	October-12	9,920	364	2966	405	-	-	-	-
Area C Stockpile	October-12	2,556	277	612	84	-	-	-	-
Area C	July-13	2,705	757	4081	558	2	10390	20	1.7
Area C	June-12	5,182	604	6239	853	2	9431	44.9	3.5
Area A	April-11	9,070	150	2101	287	-	8000	20	1.3
Area D		2,272	225	869	119	-	-	-	-
Area I		35,335	60	3784	517	-	-	-	-
Total		-	4,422	36,900	5,042	60	119,594	-	18

Table 4A  
Soil Analytical TPH-DRO (mg/kg)  
Axil-Belko Kingsville MD

Sample Area:		AREA A										AREA B	
Sample ID:	Non-Residential Standard	APH-1 2.0-3.0	APH-3 4.0	APH-4 3.0-4.0	APH-4 7.0-8.0	AREA A	AREA A	AREA A NE	AREA A NW	AREA A SE	AREA A SW	BPH-3 1.5	BPH-4 0.5-1.5
Date Sampled:		9/27/2001	9/27/2001	11/26/2001	11/26/2001	STOCKPILE 1	STOCKPILE 2	SIDEWALL	SIDEWALL	SIDEWALL	SIDEWALL	9/26/2001	9/26/2001
TPH-DRO (C10-C28)	620	2,200	6,400	5,900	12,000	4,640	13,500	53	958	6,180	530	ND	ND

Sample Area:		AREA C											
Sample ID:	Non-Residential Standard	BS-1	BS-2	BS-3	CPH-2 6.5-7.5	CPH-4 2.0-3.0	CPH-5 6.0-7.0	CPH-6 4.5-5.5	CPH-7 9.0-10.0	CPH-9 3.0-10.0	CPH-10 10.0-11.0	DISPOSAL	ESW-2
Date Sampled:		6/13/2012	6/13/2012	6/13/2012	9/28/2001	9/28/2001	9/28/2001	9/28/2001	9/28/2001	9/28/2001	11/26/2001	10/24/2012	10/24/2012
TPH-DRO (C10-C28)	620	551	8,620	606	ND	4,900	140	180	2,600	670	10	9,920	2,990

Sample Area:		AREA C											
Sample ID:	Non-Residential Standard	ESW-3	HYDRAULIC ROOM	HYDRAULIC ROOM 2	MW-5	MW-6	MW-8	MW-7	NSW	NSW-2	S SIDEWALL-1	S SIDEWALL-2	SIDEWALL-E1
Date Sampled:		4/19/2013	7/23/2012	7/25/2012	9/30/2009	9/30/2009	9/30/2009	10/1/2009	10/24/2012	4/19/2013	7/25/2012	7/25/2012	7/26/2012
TPH-DRO (C10-C28)	620	ND 4.2	2,710	2,700	7,360	1,800	2,350	2,710	6,390	79	829	ND 0.35	1,570

Sample Area:		AREA C											
Sample ID:	Non-Residential Standard	SB-1 3'-4'	SB-5 3'-4'	SB-7 5'-6'	SB-15 3'-4'	SB-15 6'	SB-26 3'-4'	SB-34 11'-12'	SP-1	SP-1	SP-10	SP-11	SP-11
Date Sampled:		3/14/2012	3/14/2012	3/14/2012	3/14/2012	3/14/2012	3/15/2012	3/15/2012	4/18/2013	4/18/2013	4/18/2013	4/18/2013	4/18/2013
TPH-DRO (C10-C28)	620	ND 0.37	ND 0.34	ND 0.36	12,200	5,280	5,590	ND 0.41	1,780	1,530	858	3,490	3,170

Sample Area:		AREA C											
Sample ID:	Non-Residential Standard	SP-2	SP-2	SP-3	SP-4	SP-5	SP-6	SP-7	SP-8	SP-9	SP-N1	SP-N2	SP-S1
Date Sampled:		4/18/2013	4/18/2013	4/18/2013	4/18/2013	4/18/2013	4/18/2013	4/18/2013	4/18/2013	4/18/2013	4/18/2013	6/12/2012	6/12/2012
TPH-DRO (C10-C28)	620	940	1,360	917	795	1,150	1,410	1,980	1,170	1,080	1,820	2,000	1,220

Sample Area:		AREA C											
Sample ID:	Non-Residential Standard	SP-S2	SP-S3	SP-S4	SP-S5	SP-S6	SP-W1	SP-W2	SS-1	SS-2	SW-1	SW-2	SW-3
Date Sampled:		6/12/2012	6/12/2012	7/23/2012	7/25/2012	7/26/2012	6/14/2012	6/14/2012	6/15/2012	6/15/2012	4/17/2013	4/17/2013	4/17/2013
TPH-DRO (C10-C28)	620	1,560	4,460	816	43	131	1,260	759	4,590	22,600	106	103	1,540

Sample Area:		AREA C							
Sample ID:	Non-Residential Standard	SW-4	PIT BOTTOM-1	PIT BOTTOM-2	PIT BOTTOM-2A	TAIL RACE SIDEWALL-1	TAIL RACE SIDEWALL-2	WOSW-1	WOSW-2
Date Sampled:		4/17/2013	8/5/2013	8/5/2013	8/8/2013	8/5/2013	8/5/2013	8/5/2013	8/5/2013
TPH-DRO (C10-C28)	620	48	20,700	659	ND 4.5	1,020	1,890	716	2,090

Table 4A  
Soil Analytical TPH-DRO (mg/kg)  
Axil-Belko Kingsville MD

Sample Area:	Non-Residential Standard	AREA D											
Sample ID:		AREA D BOTTOM 1	AREA D BOTTOM 2	AREA D BOTTOM 3	AREA D BOTTOM 4	AREA D BOTTOM 5	AREA D BOTTOM 6	AREA D BOTTOM 7	AREA D SIDEWALL 1	AREA D SIDEWALL 2	AREA D SIDEWALL 3	AREA D SIDEWALL NE	AREA D SIDEWALL NW
Date Sampled:		4/1/2011	4/1/2011	4/1/2011	4/1/2011	4/1/2011	4/1/2011	4/1/2011	4/1/2011	4/1/2011	4/1/2011	4/1/2011	4/1/2011
TPH-DRO (C10-C28)	620	38	114	5,750	59	22	ND 6.8	ND 5.7	485	1,170	ND 6	1,400	122

Sample Area:	Non-Residential Standard	AREA D									
Sample ID:		AREA D SIDEWALL SE	AREA D STOCKPILE A-1	AREA D STOCKPILE B-1	AREA D SW SIDEWALL	DPH-3 3.0-4.0	DPH-5 2.0-3.0	DPH-3 9.0-10.0	DPH-6 3.0-4.0	DPH-6 6.5-7.5	
Date Sampled:		4/1/2011	4/1/2011	4/1/2011	4/4/2011	9/25/2001	9/25/2001	9/26/2001	11/26/2001	11/26/2001	
TPH-DRO (C10-C28)	620	61	3,940	604	340	2,200	213	130	2,000	40	

Sample Area:	Non-Residential Standard	AREA E							AREA F				
Sample ID:		EPH-3 8.0-9.0	EPH-4 8.0-9.0	T2 E SIDEWALL	T2 N SIDEWALL	T2 S SIDEWALL	T2 W SIDEWALL	TANK 2 PIPEING	FPH-1 1.5-0.5	FPH-3 1.5-0.5	ACCUMULAT E	SB-39 16'-17'	SB-39 4'-5'
Date Sampled:		9/25/2001	9/25/2001	4/3/2013	4/3/2013	4/3/2013	4/3/2013	4/3/2013	9/26/2001	9/26/2001	8/4/2011	3/16/2012	3/16/2012
TPH-DRO (C10-C28)	620	ND	ND	43	32	ND 4.4	27	ND 4.4	ND	ND	2,710	ND 0.41	ND 0.35

Sample Area:	Non-Residential Standard	AREA F											
Sample ID:		SB-40 4'-5'	SB-41 11'-12'	SW-1	SW-2	SW-3	CRAWL SPACE FLOOR-1	CRAWL SPACE FLOOR-2	CRAWL SPACE FLOOR-3	CRAWL SPACE SIDEWALL 4	CRAWL SPACE SIDEWALL 5	CRAWL SPACE SW-6	CRAWL SPACE SW-7
Date Sampled:		3/16/2012	3/16/2012	7/24/2013	7/24/2013	7/24/2013	7/29/2013	7/29/2013	7/29/2013	7/29/2013	7/29/2013	7/29/2013	
TPH-DRO (C10-C28)	620	25	ND 0.36	ND 0.39	642	20	1,430	1,240	1,100	387	80	1,100	5,200

Sample Area:	Non-Residential Standard	AREA G		AREA H		AREA I							
Sample ID:		GPH-3 1.5-0.5	HPH-2 1.5-0.5	HPH-5 1.5-0.5	HPH-7 1.5-0.5	AREA I BOTTOM	AREA I SIDEWALL	AREA I STOCKPILE 2	AREA II STOCKPILE	IPH-1 7.0-8.0	IPH-2 7.0-8.0	IPH-3 3.0-4.0	IPH-3 6.0-7.0
Date Sampled:		9/26/2001	9/27/2001	9/27/2001	9/27/2001	3/31/2011	3/31/2011	4/1/2011	4/1/2011	11/28/2001	11/28/2001	11/28/2001	11/28/2001
TPH-DRO (C10-C28)	620	170	ND	ND	ND	1,620	26	60,700	9,970	5,600	ND	51,000	9,400

Sample Area:	Non-Residential Standard	A Frame					Fuel Oil UST					
Sample ID:		JPH-1 1.5-0.5	SB-43 8'-9'	SB-44 10-11	SB-45 1-2	SB-46 2-3	SB-47 2.5-3.5	SB-48 2-3	TANK3-SIDEWALL-N1	TANK3-SIDEWALL-N2	UST N SIDEWALL	UST N SIDEWALL
Date Sampled:		9/26/2001	3/16/2012	3/16/2012	3/16/2012	3/16/2012	3/16/2012	3/16/2012	4/5/2013	4/5/2013	7/26/2013	7/26/2013
TPH-DRO (C10-C28)	620	ND	ND 0.34	1,170	ND 0.35	ND 0.34	ND 0.34	1,140	1,370	10,200	1,570	3,290

Sample Area:	Non-Residential Standard	SEDIMENT					
Sample ID:		SED-2	SED-3	SED-1	SED-2	SED-3	SED-4
Date Sampled:		9/30/2009	9/30/2009	6/16/2011	6/16/2011	6/16/2011	6/16/2011
TPH-DRO (C10-C28)	620	11	692	ND 0.39	ND 0.39	ND 0.4	ND 0.42

Legend:

All values in mg/kg

Detected

Exceed Standard

Exceed Standard > 10x

Excavated

**Table 4B**  
Soil Analytical PAHs (ug/kg)  
Axil-Beiko Kingsville MD

Sample Area:	Residential Standard	Non-Residential Standard	Protection of Ground Water Standard	AREA A			AREA C						AREA D	SEDIMENT				
				APH-1	APH-3	CPH-2	CPH-4	CPH-5	CPH-6	CPH-7	MW-5	MW-6	MW-8	DPH-5 2.0-3.0	SED-1	SED-2	SED-3	
				2.0-3.0	3.0-4.0	6.5-7.5	2.0-3.0	6.0-7.0	4.5-5.5	9.0-10.0								
<b>Date Sampled:</b>				9/27/2001	9/27/2001	9/28/2001	9/28/2001	9/28/2001	9/28/2001	9/28/2001	9/28/2001	9/30/2009	9/30/2009	9/30/2009	9/25/2001	9/30/2009	9/30/2009	9/30/2009
Acenaphthene	470000	6100000	100000	ND	ND (0.75)	ND (0.75)	ND (0.70)	213	ND (1.2)	ND (0.73)	ND (0.92)							
Acenaphthylene	470000	6100000	100000	ND	ND (0.71)	ND (0.71)	ND (0.66)	-	ND (1.1)	ND (0.69)	ND (0.87)							
Anthracene	2300000	31000000	470000	ND	88	31.4	42.4	-	ND (0.61)	7.26	9.35							
Benzo(a)anthracene	220	3900	480	ND	ND (0.45)	ND (0.44)	ND (0.41)	-	13.1	20.3	ND (0.54)							
Benzo(a)pyrene	22	390	120	ND	ND (0.34)	ND (0.33)	ND (0.31)	-	ND (0.54)	16.6	ND (0.41)							
Benzo(b)fluoranthene	220	3900	1500	ND	ND (0.28)	ND (0.27)	ND (0.26)	-	ND (0.44)	17	38.7							
Benzo(g,h,i)perylene	230000	3100000	680000	ND	ND (0.34)	ND (0.34)	ND (0.32)	-	ND (0.54)	ND (0.33)	ND (0.41)							
Benzo(k)fluoranthene	2200	39000	15000	ND	ND (0.22)	ND (0.22)	ND (0.21)	-	9.43	10.7	ND (0.27)							
Bis(2-ethylhexyl) phthalate	2200	39000	15000	ND	ND	ND	ND	560	ND	ND	ND	-	-	-	-	-	-	-
Chrysene	22000	390000	48000	ND	ND (0.43)	ND (0.42)	ND (0.40)	-	ND (0.68)	16.4	ND (0.52)							
Dibenzo(a,h)anthracene	22	390	460	ND	ND (0.24)	ND (0.24)	ND (0.23)	-	ND (0.39)	ND (0.24)	ND (0.30)							
Fluoranthene	310000	4100000	6300000	ND	ND (0.35)	ND (0.35)	ND (0.32)	-	ND (0.56)	56.8	ND (0.42)							
Fluorene	310000	4100000	140000	ND	77.8	32.2	47.1	-	ND (1.1)	ND (0.67)	8.79							
Indeno(1,2,3-cd)pyrene	220	3900	4200	ND	ND (0.45)	ND (0.45)	ND (0.42)	-	12	14.7	ND (0.55)							
Naphthalene	160000	2000000	150	ND	ND (0.71)	ND (0.71)	ND (0.66)	-	ND (1.1)	ND (0.69)	ND (0.87)							
1-Methylnaphthalene	-	-	-	ND	ND (0.66)	ND (0.66)	ND (0.62)	-	ND (1.1)	ND (0.65)	ND (0.81)							
2-Methylnaphthalene	31000	410000	4400	ND	ND (1.6)	ND (1.6)	ND (1.5)	-	ND (2.6)	ND (1.6)	ND (2.0)							
Phenanthrene	2300000	31000000	470000	ND	ND (0.39)	79.4	53.1	-	ND (0.62)	31.6	22.1							
Pyrene	230000	3100000	680000	ND	250	101	123	-	13.6	37.2	31.4							

Legend:

All values in ug/kg

Detected

Exceed Standard

Excavated

Table 4C  
Soil Analytical SVOCs (ug/kg)  
Axil-Belko Kingsville MD

Sample Area: Sample ID:	Residential Standard	Non- Residential Standard	Protection of Ground Water Standard	AREA C								AREA D			AREA F	AREA G	AREA H		SEDIMENT		
				MW-5	MW-6	MW-8	MW-7	WOSW-1	WOSW-2	DPH-3 3.0- 4.0	DPH-5 2.0- 3.0	DPH-3 9.0- 10.0	FPH-1 0.5- 1.5	GPH-3 0.5-1.5	HPH-2 0.5- 1.5	HPH-5 0.5- 1.5	SED-1	SED-2	SED-3		
Date Sampled:				9/30/2009	9/30/2009	9/30/2009	10/1/2009	8/5/2013	8/5/2013	9/25/2001	9/25/2001	9/26/2001	9/26/2001	9/26/2001	9/27/2001	9/27/2001	9/30/2009	9/30/2009	9/30/2009		
2-Chlorophenol	39000	510000	--	ND (37)	ND (37)	ND (35)	ND (34)	ND (37)	ND (35)	-	-	-	-	-	-	-	ND (60)	ND (36)	ND (45)		
4-Chloro-3-methyl phenol	-	-	-	ND (37)	ND (37)	ND (35)	ND (34)	ND (36)	ND (34)	-	-	-	-	-	-	-	ND (59)	ND (36)	ND (45)		
2,4-Dichlorophenol	23000	310000	1200	ND (59)	ND (59)	ND (56)	ND (55)	ND (58)	ND (55)	-	-	-	-	-	-	-	ND (95)	ND (58)	ND (72)		
2,4-Dimethylphenol	160000	2000000	6700	ND (61)	ND (62)	ND (58)	ND (57)	ND (61)	ND (57)	-	-	-	-	-	-	-	ND (100)	ND (60)	ND (75)		
2,4-Dinitrophenol	16000	200000	--	ND (45)	ND (45)	ND (42)	ND (41)	ND (44)	ND (42)	-	-	-	-	-	-	-	ND (72)	ND (44)	ND (55)		
4,6-Dinitro-o-cresol	-	-	-	ND (45)	ND (45)	ND (42)	ND (41)	ND (44)	ND (42)	-	-	-	-	-	-	-	ND (72)	ND (44)	ND (55)		
2-Methylphenol	390000	5100000	--	ND (42)	ND (42)	ND (39)	ND (39)	ND (41)	ND (39)	-	-	-	-	-	-	-	ND (68)	ND (41)	ND (51)		
3&4-Methylphenol	-	-	-	ND (46)	ND (47)	ND (44)	ND (43)	ND (46)	ND (43)	-	-	-	-	-	-	-	ND (75)	ND (46)	ND (57)		
2-Nitrophenol	-	-	-	ND (39)	ND (39)	ND (37)	ND (36)	ND (38)	ND (36)	-	-	-	-	-	-	-	ND (63)	ND (38)	ND (48)		
4-Nitrophenol	-	-	-	ND (62)	ND (62)	ND (58)	ND (57)	ND (61)	ND (58)	-	-	-	-	-	-	-	ND (100)	ND (61)	ND (76)		
Pentachlorophenol	5300	24000	--	ND (63)	ND (63)	ND (59)	ND (58)	ND (62)	ND (58)	-	-	-	-	-	-	-	ND (100)	ND (62)	ND (77)		
Phenol	2300000	31000000	67000	ND (38)	ND (39)	ND (36)	ND (36)	ND (38)	ND (36)	-	-	-	-	-	-	-	ND (62)	ND (38)	ND (47)		
2,3,4,6-Tetrachlorophenol	-	-	-	-	-	-	-	ND (37)	ND (35)	-	-	-	-	-	-	-	-	-	-		
2,4,5-Trichlorophenol	780000	10000000	--	ND (42)	ND (43)	ND (40)	ND (39)	ND (42)	ND (40)	-	-	-	-	-	-	-	ND (69)	ND (42)	ND (52)		
2,4,6-Trichlorophenol	58000	260000	--	ND (34)	ND (35)	ND (32)	ND (32)	ND (34)	ND (32)	-	-	-	-	-	-	-	ND (56)	ND (34)	ND (42)		
Acenaphthene	470000	6100000	100000	ND (11)	ND (11)	ND (10)	25.2 J	ND (11)	ND (9.9)	-	-	-	-	-	-	-	ND (17)	ND (10)	ND (13)		
Acenaphthylene	470000	6100000	100000	ND (12)	ND (12)	ND (11)	ND (11)	ND (12)	ND (11)	-	-	-	-	-	-	-	ND (19)	ND (12)	ND (14)		
Acetophenone	-	-	-	-	-	-	-	ND (6.4)	38.2 J	-	-	-	-	-	-	-	-	-	-		
Anthracene	2300000	31000000	470000	ND (13)	ND (13)	ND (12)	ND (12)	76	ND (12)	-	-	-	-	-	-	-	ND (21)	ND (13)	ND (16)		
Atrazine	-	-	-	-	-	-	-	ND (7.1)	ND (8.7)	-	-	-	-	-	-	-	-	-	-		
Benzo(a)anthracene	220	3900	480	ND (12)	ND (12)	ND (11)	ND (11)	321	ND (11)	-	-	-	-	-	-	-	ND (19)	ND (12)	ND (15)		
Benzo(a)pyrene	22	390	120	ND (11)	ND (11)	ND (11)	ND (11)	283	ND (10)	-	-	-	-	-	-	-	ND (18)	ND (11)	ND (14)		
Benzo(b)fluoranthene	220	3900	1500	ND (12)	ND (12)	ND (12)	ND (11)	418	ND (11)	-	-	-	-	-	-	-	ND (20)	ND (12)	ND (15)		
Benzo(g,h,i)perylene	230000	3100000	680000	ND (14)	ND (14)	ND (13)	ND (13)	180	ND (13)	-	-	-	-	-	-	-	ND (22)	ND (13)	ND (17)		
Benzo(k)fluoranthene	2200	39000	15000	ND (14)	ND (14)	ND (13)	ND (13)	149	ND (13)	-	-	-	-	-	-	-	ND (22)	ND (14)	ND (17)		
bis(2-ethylhexyl) phthalate	46000	200000	2900000	ND (32)	ND (33)	ND (31)	ND (30)	171	ND (30)	1300	213	ND	1100	1500	220J	ND	311	ND (32)	ND (40)		
4-Bromophenyl phenyl ether	-	-	-	ND (13)	ND (13)	ND (13)	ND (12)	ND (13)	ND (12)	-	-	-	-	-	-	-	ND (22)	ND (13)	ND (16)		
Butyl benzyl phthalate	-	-	-	ND (21)	ND (21)	ND (20)	ND (20)	ND (4.2)	ND (4.0)	-	-	-	-	-	-	-	ND (34)	ND (21)	ND (26)		
1,1' Biphényl	-	-	-	-	-	-	-	ND (8.3)	ND (7.9)	-	-	-	-	-	-	-	-	-	-		
Benzaldehyde	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
2-Chloronaphthalene	630000	8200000	32000	ND (11)	ND (11)	ND (11)	ND (11)	ND (11)	ND (11)	-	-	-	-	-	-	-	ND (18)	ND (11)	ND (14)		
4-Chloroaniline	31000	410000	970	ND (12)	ND (12)	ND (11)	ND (11)	ND (12)	ND (11)	-	-	-	-	-	-	-	ND (19)	ND (12)	ND (14)		
Carbazole	32000	140000	470	ND (17)	ND (17)	ND (16)	ND (16)	63.4 J	ND (16)	-	-	-	-	-	-	-	ND (27)	ND (17)	ND (21)		
Caprolactam	-	-	-	-	-	-	-	ND (11)	ND (11)	-	-	-	-	-	-	-	-	-	-		
Chrysene	22000	390000	48000	ND (12)	ND (12)	ND (12)	ND (11)	348	ND (12)	-	-	-	-	-	-	-	ND (20)	ND (12)	ND (15)		
bis(2-Chloroethoxy)methane	-	-	-	ND (15)	ND (15)	ND (14)	ND (14)	ND (15)	ND (14)	-	-	-	-	-	-	-	ND (24)	ND (15)	ND (18)		
bis(2-Chloroethyl)ether	580	2600	0.044	ND (11)	ND (11)	ND (10)	ND (10)	ND (11)	ND (10)	-	-	-	-	-	-	-	ND (18)	ND (11)	ND (14)		
bis(2-Chloroisopropyl)ether	9100	41000	1.7	ND (11)	ND (11)	ND (10)	ND (10)	ND (11)	ND (10)	-	-	-	-	-	-	-	ND (18)	ND (11)	ND (13)		
4-Chlorophenyl phenyl ether	-	-	-	ND (11)	ND (11)	ND (10)	ND (10)	ND (11)	ND (10)	-	-	-	-	-	-	-	ND (18)	ND (11)	ND (14)		
1,2-Dichlorobenzene	700000	9200000	4600	ND (11)	ND (11)	ND (9.9)	ND (9.8)	-	-	-	-	-	-	-	-	-	ND (17)	ND (10)	ND (13)		
1,3-Dichlorobenzene	23000	310000	290	ND (9.8)	ND (9.8)	ND (9.3)	ND (9.1)	-	-	-	-	-	-	-	-	-	ND (16)	ND (9.6)	ND (12)		
1,4-Dichlorobenzene	27000	120000	4.2	ND (8.2)	ND (8.2)	ND (7.7)	14.9 J	-	-	-	-	-	-	-	-	-	ND (13)	ND (8.0)	ND (10)		
2,4-Dinitrotoluene	16000	200000	570	ND (16)	ND (16)	ND (15)	ND (15)	ND (16)	ND (15)	-	-	-	-	-	-	-	ND (26)	ND (16)	ND (20)		
2,6-Dinitrotoluene	7800	100000	250	ND (14)	ND (14)	ND (13)	ND (13)	ND (14)	ND (13)	-	-	-	-	-	-	-	ND (23)	ND (14)	ND (17)		
3,3'-Dichlorobenzidine	1400	6400	4.9	ND (9.3)	ND (9.4)	ND (8.8)	ND (8.6)	ND (9.2)	ND (8.7)	-	-	-	-	-	-	-	ND (15)	ND (9.1)	ND (11)		
Dibenz(a,h)anthracene	22	390	460	ND (12)	ND (13)	ND (12)	ND (12)	88.7	ND (12)	-	-	-	-	-	-	-	ND (20)	ND (12)	ND (15)		
Dibenzofuran	7800	100000	--	ND (11)	ND (11)	ND (10)	ND (10)	ND (11)	ND (10)	-	-	-	-	-	-	-	ND (18)	ND (11)	ND (13)		
Di-n-butyl phthalate	780000	10000000	5000000	ND (8.1)	ND (8.2)	ND (7.7)	ND (7.9)	ND (8.0)	ND (7.6)	-	-	-	-	-	-	-	ND (13)	ND (8.0)	ND (10)		
Di-n-octyl phthalate	-	-	-	ND (18)	ND (18)	ND (17)	ND (17)	ND (18)	ND (17)	-	-	-	-	-	-	-	ND (29)	ND (18)	ND (22)		
Diethyl phthalate	6300000	82000000	450000	ND (12)	ND (13)	ND (12)	ND (12)	ND (12)	ND (12)	-	-	-	-	-	-	-	ND (20)	ND (12)	ND (15)		
Dimethyl phthalate	-	-	-	ND (13)	ND (13)	ND (12)	ND (12)	ND (13)	ND (12)	-	-	-	-	-	-	-	ND (21)	ND (13)	ND (16)		
Fluoranthene	310000	4100000	6300000	ND (16)	ND (16)	ND (15)	ND (15)	727	ND (15)	-	-	-	-	-	-	-	ND (26)	ND (16)	ND (20)		
Fluorene	310000	4100000	140000	77.8	ND (12)	ND (11)	52.5	ND (12)	ND (11)	-	-	-	-	-	-	-	ND (19)	ND (12)	ND (15)		
Hexachlorobenzene	400	1800	52	ND (12)	ND (12)	ND (11)	ND (11)	ND (12)	ND (11)	-	-	-	-	-	-	-	ND (19)	ND (12)	ND (15)		
Hexachlorobutadiene	8200	37000	1800	ND (10)	ND (10)	ND (9.6)	ND (9.4)	ND (10)	ND (9.5)	-	-	-	-	-	-	-	ND (16)	ND (10)	ND (12)		
Hexachlorocyclopentadiene	47000	610000	1800000	ND (37)	ND (38)	ND (35)	ND (35)	ND (37)	ND (35)	-	-	-	-	-	-	-	ND (60)	ND (37)	ND (46)		
Hexachloroethane	46000	200000	360	ND (10)	ND (10)	ND (9.6)	ND (9.4)	ND (10)	ND (9.5)	-	-	-	-	-	-	-	ND (16)	ND (10)	ND (12)		
Indeno(1,2,3-cd)pyrene	220	3900	4200	ND (13)	ND (13)	ND (12)	ND (12)	219	ND (12)	-	-	-	-	-	-	-	ND (21)	ND (12)	ND (16)		
Isophorone	670000	3000000	410	ND (9.8)	ND (9.9)	ND (9.3)	ND (9.1)	ND (9.7)	ND (9.2)	-	-	-	-	-	-	-	ND (16)	ND (9.7)	ND (12)		
2-Methylnaphthalene	31000	410000	4400	ND (20)	ND (21)	ND (19)	ND (19)	ND (20)	ND (19)	-	-	-	-	-	-	-	ND (33)	ND (20)	ND (25)		
2-Nitroaniline	-	-	-	ND (16)	ND (16)	ND (15)	ND (15)	ND (16)	ND (15)	-	-	-	-	-	-	-	ND (26)	ND (16)	ND (20)		
3-Nitroaniline	-	-	-	ND (15)	ND (15)	ND (14)	ND (14)	ND (14)	ND (14)	-	-	-	-	-	-	-	ND (24)	ND (14)	ND (18)		
4-Nitroaniline	-	-	-	ND (14)	ND (14)	ND (13)	ND (13)	ND (14)	ND (13)	-	-	-	-	-	-	-	ND (23)	ND (14)	ND (18)		
Naphthalene	160000	2000000	150	ND (10)	ND (10)	ND (9.4)	ND (9.3)	ND (9.9)	ND (9.3)	-	-	-	-	-	-	-	ND (16)	ND (9.8)	ND (12)		
Nitrobenzene	3900	51000	23	ND (11)	ND (11)	ND (10)	ND (9.8)	ND (10)	ND (9.9)	-	-	-	-	-	-	-	ND (17)	ND (10)	ND (13)		
N-Nitroso-di-n-propylamine	91	410	0.047	ND (8.9)	ND (8.9)	ND (8.4)	ND (8.3)	ND (8.8)	ND (8.3)	-	-	-	-	-	-	-	ND (14)	ND (8.8)	ND (11)		
N-Nitrosodiphenylamine	130000	580000	760	ND (22)	ND (22)	ND (21)	ND (20)	ND (22)	ND (20)	-	-	-	-	-	-	-	ND (35)	ND (21)	ND (27)		
Phenanthrene	2300000	31000000	470000	ND (17)	39.3	ND (16)	ND (15)	385	ND (16)	-	-	-	-	-	-	-	ND (27)	ND (16)	ND (20)		
Pyrene	230000	3100000	680000	101	34.6 J	ND (13)	55.6	485	39.7	-	-	-	-	-	-	-	ND (23)	ND (14)	ND (17)		
1,2,4-Trichlorobenzene	78000	1000000	2400	ND (9.7)	ND (9.8)	ND (9.2)	ND (9.0)	ND (11)	ND (10)	-	-	-	-	-	-	-	ND (16)	ND (9.6)	ND (12)		

Legend:  
All values in ug/kg  
Detected  
Exceed Standard  
Excavated

Table 4D  
Soil Analytical TPH-GRO (ug/kg)  
Axil-Belko Kingsville MD

Sample Area:	Residential Standard	Non-Residential Standard	Protection of Ground Water Standard	AREA A				AREA B	
Sample ID:				APH-1 2.0-3.0	APH-3 3.0-4.0	APH-4 3.0-4.0	APH-4 7.0-8.0	BPH-3 0.5-1.5	BPH-4 0.5-1.5
Date Sampled:				9/27/2001	9/27/2001	11/26/2001	11/26/2001	9/26/2001	9/26/2001
TPH-GRO (C6-C10)	230000	620000	--	ND	1700	ND	ND	ND	ND

Sample Area:	Residential Standard	Non-Residential Standard	Protection of Ground Water Standard	AREA C												
Sample ID:				CPH-2 6.5-7.5	CPH-4 2.0-3.0	CPH-5 6.0-7.0	CPH-6 4.5-5.5	CPH-7 9.0-10.0	CPH-9 2.0-3.0	CPH-10 10.0-11.0	MW-5	MW-6	MW-8	MW-7	WOSW-1	WOSW-2
Date Sampled:				9/28/2001	9/28/2001	9/28/2001	9/28/2001	9/28/2001	11/26/2001	11/26/2001	9/30/2009	9/30/2009	9/30/2009	10/1/2009	8/5/2013	8/5/2013
TPH-GRO (C6-C10)	230000	620000	--	ND	600	3100	560	ND	1900	140	ND (1500)	ND (1500)	ND (1400)	17100	ND (3000)	ND (2900)

Sample Area:	Residential Standard	Non-Residential Standard	Protection of Ground Water Standard	AREA D						AREA E						AREA F		AREA G
Sample ID:				DPH-3 4.0	DPH-5 2.0-3.0	DPH-3 9.0-10.0	DPH-6 3.0-4.0	DPH-6 6.5-7.5	EPH-3 8.0-9.0	EPH-4 8.0-9.0	T2 E SIDEWALL	T2 N SIDEWALL	T2 S SIDEWALL	T2 W SIDEWALL	TANK 2 PIPEING	FPH-1 0.5-1.5	FPH-3 0.5-1.5	GPH-3 0.5-1.5
Date Sampled:				9/25/2001	9/25/2001	9/26/2001	11/26/2001	11/26/2001	9/25/2001	9/25/2001	4/3/2013	4/3/2013	4/3/2013	4/3/2013	4/3/2013	4/3/2013	9/26/2001	9/26/2001
TPH-GRO (C6-C10)	230000	620000	--	14000	23000	ND	110	ND	ND	ND	ND (1300)	ND (1300)	ND (1200)	ND (1200)	ND (1300)	ND	ND	ND

Sample Area:	Residential Standard	Non-Residential Standard	Protection of Ground Water Standard	AREA H			AREA I				AREA J	Fuel Oil UST		SEDIMENT			AREA W	
Sample ID:				HPH-2 0.5-1.5	HPH-5 0.5-1.5	HPH-7 0.5-1.5	IPH-1 7.0-8.0	IPH-2 7.0-8.0	IPH-3 3.0-4.0	IPH-3 6.0-7.0	JPH-1 0.5-1.5	TANK3- SIDEWALL N1	TANK3- SIDEWALL N2	SED-1	SED-2	SED-3	WOSW-1	WOSW-2
Date Sampled:				9/27/2001	9/27/2001	9/27/2001	11/28/2001	11/28/2001	11/28/2001	11/28/2001	9/26/2001	4/5/2013	4/5/2013	9/30/2009	9/30/2009	9/30/2009	8/5/2013	8/5/2013
TPH-GRO (C6-C10)	230000	620000	--	ND	ND (1200)	ND (1300)	ND (3000)	ND (1400)	ND (2000)	ND (3000)	ND (2900)							

Legend:  
All values in ug/kg  
Detected  
Exceed Standard  
Excavated

Table 4E  
Soil Analytical VOCs (ug/kg)  
Axil-Belco Kingsville MD

Sample Area: Sample ID:	Residential Standard	Non- Residential Standard	Protection of Ground Water Standard	AREA C							AREA D					AREA E					AREA F	AREA G	AREA H	Fuel Oil UST		SEDIMENT												
				CPH-2 6.5-7.5 9/28/2001	CPH-5 6.0 9/28/2001	MW-5 9/30/2009	MW-6 9/30/2009	MW-8 9/30/2009	MW-7 10/1/2009	WOSW-1 8/5/2013	WOSW-2 8/5/2013	AREA D 4/1/2011	DPH-3 3.0 4.0 9/25/2001	DPH-5 2.0-3.0 9/25/2001	DPH-3 9.0-10.0 9/26/2001	EPH-3 8.0-9.0 9/25/2001	EPH-4 8.0-9.0 9/25/2001	T2 E 4/3/2013	T2 N 4/3/2013	T2 S 4/3/2013	T2 W 4/3/2013	TANK 2 4/3/2013	FPH-1 0.5-1.5 9/26/2001	GPH-3 0.5 1.5 9/26/2001	HPH-2 0.5 1.5 9/27/2001	HPH-5 0.5- 1.5 9/27/2001	TANK3- N1 4/5/2013	TANK3- N2 4/5/2013	SED-1 9/30/2009	SED-2 9/30/2009	SED-3 9/30/2009							
Acetone	7000000	92000000	22000	110	89	77.7	62.5	10.4 J	24.9	24.9	ND (2.0)	ND (1.9)	ND (2.9)	25	23.6	47.2	19.9	23.9	73	47	100	ND	200	ND (1.7)	10.4	ND (1.7)	12.4	ND (1.9)	-	-	-	-	ND (1.9)	32.8	61.5	ND (2.5)	ND (3.2)	
Benzene	12000	52000	1.9	ND	ND	ND (0.38)	ND (0.39)	2.2	3.1	3.1	ND (0.14)	ND (0.13)	ND (0.44)	ND (0.38)	ND (0.36)	0.50 J	ND (0.44)	ND (0.34)	4J	ND	ND	-	-	ND (0.12)	0.82 J	ND (0.12)	ND (0.13)	ND (0.13)	-	-	-	-	ND (0.14)	ND (0.15)	ND (0.98)	ND (0.38)	ND (0.50)	
Bromobenzene	-	-	-	-	-	-	-	-	-	-	ND (0.31)	ND (0.30)	ND (0.47)	ND (0.41)	ND (0.38)	ND (0.49)	ND (0.47)	ND (0.36)	-	-	-	-	-	ND (0.15)	ND (0.15)	ND (0.15)	ND (0.17)	ND (0.17)	-	-	-	-	-	-	-	-	-	
Bromochloromethane	-	-	-	-	-	-	-	-	-	-	ND (0.31)	ND (0.30)	ND (0.47)	ND (0.41)	ND (0.38)	ND (0.49)	ND (0.47)	ND (0.36)	-	-	-	-	-	ND (0.15)	ND (0.15)	ND (0.15)	ND (0.17)	ND (0.17)	-	-	-	-	-	-	-	-	-	
Bromodichloromethane	10000	46000	1.1	-	-	ND (0.29)	ND (0.30)	ND (0.28)	ND (0.28)	ND (0.28)	ND (0.12)	ND (0.12)	ND (0.33)	ND (0.29)	ND (0.27)	ND (0.34)	ND (0.33)	ND (0.26)	-	-	-	-	-	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.12)	ND (0.12)	-	-	-	-	-	ND (0.12)	ND (0.13)	ND (0.74)	ND (0.29)	ND (0.37)
Bromoform	81000	360000	67	-	-	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.16)	ND (0.16)	ND (0.17)	ND (0.17)	ND (0.20)	ND (0.17)	ND (0.16)	ND (0.20)	ND (0.19)	ND (0.15)	-	-	-	-	-	ND (0.15)	ND (0.15)	ND (0.15)	ND (0.17)	ND (0.17)	-	-	-	-	-	ND (0.17)	ND (0.19)	ND (0.44)	ND (0.17)	ND (0.22)
Bromomethane	11000	140000	41	-	-	ND (0.45)	ND (0.46)	ND (0.44)	ND (0.43)	ND (0.43)	ND (0.32)	ND (0.31)	ND (0.52)	ND (0.46)	ND (0.42)	ND (0.54)	ND (0.52)	ND (0.40)	-	-	-	-	-	ND (0.15)	ND (0.15)	ND (0.15)	ND (0.17)	ND (0.17)	-	-	-	-	-	ND (0.31)	ND (0.35)	ND (1.2)	ND (0.45)	ND (0.59)
2-Butanone (MEK)	4700000	61000000	29000	15	14	ND (2.2)	ND (2.3)	ND (2.2)	ND (2.1)	ND (2.1)	ND (2.8)	ND (2.7)	ND (2.6)	ND (2.2)	ND (2.1)	ND (2.6)	ND (2.5)	ND (2.0)	ND	12	18	ND	44	ND (2.4)	ND (2.4)	ND (2.4)	ND (2.7)	ND (2.6)	-	-	-	-	-	ND (2.7)	ND (3.1)	ND (5.7)	ND (2.2)	ND (2.9)
n-Butylbenzene	-	-	-	-	-	-	-	-	-	-	-	-	ND (0.49)	ND (0.43)	ND (0.40)	ND (0.51)	ND (0.49)	ND (0.38)	-	-	-	-	-	ND (0.11)	0.30 J	ND (0.11)	0.52 J	ND (0.13)	-	-	-	-	-	-	-	-	-	-
sec-Butylbenzene	-	-	-	-	-	-	-	-	-	-	ND (0.63)	ND (0.55)	ND (0.51)	ND (0.66)	ND (0.66)	ND (0.62)	ND (0.49)	-	-	-	-	-	-	ND (0.12)	ND (0.11)	ND (0.11)	ND (0.13)	ND (0.13)	-	-	-	-	-	-	-	-	-	
tert-Butylbenzene	-	-	-	-	-	-	-	-	-	-	-	-	ND (0.63)	ND (0.55)	ND (0.51)	ND (0.66)	ND (0.62)	ND (0.49)	-	-	-	-	-	ND (0.12)	ND (0.11)	ND (0.11)	ND (0.13)	ND (0.13)	-	-	-	-	-	-	-	-	-	
Carbon disulfide	780000	10000000	19000	-	-	ND (0.34)	ND (0.35)	ND (0.34)	ND (0.33)	ND (0.33)	ND (0.14)	ND (0.13)	ND (0.72)	ND (0.63)	ND (0.75)	ND (0.71)	ND (0.55)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND (0.13)	ND (0.15)	ND (0.88)	ND (0.34)	ND (0.44)
Carbon tetrachloride	4900	22000	2.1	-	-	ND (0.62)	ND (0.64)	ND (0.61)	ND (0.59)	ND (0.59)	ND (0.15)	ND (0.15)	ND (0.12)	ND (0.12)	ND (0.12)	ND (0.15)	ND (0.11)	ND (0.55)	-	-	-	-	-	ND (0.13)	ND (0.13)	ND (0.13)	ND (0.15)	ND (0.15)	-	-	-	-	-	ND (0.15)	ND (0.17)	ND (1.6)	ND (0.62)	ND (0.81)
Chlorobenzene	160000	2000000	680	-	-	ND (0.38)	ND (0.39)	0.97 J	6.2	6.2	ND (0.12)	ND (0.12)	ND (0.44)	ND (0.38)	ND (0.36)	ND (0.46)	ND (0.43)	ND (0.34)	ND	61	ND	-	-	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.12)	ND (0.12)	-	-	-	-	-	ND (0.12)	ND (0.14)	ND (0.98)	ND (0.38)	ND (0.49)
Chloroethane	220000	990000	19	-	-	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.2)	ND (1.2)	ND (0.26)	ND (0.25)	ND (1.3)	ND (1.1)	ND (1.0)	ND (1.3)	ND (1.3)	ND (1.0)	-	-	-	-	-	ND (0.23)	ND (0.23)	ND (0.23)	ND (0.25)	ND (0.25)	-	-	-	-	-	ND (0.26)	ND (0.29)	ND (3.3)	ND (1.3)	ND (1.7)
Chloroform	78000	1000000	0.91	-	-	ND (0.35)	ND (0.37)	ND (0.35)	ND (0.34)	ND (0.34)	ND (0.095)	ND (0.093)	ND (0.41)	ND (0.36)	ND (0.33)	ND (0.43)	ND (0.41)	ND (0.32)	-	-	-	-	-	ND (0.084)	ND (0.083)	ND (0.083)	ND (0.092)	ND (0.091)	-	-	-	-	-	ND (0.095)	ND (0.11)	ND (0.92)	ND (0.36)	ND (0.46)
Chloromethane	-	-	930	-	-	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.19)	ND (0.17)	ND (0.22)	ND (0.21)	ND (0.16)	-	-	-	-	-	ND (0.19)	ND (0.19)	ND (0.19)	ND (0.21)	ND (0.21)	-	-	-	-	-	ND (0.21)	ND (0.24)	ND (0.48)	ND (0.19)	ND (0.24)
Cyclohexane	-	-	-	-	-	-	-	-	-	-	ND (0.14)	ND (0.14)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
o-Chlorotoluene	-	-	-	-	-	-	-	-	-	-	ND (0.37)	ND (0.32)	ND (0.30)	ND (0.38)	ND (0.37)	ND (0.37)	ND (0.29)	-	-	-	-	-	-	ND (0.13)	ND (0.13)	ND (0.13)	ND (0.14)	ND (0.14)	-	-	-	-	-	-	-	-	-	-
p-Chlorotoluene	-	-	-	-	-	-	-	-	-	-	ND (0.32)	ND (0.28)	ND (0.26)	ND (0.33)	ND (0.31)	ND (0.24)	-	-	-	-	-	-	-	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.15)	ND (0.15)	-	-	-	-	-	-	-	-	-	-
Di-Isopropyl ether	-	-	-	-	-	ND (0.24)	ND (0.24)	ND (0.23)	ND (0.23)	ND (0.23)	-	-	-	-	-	-	-	-	-	-	-	-	-	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.20)	ND (0.20)	-	-	-	-	-	ND (0.61)	ND (0.24)	ND (0.31)	-	-
1,2-Dibromo-3-chloropropane	200	3600	0.0037	-	-	-	-	-	-	-	ND (1.0)	ND (1.0)	ND (0.70)	ND (0.61)	ND (0.57)	ND (0.73)	ND (0.69)	ND (0.54)	-	-	-	-	-	ND (0.90)	ND (0.90)	ND (0.90)	ND (0.99)	ND (0.99)	-	-	-	-	-	-	-	-	-	-
Dibromochloromethane	7600	34000	0.83	-	-	ND (0.12)	ND (0.13)	ND (0.12)	ND (0.12)	ND (0.12)	ND (0.19)	ND (0.18)	ND (0.14)	ND (0.12)	ND (0.12)	ND (0.15)	ND (0.11)	-	-	-	-	-	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.18)	ND (0.18)	-	-	-	-	-	ND (0.19)	ND (0.21)	ND (0.32)	ND (0.12)	ND (0.16)	
1,2-Dibromoethane	320	1400	0.06	-	-	-	-	-	-	-	ND (0.15)	ND (0.14)	ND (0.18)	ND (0.15)	ND (0.14)	ND (0.18)	ND (0.18)	ND (0.14)	-	-	-	-	-	ND (0.13)	ND (0.13)	ND (0.13)	ND (0.14)	ND (0.14)	-	-	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	700000	9200000	4600	-	-	-	-	-	-	-	ND (0.22)	ND (0.21)	ND (0.35)	ND (0.30)	ND (0.28)	ND (0.36)	ND (0.35)	ND (0.27)	-	-	-	-	-	ND (0.19)	ND (0.19)	ND (0.19)	ND (0.21)	ND (0.21)	-	-	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	23000	310000	290	-	-	-	-	-	-	-	ND (0.22)	ND (0.21)	ND (0.36)	ND (0.31)	ND (0.29)	ND (0.37)	ND (0.35)	ND (0.27)	-	-	-	-	-	ND (0.19)	ND (0.19)	ND (0.19)	ND (0.21)	ND (0.21)	-	-	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	27000	120000	4.2	-	-	-	-	-	-	-	ND (0.20)	ND (0.20)	ND (0.44)	ND (0.38)	ND (0.35)	ND (0.45)	ND (0.43)	ND (0.34)	-	-	-	-	-	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.20)	ND (0.20)	-	-	-	-	-	-	-	-	-	-
Dichlorodifluoromethane	-	-	-	-	-	-	-	-	-	-	ND (0.26)	ND (0.26)	ND (1.2)	ND (1.1)	ND (0.99)	ND (1.3)	ND (1.2)	ND (0.94)	-	-	-	-	-	ND (0.23)	ND (0.23)	ND (0.23)	ND (0.25)	ND (0.25)	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethane	1600000	20000000	5100	-	-	ND (0.15)	ND (0.16)	ND (0.15)	ND (0.15)	ND (0.15)	ND (0.16)	ND (0.15)	ND (0.18)	ND (0.16)	ND (0.19)	ND (0.18)	ND (0.14)	-	-	-	-	-	-	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.15)	ND (0.15)	-	-	-	-	-	ND (0.16)	ND (0.18)	ND (0.40)	ND (0.16)	ND (0.20)
1,2-Dichloroethane	7000	31000	1	-	-	ND (0.38)	ND (0.40)	ND (0.38)	ND (0.37)	ND (0.37)	ND (0.16)	ND (0.15)	ND (0.45)	ND (0.39)	ND (0.36)	ND (0.46)	ND (0.44)	ND (0.34)	-	-	-	-	-	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.15)	ND (0.15)	-	-	-	-	-	ND (0.15)	ND (0.17)	ND (0.99)	ND (0.39)	ND (0.50)
1,1-Dichloroethene	390000	5100000	2900	-	-	ND (0.74)	ND (0.76)	ND (0.73)	ND (0.71)	ND (0.71)	ND (0.30)	ND (0.29)	ND (0.86)	ND (0.75)	ND (0.69)	ND (0.89)	ND (0.85)	ND (0.66)	-	-	-	-	-	ND (0.26)	ND (0.26)	ND (0.26)	ND (0.29)	ND (0.28)	-	-	-	-	-	ND (0.29)	ND (0.33)	ND (1.9)	ND (0.74)	ND (0.96)
cis-1,2-Dichloroethene	78000	1000000	-	-	-	ND (0.27)	ND (0.26)	ND (0.26)	ND (0.26)	ND (0.26)	ND (0.21)	ND (0.21)	ND (0.31)	ND (0.27)	ND (0.25)	ND (0.32)	ND (0.31)	ND (0.24)	-	-	-	-	-	ND (0.19)	ND (0.18)	ND												

**Table 5**  
**Phase II Groundwater Analytical**  
**Axil-Belko Kingsville MD**

			W-1	W-3	W-4
Constituent	MDE Standard	Units	11/27/01	11/27/01	11/27/01
<b>VOCs</b>	NA	NA	-	-	-
Acetone	61	ug/L	3 J	9 J	ND
<b>SVOCs</b>	NA		-	-	-
bis (2-ethylhexyl) phthalate	6	ug/L	47	ND	ND
<b>TPH-GRO</b>	47	ug/L	ND	ND	ND
<b>TPH-DRO</b>	47	ug/L	16,000	11,000	5,300

			AGW-1	CGW-1	DGW-1	HGW-1
Constituent	MDE Standard	Units	11/27/01	11/27/01	11/27/01	11/27/01
<b>VOCs</b>	NA	NA	-	-	-	-
Acetone	61	ug/L	6 J	18	5 J	5 J
2-Butanone	700	ug/L	ND	3 J	ND	ND
<b>PAHs</b>	NA	ug/L	ND	-	-	-
<b>SVOCs</b>	NA	ug/L	-	ND	ND	-
<b>TPH-GRO</b>	47	ug/L	ND	ND	ND	-
<b>TPH-DRO</b>	47	ug/L	6,900	7,600	ND	ND

Table 6  
Groundwater Analytical Data  
Asil Belko  
Kingsville, MD

Well #: W-1			10/22/2008		1/12/09		4/21/2009 <sup>2</sup>		8/18/09 <sup>2</sup>		10/19/09 <sup>2</sup>		12/14/09 <sup>2</sup>		4/1/10 <sup>2</sup>		6/15/10 <sup>2</sup>		9/22/10 <sup>2</sup>		3/22/2011 <sup>2</sup>		6/15/2011 <sup>2</sup>		9/15/2011 <sup>3</sup>		12/8/2011 <sup>3</sup>		3/8/2012 <sup>3</sup>		6/7/2012 <sup>3</sup>		9/19/2012 <sup>3</sup>		12/11/2012 <sup>3</sup>		3/21/2013 <sup>3</sup>		6/04/2013 <sup>3</sup>		9/24/2013 <sup>3</sup>		12/17/2013 <sup>3</sup>			
Constituent	MDE Standard	Units	Results	RDL	Results	RDL	Results	RDL	Results	RDL	Results	RDL	Results	RDL	Results	RDL	Results	RDL	Results	RDL	Results	RDL	Results	RDL	Results	RDL	Results	RDL	Results	RDL	Results	RDL	Results	RDL	Results	RDL	Results	RDL	Results	RDL	Results	RDL				
			VOCs (PPL + Xylene) <sup>1</sup>	NA	µg/L	ND	-	ND	-	ND	-	NS (Sheen)	-	NS (Sheen)	-	ND	-	ND	-	NS (Sheen)	-	NS (Sheen)	-	ND	-	NS (Sheen)	-	NS (Sheen)	-	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-	
2-Butanone (MEK)	700	µg/L	ND	1.6	ND	1.6	ND	1.6	NS (Sheen)	1.6	NS (Sheen)	0.1	179	1.6	ND	1.6	ND	1.6	NS (Sheen)	-	ND	1.6	NS (Sheen)	-	NS (Sheen)	-	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-		
PAHs	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Anthracene	180	µg/L	0.023 J	0.019	ND	0.019	ND	0.1	NS (Sheen)	0.1	NS (Sheen)	0.1	ND	0.1	ND	0.1	ND	0.1	NS (Sheen)	-	ND	0.1	NS (Sheen)	-	NS (Sheen)	-	NS	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1
Benzo (b) flouranthene	0.2	µg/L	0.0090 J	0.008	0.0080 J	0.008	ND	0.1	NS (Sheen)	0.1	NS (Sheen)	0.1	ND	0.1	ND	0.1	ND	0.1	NS (Sheen)	-	ND	0.1	NS (Sheen)	-	NS (Sheen)	-	NS	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1		
Benzo (k) flouranthene	0.3	µg/L	0.0080 J	0.008	ND	0.008	ND	0.1	NS (Sheen)	0.1	NS (Sheen)	0.1	ND	0.1	ND	0.1	ND	0.1	NS (Sheen)	-	ND	0.1	NS (Sheen)	-	NS (Sheen)	-	NS	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1		
TPH-GRO	47	µg/L	ND	20	ND	20	ND	200	NS (Sheen)	200	NS (Sheen)	200	ND	200	ND	200	ND	200	NS (Sheen)	-	ND	200	NS (Sheen)	-	NS (Sheen)	-	NS	200	ND	200	ND	200	ND	200	ND	200	NS	-	NS	-	NS	-	NS	-		
TPH-DRO	47	µg/L	8,000	320	5,500	150	4,840	100	NS (Sheen)	100	NS (Sheen)	100	1,340	100	3,410	100	1,820	100	NS (Sheen)	-	3,150	100	2,780	100	NS (Sheen)	-	4,240	100	1,320	100	5,980	100	3,590	100	4,500	100	2,030	100	5,000	100	13,300	200	4,550	200	4,920	200

Well #: W-2			10/22/2008		1/12/09		4/21/2009 <sup>2</sup>		8/18/09 <sup>2</sup>		10/19/09 <sup>2</sup>		12/14/09 <sup>2</sup>		4/1/10 <sup>2</sup>		6/15/10 <sup>2</sup>		9/22/10 <sup>2</sup>		12/21/2010 <sup>2</sup>		3/22/2011 <sup>2</sup>		6/15/2011 <sup>2</sup>		9/15/2011 <sup>3</sup>		12/8/2011 <sup>3</sup>		3/8/2012 <sup>3</sup>		6/7/2012 <sup>3</sup>		9/19/2012 <sup>3</sup>		12/11/2012 <sup>3</sup>		3/21/2013 <sup>3</sup>		6/04/2013 <sup>3</sup>		9/24/2013 <sup>3</sup>		12/17/2013 <sup>3</sup>	
Constituent	MDE Standard	Units	Results	RDL	Results	RDL	Results	RDL	Results	RDL	Results	RDL	Results	RDL	Results	RDL	Results	RDL	Results	RDL	Results	RDL	Results	RDL	Results	RDL	Results	RDL	Results	RDL	Results	RDL	Results	RDL	Results	RDL	Results	RDL	Results	RDL	Results	RDL				
			VOCs (PPL + Xylene) <sup>1</sup>	NA	µg/L	ND	-	ND	-	ND	-	ND	-	ND	-	ND	-	ND	-	NS (Sheen)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Acetone	550	µg/L	ND	10	ND	10	ND	10	ND	10	ND	10	ND	10	ND	10	ND	10	NS (Sheen)	-	3.3 J	10	ND	10	ND	10	ND	10	ND	10	ND	10	ND	10	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-
Carbon Disulfide	100	µg/L	ND	2	ND	2	ND	2	ND	2	ND	2	ND	2	ND	2	ND	2	NS (Sheen)	-	0.85 J	2.0	ND	2.0	0.74 J	2.0	ND	2.0	ND	2.0	ND	2.0	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-
PAHs	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Flourene	24	µg/L	0.11 J	0.094	0.59	0.095	ND	0.1	ND	0.1	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NS (Sheen)	-	ND	1.0	NS (Sheen)	-	NS (Sheen)	-	NS	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0		
Phenanthrene	180	µg/L	2.6	0.038	14	0.038	0.344	0.1	ND	0.1	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NS (Sheen)	-	ND	1.0	NS (Sheen)	-	NS (Sheen)	-	NS	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0		
Anthracene	180	µg/L	0.45	0.019	1.8	0.019	0.257	0.1	ND	0.1	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NS (Sheen)	-	ND	1.0	NS (Sheen)	-	NS (Sheen)	-	NS	1.0	0.45 J	1.0	0.51	1.0	1	1.0	0.41 J	1.0	ND	1.0	0.54 J	1.0	AB	-	AB	-	AB	-
Flouranthene	150	µg/L	3.5	0.019	15	0.19	ND	0.1	ND	0.1	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NS (Sheen)	-	ND	1.0	NS (Sheen)	-	NS (Sheen)	-	NS	1.0	1.8	1.0	2.2	1.0	6.8	1.0	2.9	1.0	ND	1.0	4.9	1.0	AB	-	AB	-	AB	-
Pyrene	18	µg/L	3.3	0.094	13	0.095	1.62	0.1	ND	0.1	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NS (Sheen)	-	ND	1.0	NS (Sheen)	-	NS (Sheen)	-	NS	1.0	1.3	1.0	1.6	1.0	6.1	1.0	2.5	1.0	ND	1.0	3.6	1.0	AB	-	AB	-	AB	-
Benzo (a) anthracene	0.2	µg/L	1.4	0.009	5	0.095	ND	0.1	ND	0.1	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NS (Sheen)	-	ND	1.0	NS (Sheen)	-	NS (Sheen)	-	NS	1.0	0.70 J	1.0	0.83	1.0	3.10	1.0	1.90	1.0	ND	1.0	1.90	1.0	AB	-	AB	-	AB	-
Benzo (b) flouranthene	0.2	µg/L	1.3	0.008	4	0.076	0.971	0.1	ND	0.1	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NS (Sheen)	-	ND	1.0	NS (Sheen)	-	NS (Sheen)	-	NS	1.0	0.57 J	1.0	0.73	1.0	2.90	1.0	1.90	1.0	ND	1.0	2.30	1.0	AB	-	AB	-	AB	-
Benzo (a) pyrene	0.2	µg/L	1.3	0.009	4	0.095	ND	0.1	ND	0.1	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NS (Sheen)	-	ND	1.0	NS (Sheen)	-	NS (Sheen)	-	NS	1.0	0.42 J	1.0	0.49	1.0	2.10	1.0	1.30	1.0	ND	1.0	1.80	1.0	AB	-	AB	-	AB	-
Dibenzo (a,h) anthracene	0.2	µg/L	0.11	0.019	0.32	0.019	ND	0.1	ND	0.1	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NS (Sheen)	-	ND	1.0	NS (Sheen)	-	NS (Sheen)	-	NS	1.0	ND	1.0	ND	1.0	0.49 J	1.0	ND	1.0	ND	1.0	0.58 J	1.0	AB	-	AB	-	AB	-
Indeno (1,2,3-cd) pyrene	0.2	µg/L	1.3	0.038	4.2	0.038	ND	0.1	ND	0.1	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NS (Sheen)	-	ND	1.0	NS (Sheen)	-	NS (Sheen)	-	NS	1.0	1.10	1.0	0.87 J	1.0	1.10	1.0	ND	1.0	1.10	1.0	AB	-	AB	-	AB	-		
Benzo (g,h,i) perylene	18	µg/L	2.2	0.057	6.5	0.057	ND	0.1	ND	0.1	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NS (Sheen)	-	ND	1.0	NS (Sheen)	-	NS (Sheen)	-	NS	1.0	ND	1.0	ND	1.0	1	1.0	0.89 J	1.0	ND	1.0	1.3	1.0	AB	-	AB	-	AB	-
Chrysene	3	µg/L	2	0.038	5.1	0.038	ND	0.1	ND	0.1	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NS (Sheen)	-	ND	1.0	NS (Sheen)	-	NS (Sheen)	-	NS	1.0	0.66 J	1.0	0.69	1.0	2.7	1.0	1.9	1.0	ND	1.0	2.3	1.0	AB	-	AB	-	AB	-
Benzo (k) flouranthene	0.3	µg/L	0.71	0.008	2.3	0.008	1.01	0.1	ND	0.1	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NS (Sheen)	-	ND	1.0	NS (Sheen)	-	NS (Sheen)	-	NS	1.0	ND	1.0	ND	1.0	1.30	1.0	1.20	1.0	ND	1.0	1.20	1.0	AB	-	AB	-	AB	-
SVOCs (Full Suite)	NA	-	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-		
bis (2-Ethylhexyl) phthalate	6	µg/L	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-	NS (Sheen)	-	2.7	2.0	2.7	2.0	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-
TPH-GRO	47	µg/L	ND	20	ND	20	ND	200	NS (Sheen)	200	NS (Sheen)	200	ND	200	ND	200	ND	200	NS (Sheen)	-	ND	200	NS (Sheen)	-	NS (Sheen)	-	NS	200	ND	200	ND	200	ND	200	ND	200	NS	-	NS	-	NS	-	NS	-	NS	-
TPH-DRO	47	µg/L	6,400	330	9,300	300	144,000	1,000	5,310	1,000	1,730	100																																		





Table 7  
Analytical Results Outfalls and Seep  
Axil Belko  
Kingsville, MD

Outfall 1		9/30/09		12/21/10		3/22/11		6/15/11		9/15/11		12/9/11		3/8/12		6/7/12		9/19/12		12/11/12		3/21/13		6/4/13		9/24/13		12/18/13	
Constituent	Results	RDL	Results	RDL	Results	RDL	Results	RDL	Results	RDL	Results	RDL	Results	RDL	Results	RDL	Results	RDL	Results	RDL	Results	RDL	Results	RDL	Results	RDL	Results	RDL	
VOCs (PPL + Xylene) <sup>1</sup>	ND	-	NS	-	NS	-	ND	-	ND	-	ND	-	ND	-	NS	-	NS	-	NS	-	ND	-	NS	-	NS	-	NS	-	
PAHs	ND	-	NS	-	NS	-	ND	-	ND	-	ND	-	ND	-	NS	-	NS	-	NS	-	ND	-	NS	-	NS	-	NS	-	
SVOCs (Full Suite)	ND	-	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-	
bis (2-Ethylhexyl) phthalate	1.4 B	2	NS	-	NS	-	NS	-	ND	2	ND	2	ND	2	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-	
TPH-GRO	ND	200	NS	-	NS	-	ND	200	ND	200	ND	200	ND	200	ND	200	ND	200	NS	-	ND	-	ND	-	ND	-	ND	-	
TPH-DRO	ND	100	142	100	ND	100	ND	100	ND	100	ND	100	ND	100	ND	100	238	100	ND	100	279	100	146	100	ND	100	172	100	
Outfall 2		9/30/09		12/21/10		3/22/11		6/15/11		9/15/11		12/9/11		3/8/12		6/7/12		9/19/12		12/11/12		3/21/13		6/4/13		9/24/13		12/18/13	
Constituent	Results	RDL	Results	RDL	Results	RDL	Results	RDL	Results	RDL	Results	RDL	Results	RDL	Results	RDL	Results	RDL	Results	RDL	Results	RDL	Results	RDL	Results	RDL	Results	RDL	
VOCs (PPL + Xylene) <sup>1</sup>	ND	-	NS	-	NS	-	ND	-	ND	-	ND	-	ND	-	NS	-	NS	-	NS	-	ND	-	NS	-	NS	-	NS	-	
Toluene	ND	1	NS	-	NS	-	ND	1	ND	1	0.62 J	1	ND	1	NS	-	NS	-	NS	-	ND	1	NS	-	NS	-	NS	-	
Ethylbenzene	ND	1	NS	-	NS	-	ND	1	ND	1	0.44 J	1	ND	1	NS	-	NS	-	NS	-	ND	1	NS	-	NS	-	NS	-	
Xylene (total)	ND	1	NS	-	NS	-	ND	1	ND	1	3.3	1	ND	1	NS	-	NS	-	NS	-	ND	1	NS	-	NS	-	NS	-	
Tetrachloroethene	ND	1	NS	-	NS	-	ND	1	ND	1	1	1	ND	1	NS	-	NS	-	NS	-	ND	1	NS	-	NS	-	NS	-	
PAHs	ND	-	NS	-	NS	-	ND	-	ND	-	ND	-	ND	-	NS	-	NS	-	NS	-	ND	-	NS	-	NS	-	NS	-	
Phenanthrene	ND	1	NS	-	NS	-	ND	1	ND	1	0.48 J	1	ND	1	ND	1	ND	1	ND	1	ND	1	ND	1	ND	0.29	ND	0.29	
Naphthalene	ND	1	NS	-	NS	-	ND	1	ND	1	1.7	1	ND	1	ND	1	ND	1	ND	1	ND	1	ND	1	ND	0.26	ND	0.26	
SVOCs (Full Suite)	ND	-	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-	ND	-	NS	-	NS	-	NS	-	
bis (2-Ethylhexyl) phthalate	8.7 B	2	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-	ND	-	NS	-	NS	-	NS	-	
TPH-GRO	ND	200	NS	-	NS	-	ND	200	ND	200	ND	200	ND	200	ND	200	ND	200	NS	-	NS	-	NS	-	NS	-	NS	-	
TPH-DRO	154	100	290	110	197	110	560	110	288	110	784	110	743	110	298	110	298	110	ND	110	840	110	1,930	110	530	110	829	110	
Seep		9/30/09		12/21/10		3/22/11		6/15/11		9/15/11		12/9/11		3/8/12		6/7/12		9/19/12		12/11/12		3/21/13		6/4/13		9/24/13		12/18/13	
Constituent	Results	RDL	Results	RDL	Results	RDL	Results	RDL	Results	RDL	Results	RDL	Results	RDL	Results	RDL	Results	RDL	Results	RDL	Results	RDL	Results	RDL	Results	RDL	Results	RDL	
VOCs (PPL + Xylene) <sup>1</sup>	ND	-	NS	-	NS	-	ND	-	ND	-	ND	-	ND	-	NS	-	NS	-	NS	-	ND	-	NS	-	NS	-	NS	-	
PAHs	ND	-	NS	-	NS	-	ND	-	ND	-	ND	-	ND	-	NS	-	NS	-	NS	-	ND	-	NS	-	NS	-	NS	-	
SVOCs	ND	-	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-	ND	-	NS	-	NS	-	NS	-	
bis (2-Ethylhexyl) phthalate	3.9 B	2.2	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-	ND	-	NS	-	NS	-	NS	-	
TPH-GRO	ND	200	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-	
TPH-DRO	710	100	2,630	110	1,130	110	4,480	110	275	110	1,020	110	363	110	7,420	110	7,560	110	1,860	110	6,740	110	14,000	110	9,520	110	4,120	110	

Notes:  
1. All VOCs and SVOCs analyzed are non-detect unless listed.  
- All concentrations presented in µg/L  
- J = Indicates estimated value  
- B = Analyte found in associated method blank  
- ND = Non-detectable  
- NS= Not Sampled  
- RDL - Reportable detection limit

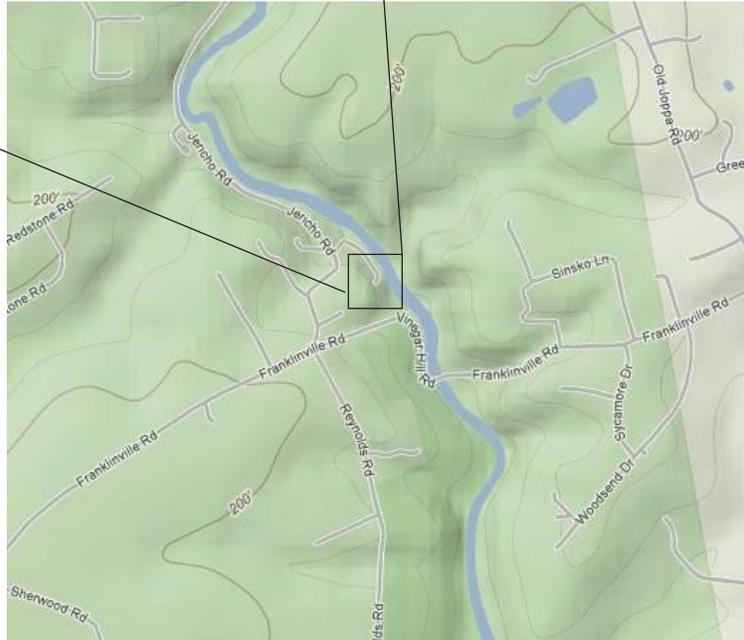
**Table 8**  
**Potable Well Analytical Data**  
**Axil-Belko**  
**Kingsville, MD**

<b>Well #: POT-1</b>	<b>10/23/2008</b>		<b>4/24/09<sup>2</sup></b>		<b>6/15/11<sup>2</sup></b>		<b>12/7/11<sup>2</sup></b>		<b>6/8/11<sup>2</sup></b>		<b>6/4/13<sup>2</sup></b>		<b>12/18/13<sup>2</sup></b>	
<b>Constituent</b>	<b>Results</b>	<b>RDL</b>	<b>Results</b>	<b>RDL</b>	<b>Results</b>	<b>RDL</b>	<b>Results</b>	<b>RDL</b>	<b>Results</b>	<b>RDL</b>	<b>Results</b>	<b>RDL</b>	<b>Results</b>	<b>RDL</b>
<b>VOCs (EPA Method 524.2)<sup>1</sup></b>	ND	-	ND	-	ND	-	ND	-	ND	-	ND	-	ND	-
Acetone	-	-	3.4 J	5.0	ND	5.0	ND	5.0	ND	5.0	ND	3.3	NS	3.3
<b>PAHs</b>	ND	-	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-
<b>TPH-GRO</b>	ND	20	NS	-	NS	-	NS	-	NS	-	NS	-	NS	-
<b>TPH-DRO</b>	ND	31	NS	-	NS	-	NS	-	NS	-	ND	-	NS	-
<b>Well #: POT-2</b>	<b>10/23/2008</b>		<b>4/24/09<sup>2</sup></b>		<b>6/15/11<sup>2</sup></b>		<b>12/8/11<sup>2</sup></b>		<b>6/8/11<sup>2</sup></b>		<b>6/4/13<sup>2</sup></b>		<b>12/18/13<sup>2</sup></b>	
<b>Constituent</b>	<b>Results</b>	<b>RDL</b>	<b>Results</b>	<b>RDL</b>	<b>Results</b>	<b>RDL</b>	<b>Results</b>	<b>RDL</b>	<b>Results</b>	<b>RDL</b>	<b>Results</b>	<b>RDL</b>	<b>Results</b>	<b>RDL</b>
<b>VOCs (EPA Method 524.2)<sup>1</sup></b>	NS (CNL)	-	NS (CNL)	-	ND	-	ND	-	ND	-	ND	-	ND	-
Chloroform	NS (CNL)	0.5	NS (CNL)	0.5	0.39 J	0.5	0.36 J	0.5	0.18 J	0.5	0.7J	0.5	ND	0.5

**Notes:**

1. All VOCs analyzed are non-detect unless listed.
2. Samples analyzed by new lab (Accutest)
  - All concentrations presented in µg/L
  - J = Indicates estimated value
  - ND = Non-detectable
  - NS= Not Sampled
  - RDL - Reportable detection limit

## FIGURES



**BROWNFIELD**  
 SCIENCE & TECHNOLOGY  
 3157 Limestone Rd., Cochranville PA, 19330

**SITE LOCATION**

AXIL-BELKO

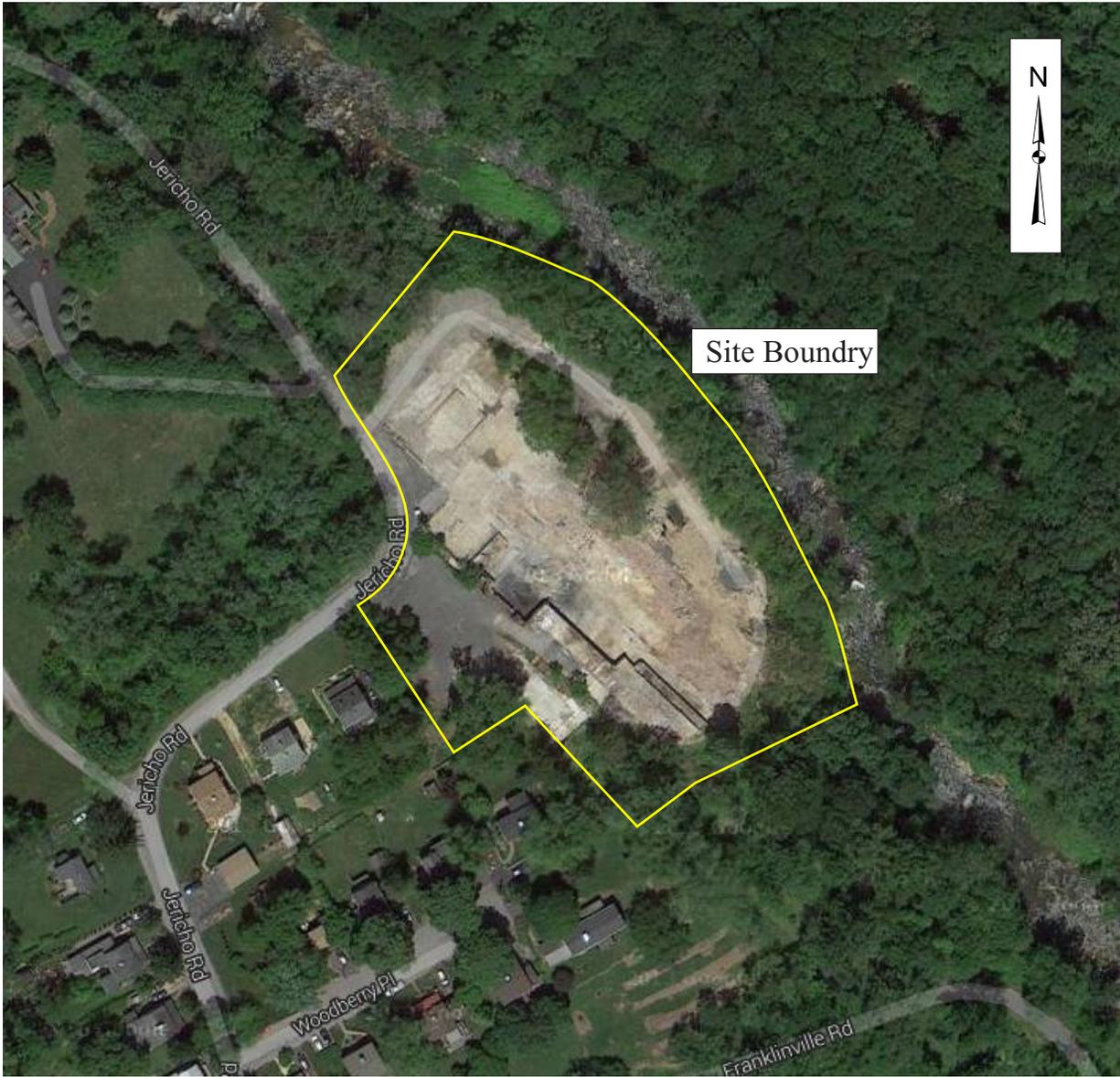
11931 JERICHO RD KINGSVILLE, MD

**Notes:**

- 1. Image source Bing Maps October 2013

Date: 10/10/13	Dr. By: NS	Chk. By: WTF	BSTI Job No. 367	Figure Number: 1
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Scale Bar: 0 65 170 195 Feet	Scale Reference
---------------------------------	-----------------



Site Boundry

# BROWNFIELD

SCIENCE & TECHNOLOGY

3157 Limestone Rd., Cochranville PA, 19330

## AREA MAP

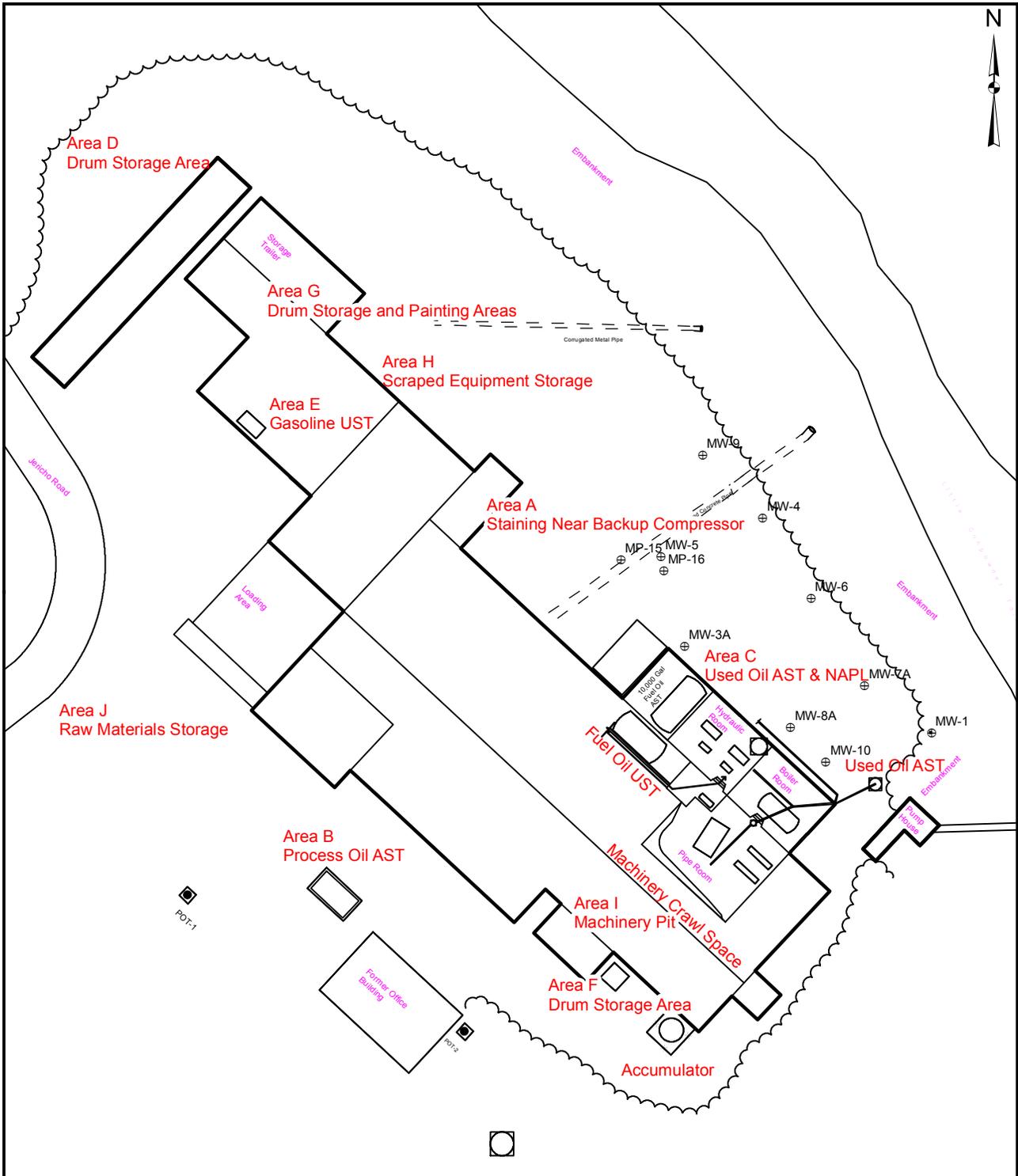
AXIL-BELKO

11931 JERICHO RD KINGSVILLE, MD

**Notes:**

1. Image source Google Maps October 2013

Date: 10/10/13	Dr. By: NS	Chk. By: WTF	BSTI Job No. 367	Figure Number: 2
Scale Bar: 0      100      200 Feet				Scale Reference

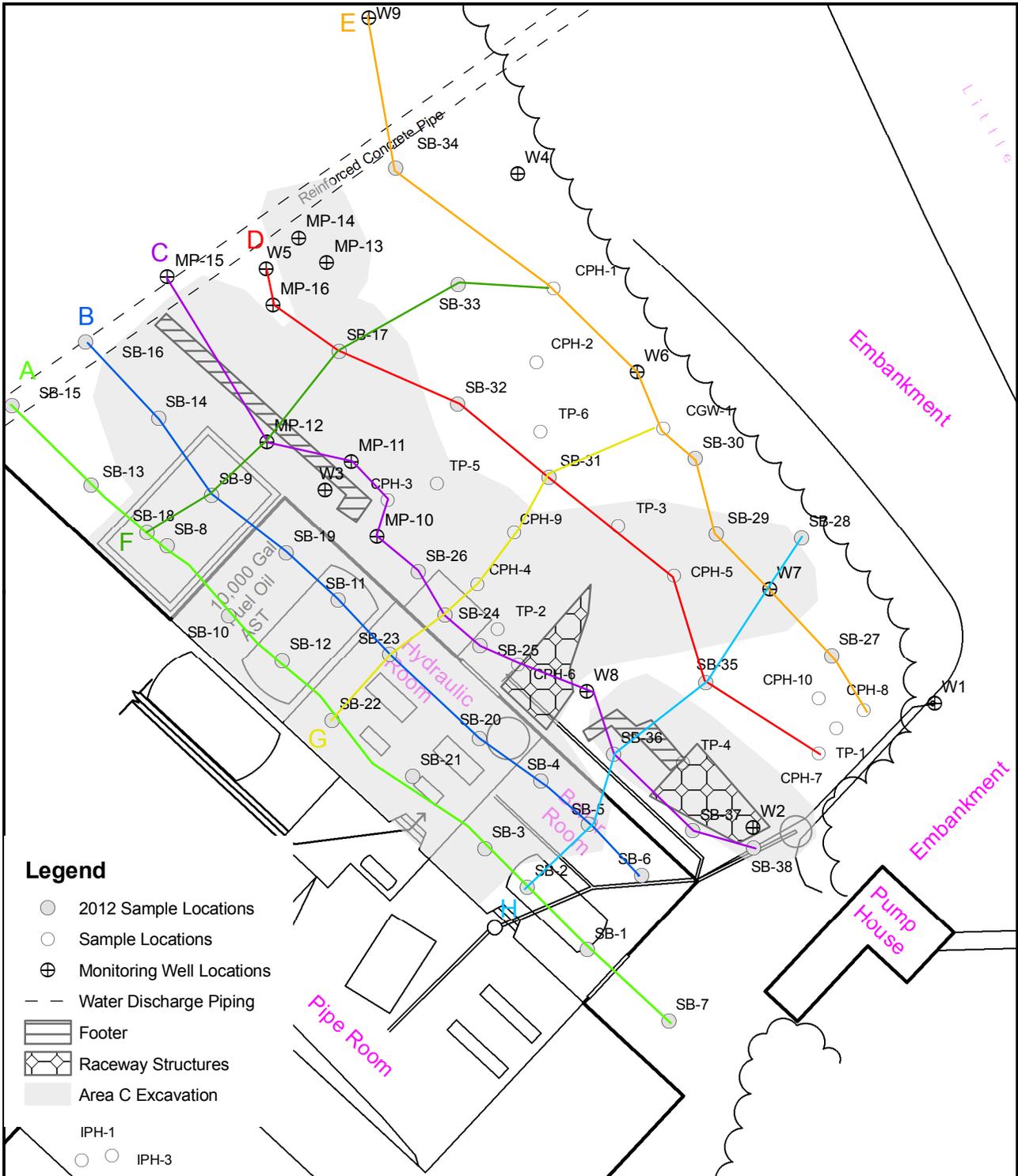


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**SITE MAP**  
 AXIL-BELKO  
 11931 JERICHO RD KINGSVILLE, MD

**Notes:**  
 1. Historic Site Features are Illustrated

Date: 12/09/13	Dr. By: NS	Chk. By: WTF	BSTI Job No. 367	Figure Number: 3
Scale Bar: 0 10 20 40 60 80 Feet				Scale Reference



**Legend**

- 2012 Sample Locations
- Sample Locations
- ⊕ Monitoring Well Locations
- - - Water Discharge Piping
- ▭ Footer
- ▨ Raceway Structures
- ▭ Area C Excavation
- IPH-1
- IPH-3

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**CROSS SECTION KEY**

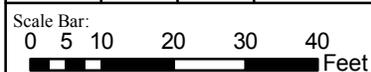
AXIL-BELKO

11931 JERICHO RD KINGSVILLE, MD

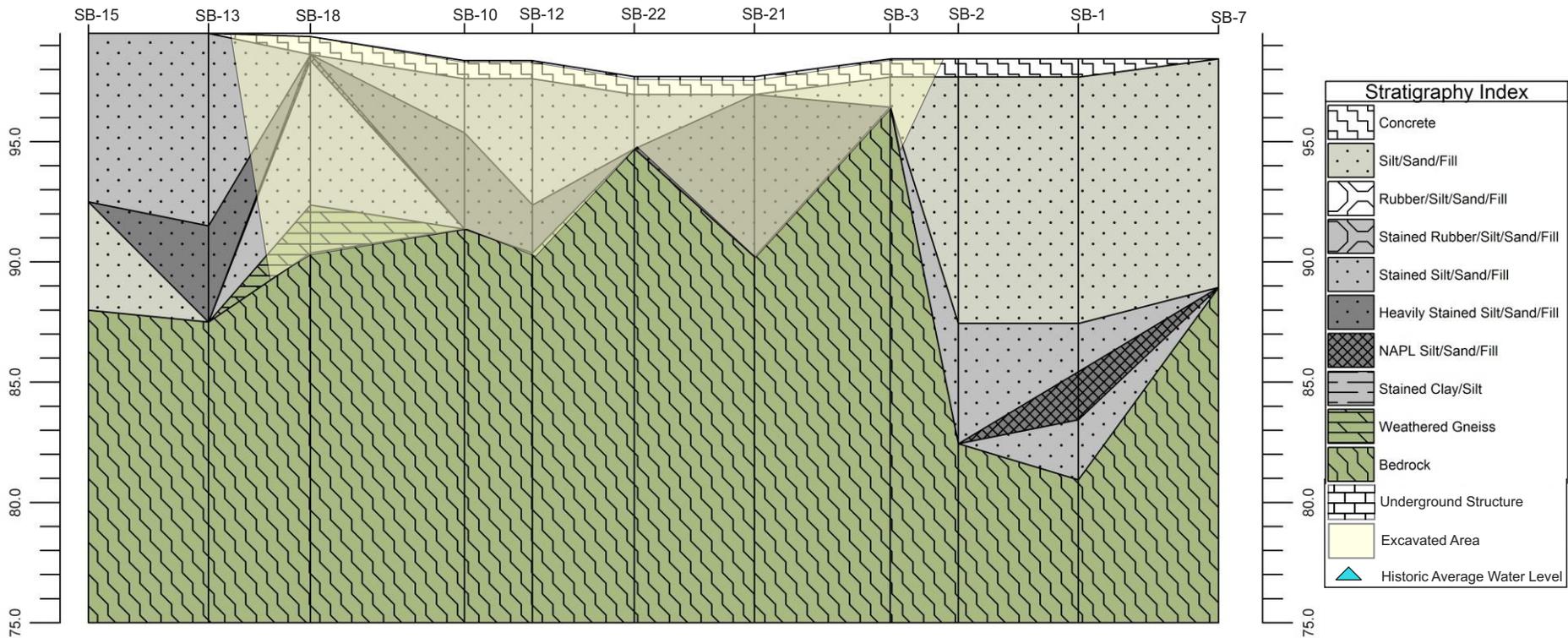
**Notes:**

1. Historic Site Features Are Illustrated

Date: 10/14/13	Dr. By: NS	Chk. By: WTF	BSTI Job No. 367	Figure Number: 4
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Scale Reference



**BROWNFIELD**  
SCIENCE & TECHNOLOGY

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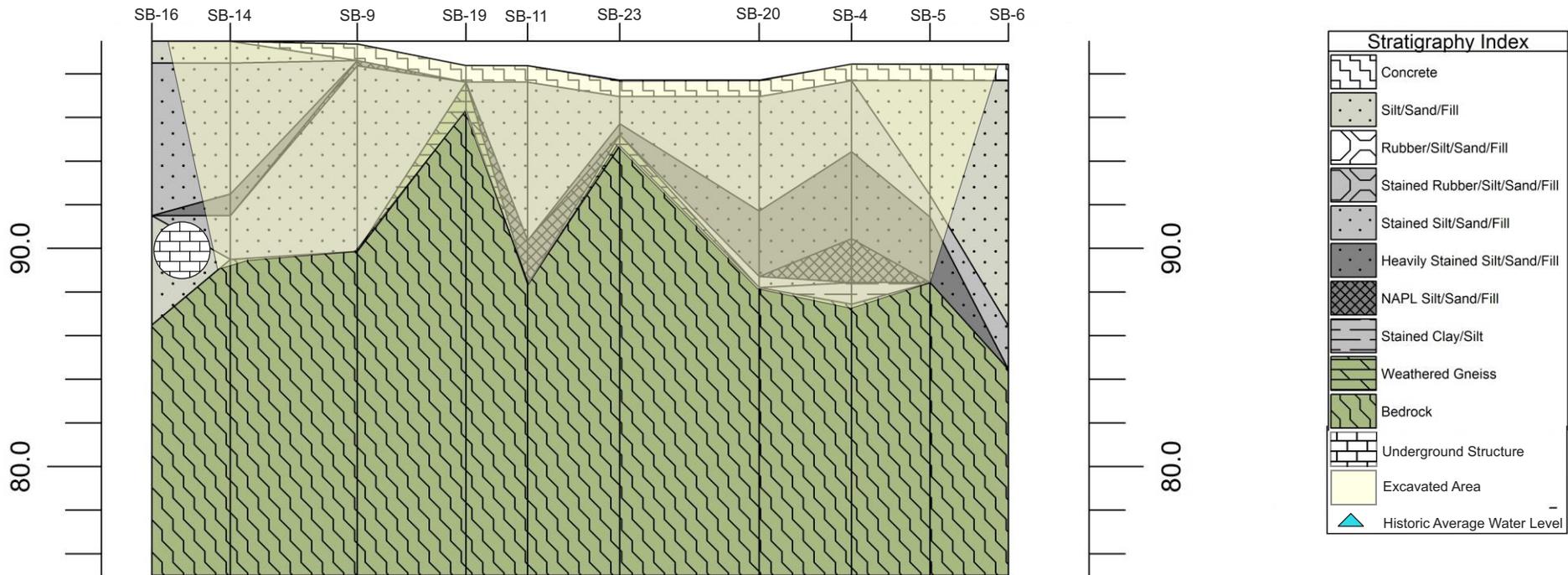
**Notes:**

1. Underground Structures Projected Into Plane of Cross Section

**CROSS SECTION A**  
**AXIL-BELKO**

11931 JERICHO RD KINGSVILLE, MD

Date: <b>10/11/12</b>	Drawn By: <b>NS</b>	Checked By: <b>WTF</b>	BSTI Job Number: <b>367</b>	Figure Number: <b>5</b>
Scale Bar: 0      20      40 [Scale Bar Graphic] Feet				Scale Reference:



**BROWNFIELD**  
SCIENCE & TECHNOLOGY

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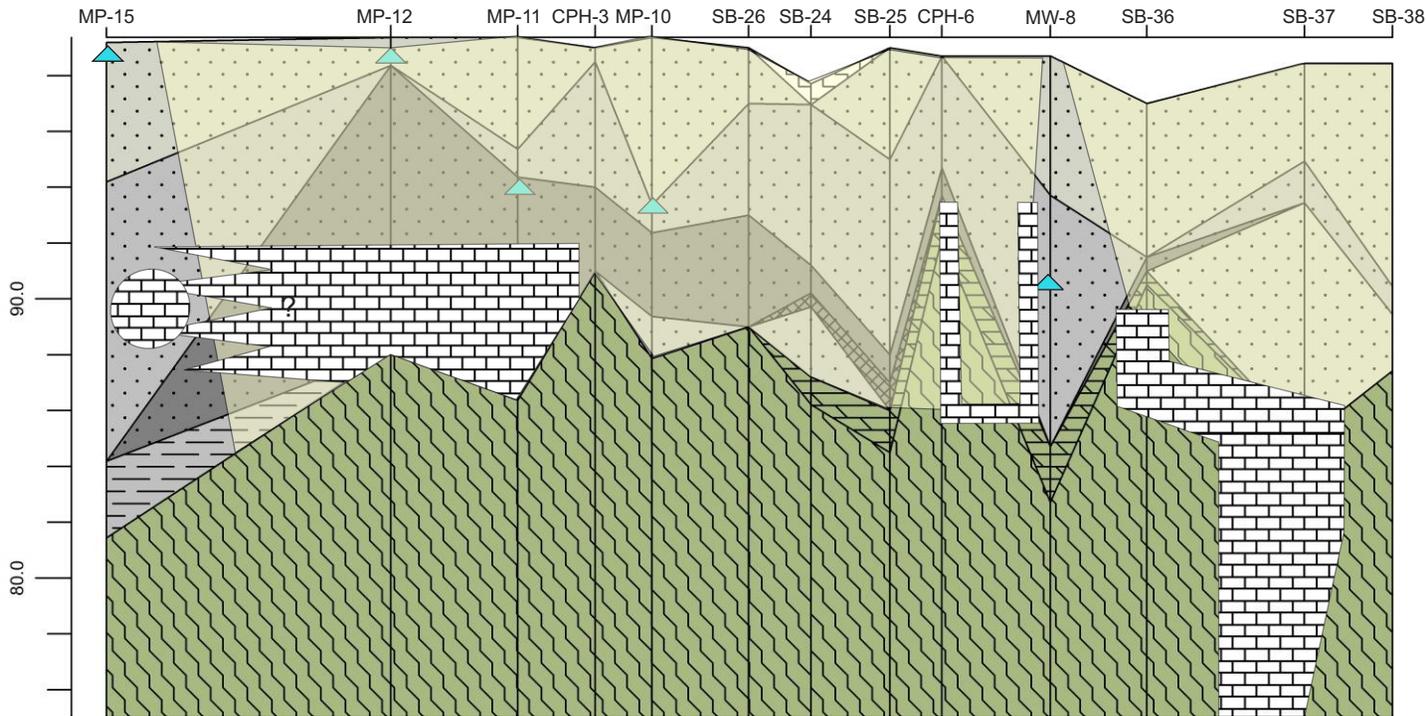
**Notes:**

1. Underground Structures Projected Into Plane of Cross Section

**CROSS SECTION B  
AXIL-BELKO**

11931 JERICHO RD KINGSVILLE, MD

Date: <b>10/14/12</b>	Drawn By: <b>NS</b>	Checked By: <b>WTF</b>	BSTI Job Number: <b>367</b>	Figure Number: <b>6</b>
Scale Bar: 0      20      40			Scale Reference:	



Stratigraphy Index	
	Concrete
	Silt/Sand/Fill
	Rubber/Silt/Sand/Fill
	Stained Rubber/Silt/Sand/Fill
	Stained Silt/Sand/Fill
	Heavily Stained Silt/Sand/Fill
	NAPL Silt/Sand/Fill
	Stained Clay/Silt
	Weathered Gneiss
	Bedrock
	Underground Structure
	Excavated Area
	Historic Average Water Level

**BROWNFIELD**  
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3157 Limestone Rd., Cochranville Pa, 19330

**Notes:**

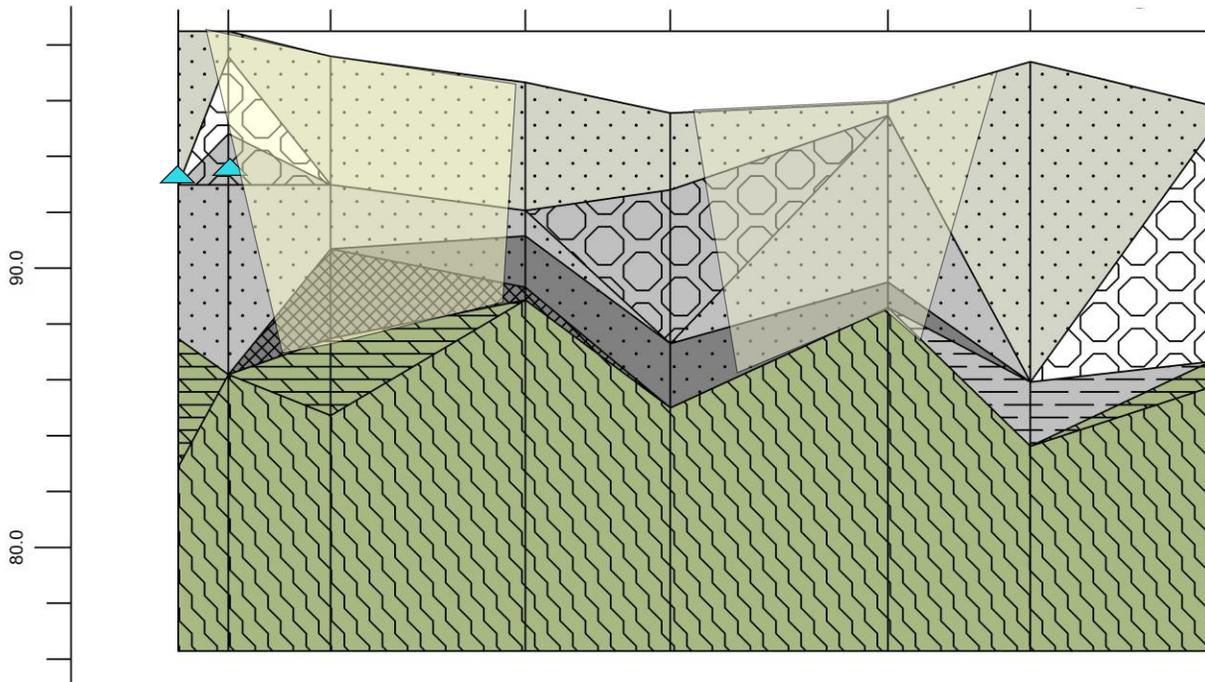
- Underground Structures Projected Into Plane of Cross Section

**CROSS SECTION C**  
**AXIL-BELKO**

11931 JERICHO RD KINGSVILLE, MD

Date: <b>10/11/12</b>	Drawn By: <b>NS</b>	Checked By: <b>WTF</b>	BSTI Job Number: <b>367</b>	Figure Number: <b>7</b>
Scale Bar: 0      20      40 				Scale Reference:

MW-5 MP-16 SB-17 SB-32 SB-31 CPH-5 SB-35 CPH-7



Stratigraphy Index	
	Concrete
	Silt/Sand/Fill
	Rubber/Silt/Sand/Fill
	Stained Rubber/Silt/Sand/Fill
	Stained Silt/Sand/Fill
	Heavily Stained Silt/Sand/Fill
	NAPL Silt/Sand/Fill
	Stained Clay/Silt
	Weathered Gneiss
	Bedrock
	Underground Structure
	Excavated Area
	Historic Average Water Level

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3157 Limestone Rd., Cochranville Pa, 19330

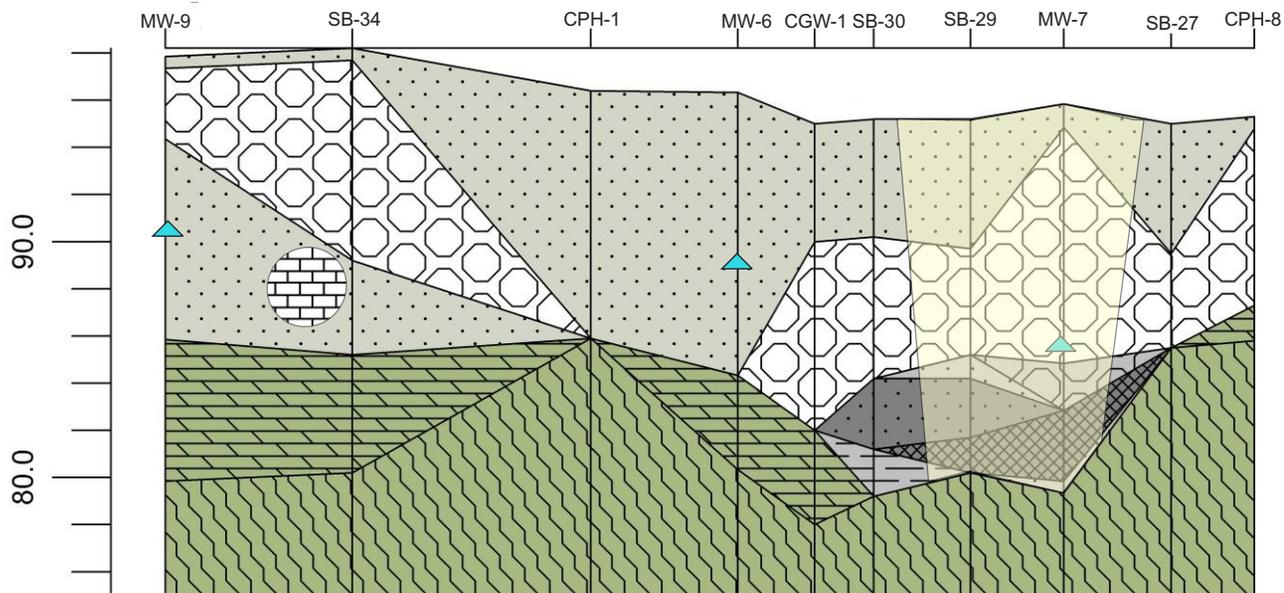
**Notes:**

- Underground Structures Projected Into Plane of Cross Section

**CROSS SECTION D**  
**AXIL-BELKO**

11931 JERICHO RD KINGSVILLE, MD

Date:	Drawn By:	Checked By:	BSTI Job Number:	Figure Number:
10/14/12	NS	WTF	367	8
Scale Bar: 0 20 40 Feet				Scale Reference:



Stratigraphy Index	
	Concrete
	Silt/Sand/Fill
	Rubber/Silt/Sand/Fill
	Stained Rubber/Silt/Sand/Fill
	Stained Silt/Sand/Fill
	Heavily Stained Silt/Sand/Fill
	NAPL Silt/Sand/Fill
	Stained Clay/Silt
	Weathered Gneiss
	Bedrock
	Underground Structure
	Excavated Area
	Historic Average Water Level

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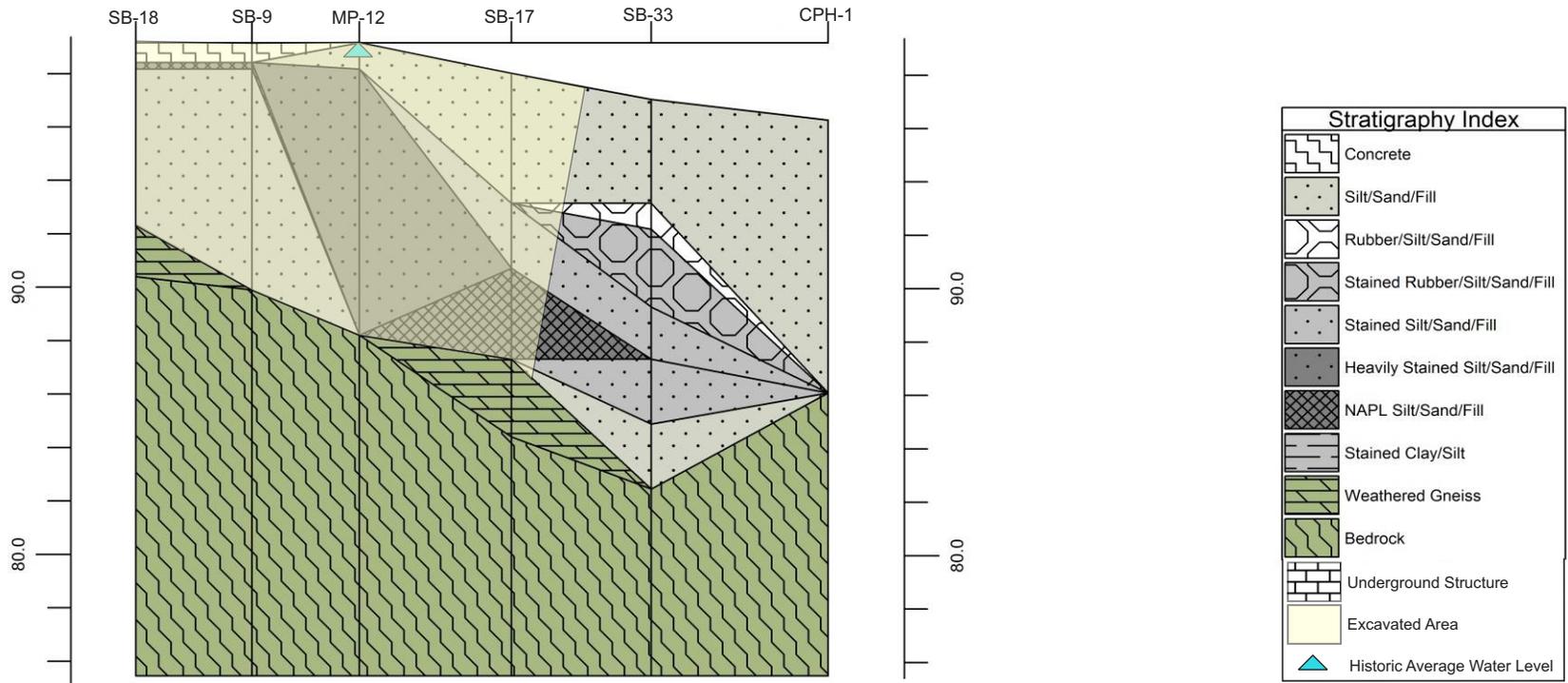
**Notes:**

- Underground Structures Projected Into Plane of Cross Section

**CROSS SECTION E**  
**AXIL-BELKO**

11931 JERICHO RD KINGSVILLE, MD

Date: <b>10/14/13</b>	Drawn By: <b>NS</b>	Checked By: <b>WTF</b>	BSTI Job Number: <b>367</b>	Figure Number: <b>9</b>
Scale Bar: 0      20      40 Feet				Scale Reference:



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**Notes:**

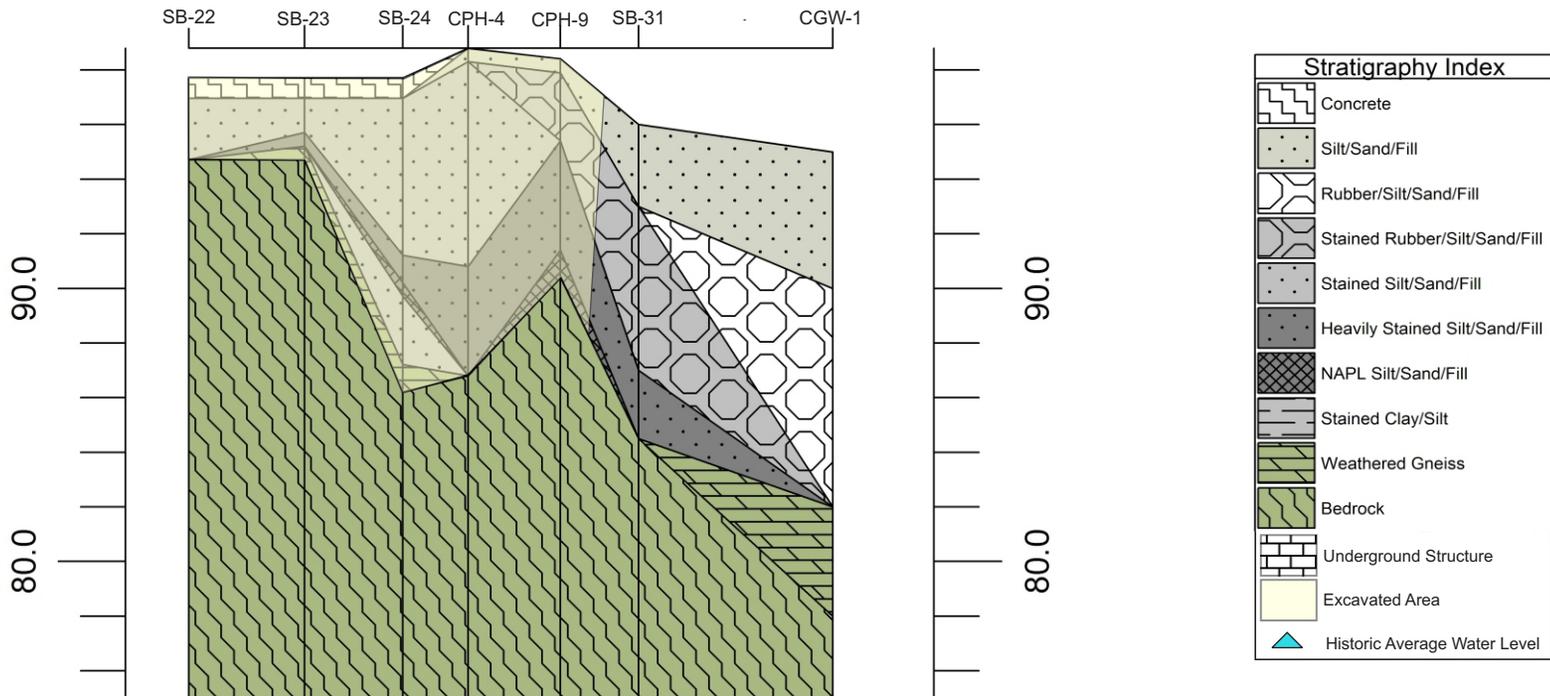
- Underground Structures Projected Into Plane of Cross Section

**CROSS SECTION F**  
**AXIL-BELKO**

11931 JERICHO RD KINGSVILLE, MD

Date: <b>10/14/13</b>	Drawn By: <b>NS</b>	Checked By: <b>WTF</b>	BSTI Job Number: <b>367</b>	Figure Number: <b>10</b>
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Scale Bar: 0 20 40 Feet	Scale Reference:
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**Notes:**

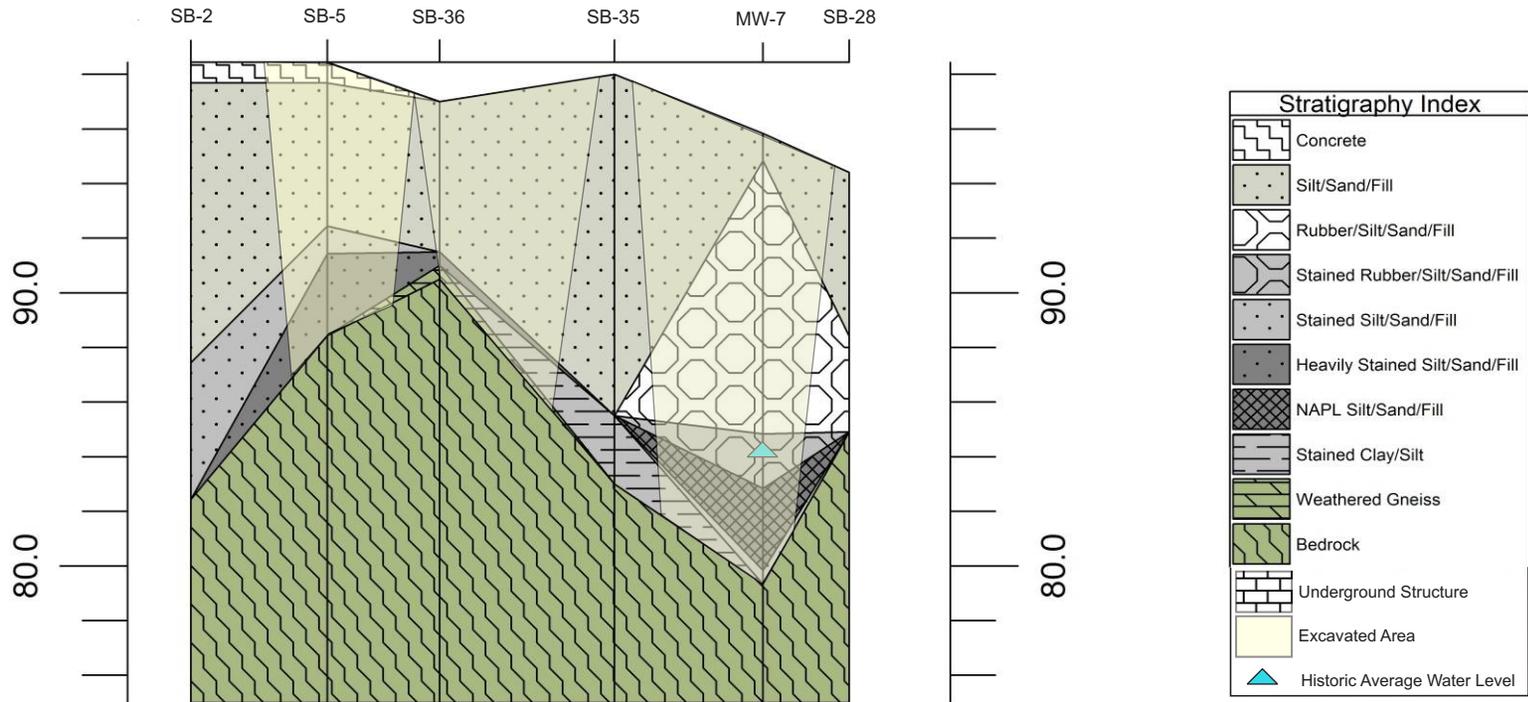
- Underground Structures Projected Into Plane of Cross Section

**CROSS SECTION G**  
**AXIL-BELKO**

11931 JERICHO RD KINGSVILLE, MD

Date: <b>10/14/13</b>	Drawn By: <b>NS</b>	Checked By: <b>WTF</b>	BSTI Job Number: <b>367</b>	Figure Number: <b>11</b>
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Scale Bar: 0 20 40 Feet	Scale Reference:
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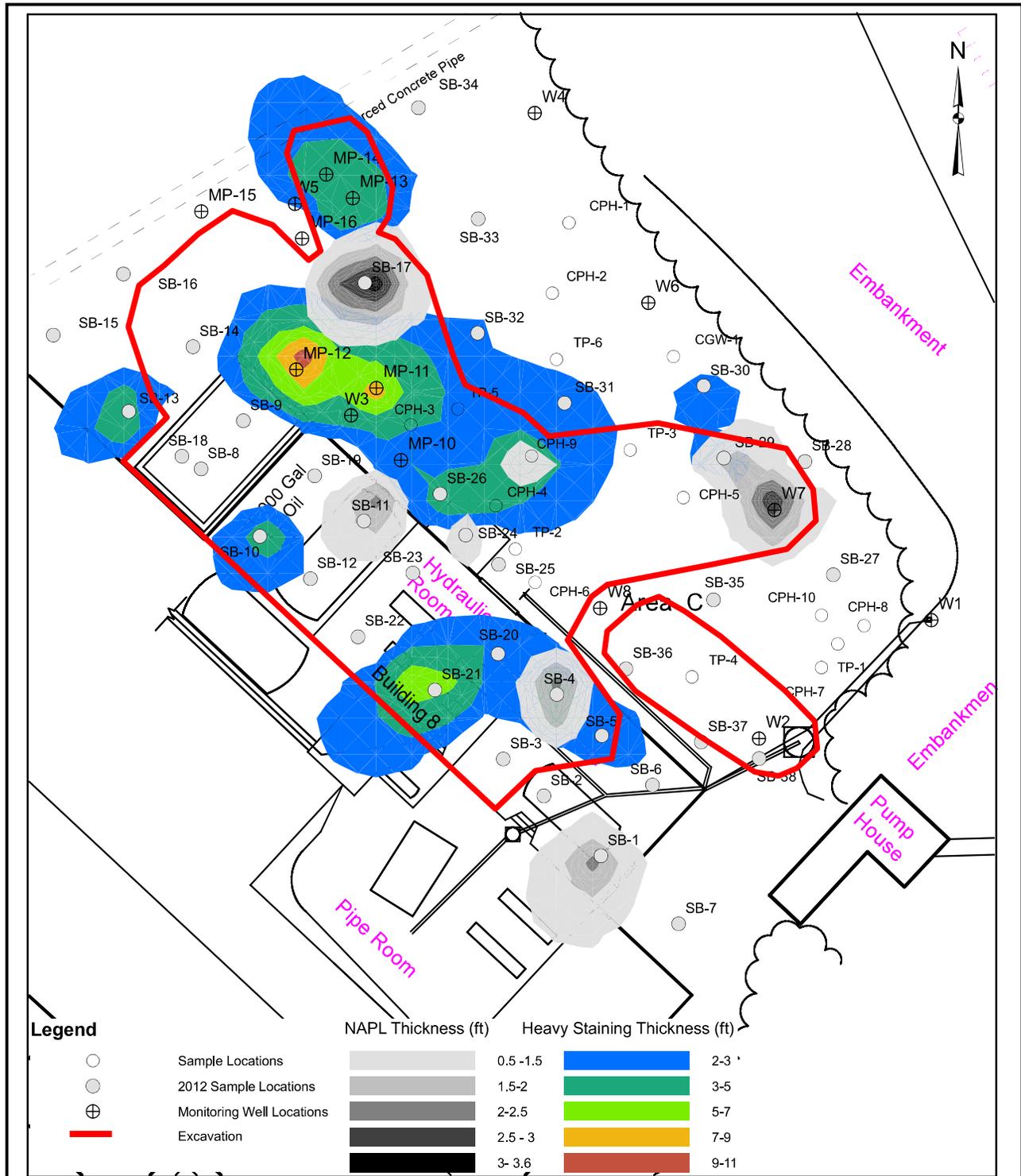
**Notes:**

1. Underground Structures Projected Into Plane of Cross Section

**CROSS SECTION H**  
**AXIL-BELKO**

11931 JERICHO RD KINGSVILLE, MD

Date: 10/14/13	Drawn By: NS	Checked By: WTF	BSTI Job Number: 367	Figure Number: 12
Scale Bar: 0 20 40 Feet				Scale Reference:



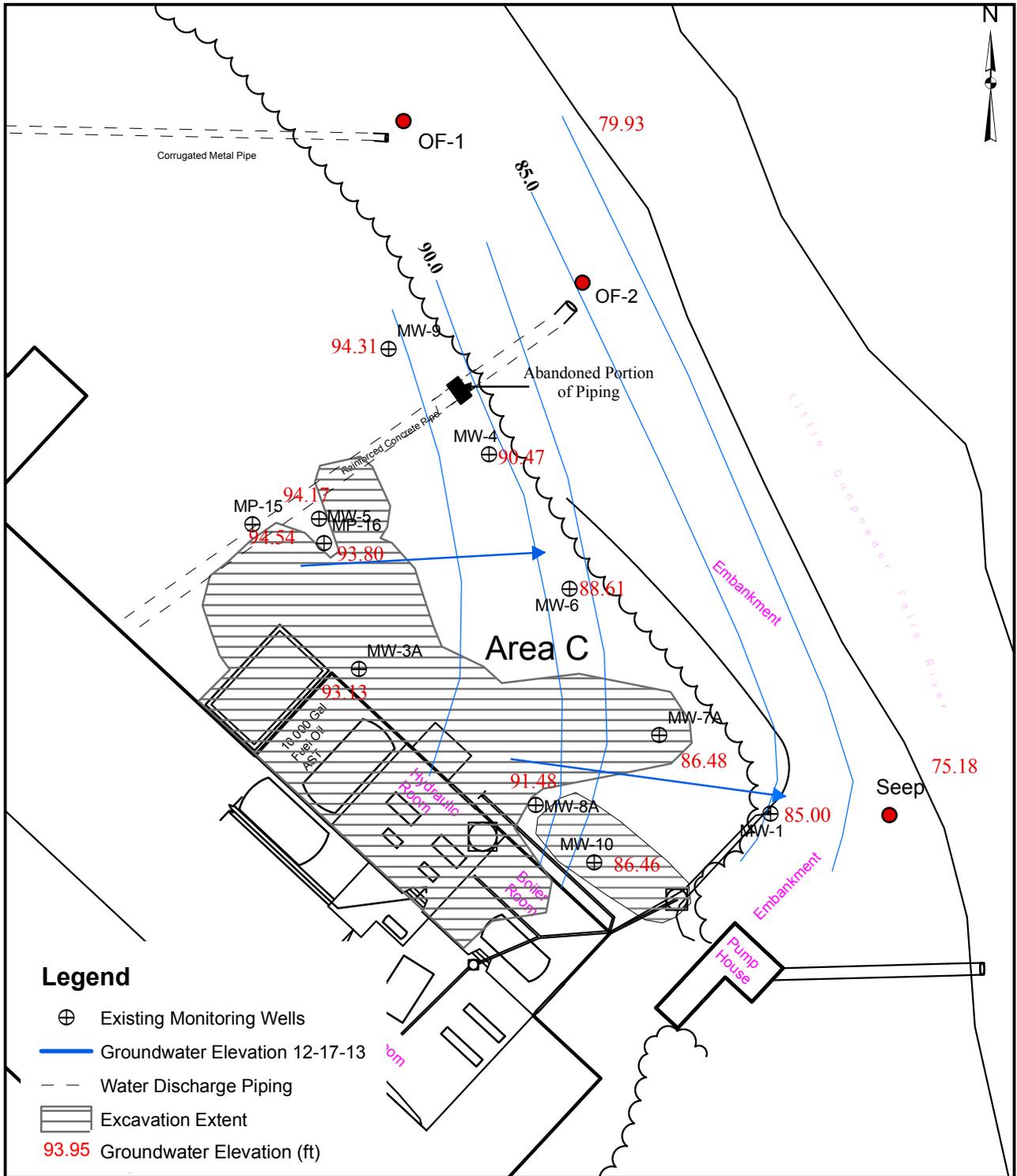
**BROWNFIELD**  
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 3157 Limestone Rd., Cochranville PA, 19330

**AREA C NAPL/HEAVY STAINING**  
 AXIL-BELKO  
 11931 JERICHO RD KINGSVILLE, MD

**Notes:**

Date: 10/15/13	Dr. By: NS	Chk. By: WTF	BSTI Job No. 367	Figure Number: 13
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Scale Bar: 0 20 40 Feet	Scale Reference
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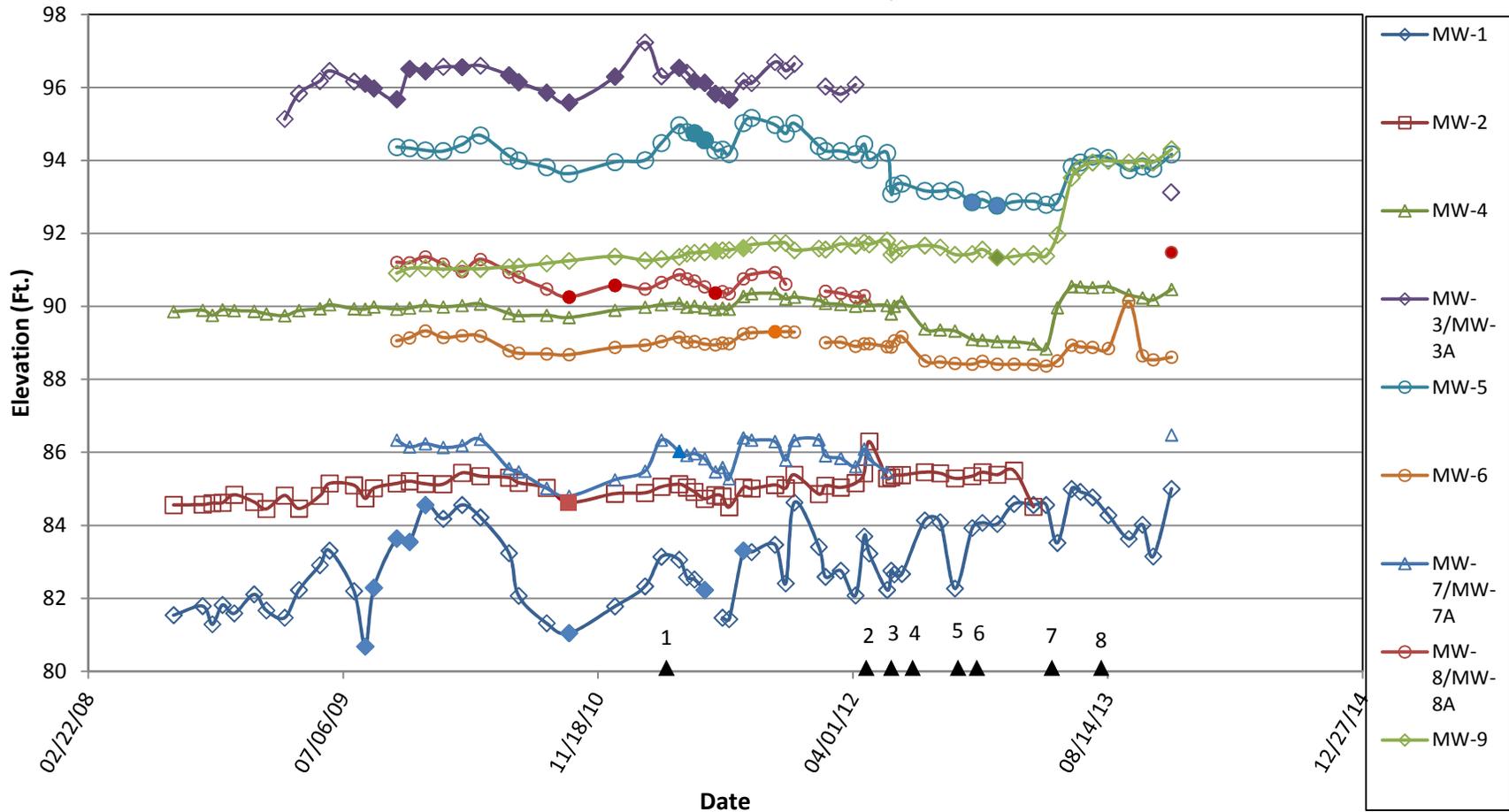
**BROWNFIELD**  
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**GROUNDWATER ELEVATION**  
 AXIL-BELKO  
 11931 JERICHO RD KINGSVILLE, MD

**Notes:**  
 Historical Site Features Are Illustrated. All Buildings Have Been Removed.

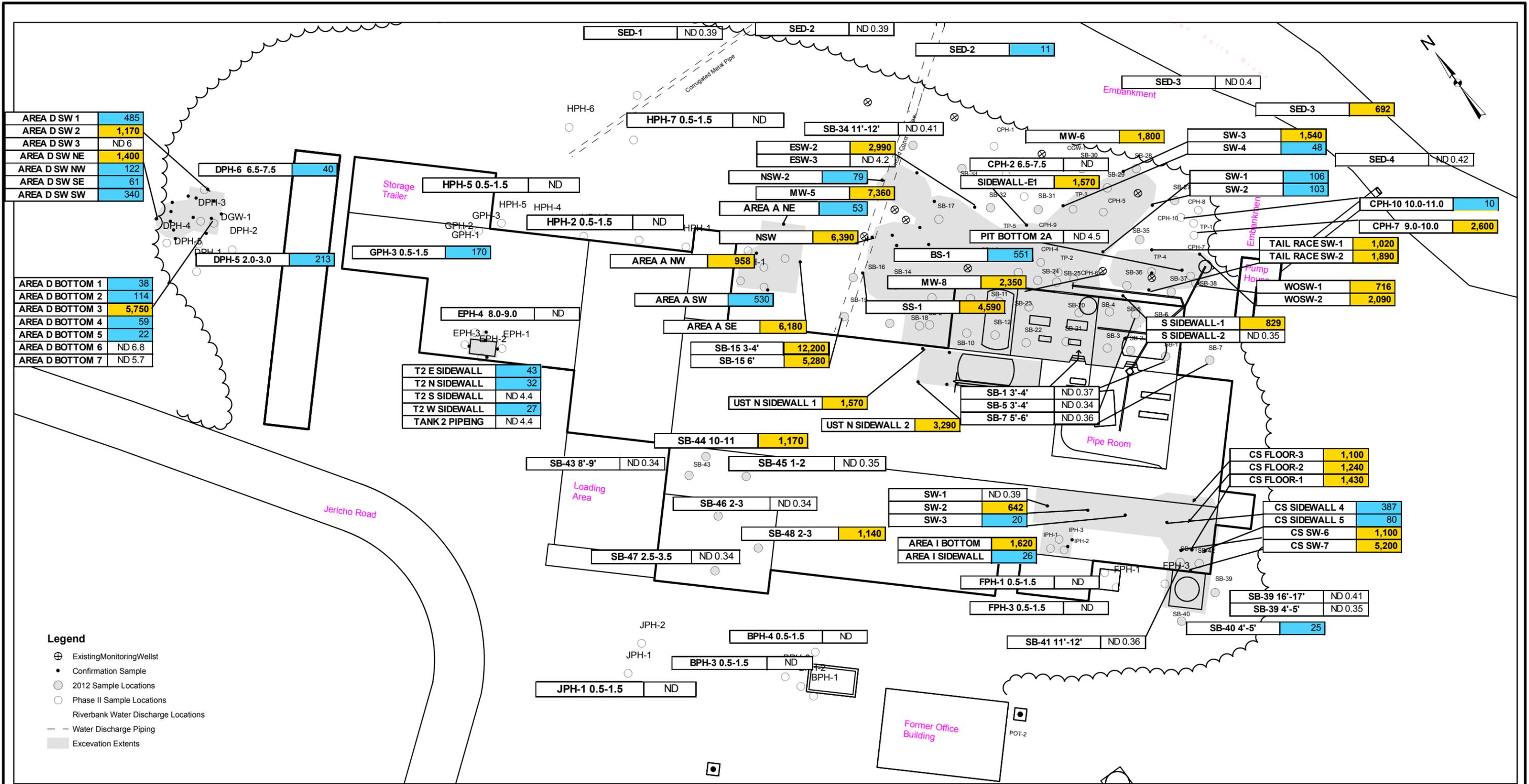
Date: 12/20/13	Dr. By: NP	Chk. By: WTF	BSTI Job No. 367	Figure Number: 14
Scale Bar: 0 5 10 20 30 40 Feet				Scale Reference

**FIGURE 15: GROUNDWATER HYDROGRAPH  
AXIL BELKO FACILITY  
11931 JERICO RD KINGSVILLE, MD**



Notes:  
 Open symbol represents no sheen shaded symbol represents sheen observed  
 1 - Area A, D, I Excavation, 2 - Building 8 Slab Demolished, 3 - Pilot Excavation-Area C,  
 4 - Second Excavation- Area C, 5 - Third Excavation- Area C, 6 - Start of Demolition,  
 7- Fourth Excavation-Area C, Outfall Abandoned, 8- Fifth Excavation- Area C





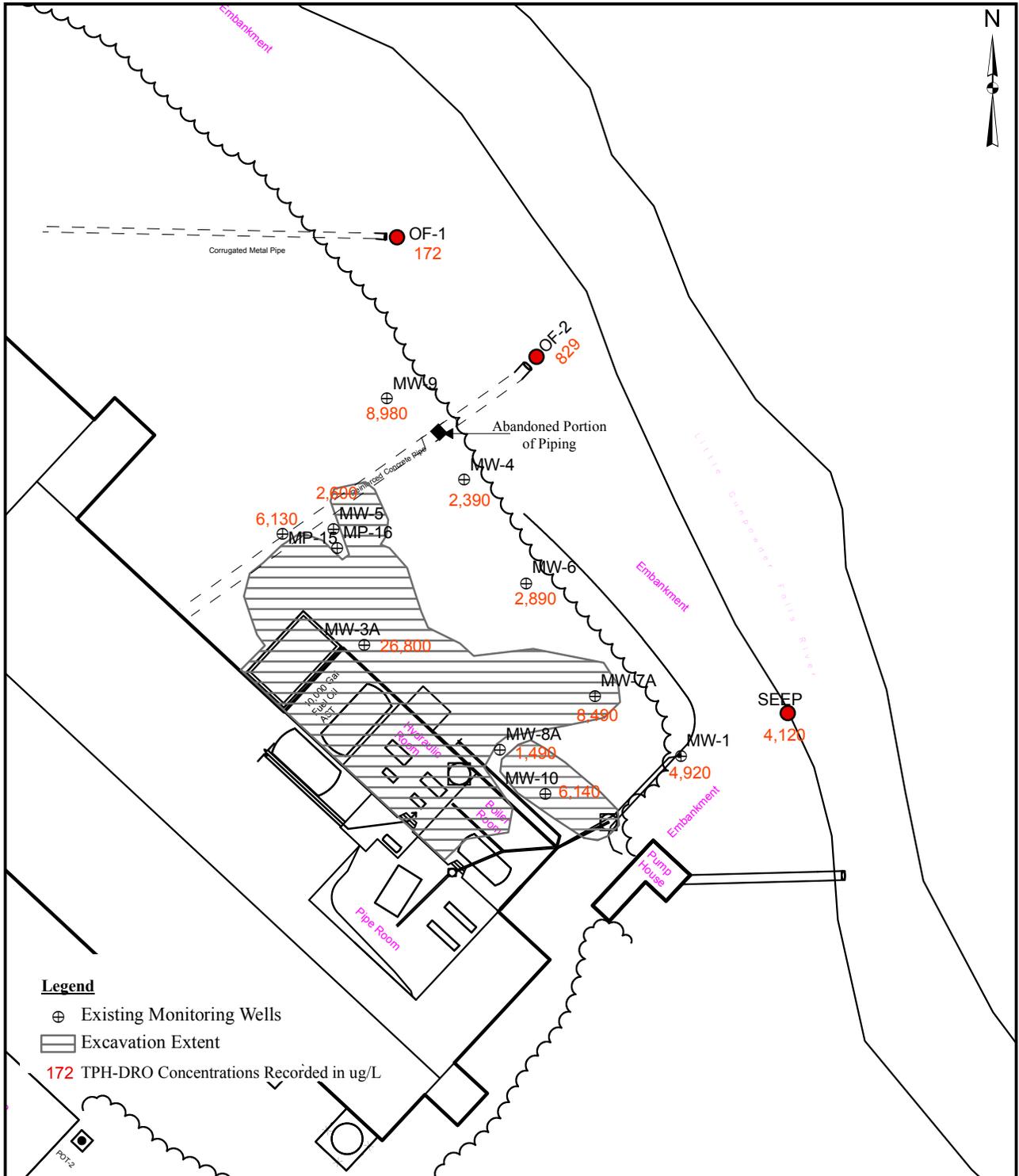
AREA D SW 1	485
AREA D SW 2	1,170
AREA D SW 3	ND 6
AREA D SW NE	1,400
AREA D SW NW	122
AREA D SW SE	61
AREA D SW SW	340

AREA D BOTTOM 1	38
AREA D BOTTOM 2	114
AREA D BOTTOM 3	5,750
AREA D BOTTOM 4	59
AREA D BOTTOM 5	22
AREA D BOTTOM 6	ND 6.8
AREA D BOTTOM 7	ND 5.7

T2 E SIDEWALL	43
T2 N SIDEWALL	32
T2 S SIDEWALL	ND 4.4
T2 W SIDEWALL	27
TANK 2 PIPING	ND 4.4

- Legend**
- ⊕ Existing Monitoring Well
  - Confirmation Sample
  - 2012 Sample Locations
  - Phase II Sample Locations
  - Riverbank Water Discharge Locations
  - Water Discharge Piping
  - Excavation Extents

**Notes:**  
Analytical data in units of mg/kg



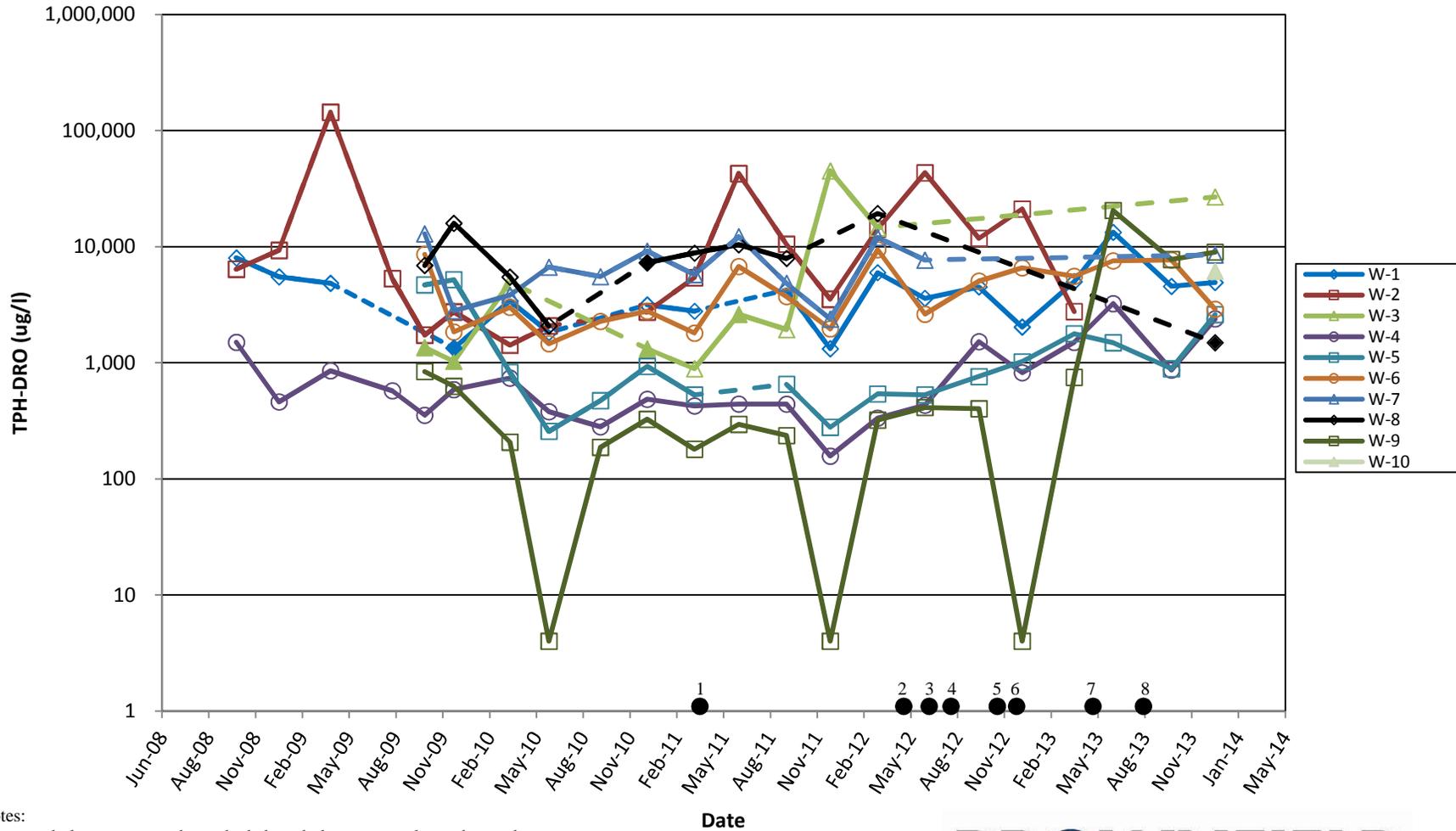
**BROWNFIELD**  
 SCIENCE & TECHNOLOGY  
 3157 Limestone Rd., Cochranville PA, 19330

**TPH-DRO CONCENTRATION**  
 AXIL-BELKO  
 11931 JERICHO RD KINGSVILLE, MD

**Notes:**  
 Historic Site Features Are Illustrated. All Buildings Have Been Removed.

Date: 10/17/13	Dr. By: NP	Chk. By: WTF	BSTI Job No. 367	Figure Number: 17
Scale Bar: 0 2.5 5 10 15 20 Feet				Scale Reference

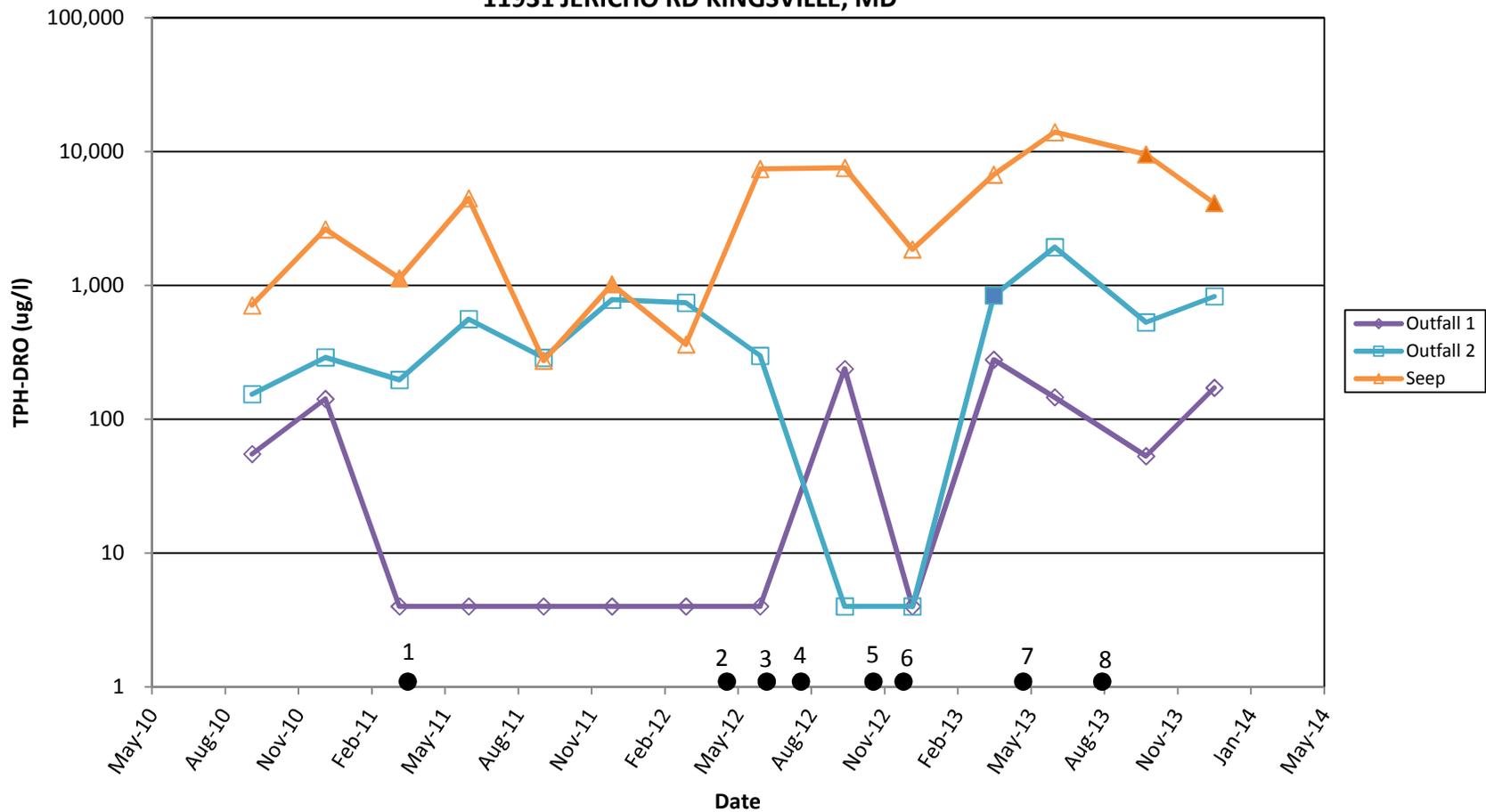
**FIGURE 18: TPH-DRO TIME SERIES  
AXIL BELKO FACILITY  
11931 JERICHO RD KINGSVILLE, MD**



Notes:  
 Open symbol represent no seen shaded symbol represents seen observed  
 Nondetections reported as the MDL  
 1- Area A, D, I Excavation, 2- Building 8 Slab Demolishedm 3- Pilot Excavation- Area C,  
 4- Second Excavation- Area C, 5- Third Excavation- Area C, 6- Start of Demolition,  
 7- Fourth Excavation- Area C, Outfall Abandoned, 8- Fifth Excavation- Area C



**FIGURE 19: TPH-DRO TIME SERIES  
AXIL BELKO FACILITY  
11931 JERICHO RD KINGSVILLE, MD**



**Notes:**

Open symbol represent no sheen shaded symbol represents sheen observed

Nondetections reported as the MDL

1- Area A, D, I Excavation, 2- Building 8 Slab Demolishedm 3- Pilot Excavation- Area C,

4- Second Excavation- Area C, 5- Third Excavation- Area C, 6- Start of Demolition,

7- Fourth Excavation- Area C, Outfall Abandoned, 8- Fifth Excavation- Area C

## **APPENDIX I – FIELD NOTES**

Location \_\_\_\_\_ Date \_\_\_\_\_

Project / Client \_\_\_\_\_

10-21-13

NP on site at 1100  
Liquid Levels

Well ID	DTW		Flow Rate
MW-1	10.39		
MW-4	7.04	OF-1	0.25
MW-5	5.35	OF-2	0.25
MW-6	7.68		
MW-9	3.85		
MP-15	7.64		
MP-16	8.25		

- Small drops of oil in seep area  
NP off site at 1215.

10-28-13

SQ on site 1030.

- Placed 2 oil-only sorbent pads in the seep.
- Placed 2 used oil sorbent pads in steel drum.
- Small amount of oil observed in the seep along the river bank. Oil cleaned up with sorbent.

Location \_\_\_\_\_ Date 11/4/13 139

Project / Client \_\_\_\_\_

11/4/13

N.O.

- Inspection arrived on site at 9:37 A.M.
- Site looked about same since last visit
- Silt fence looks like it is still in good shape
- Two bails of hay look in good shape; hay wall stamped
- replaced 4 oil sorbents at the seep, placed two new oil sorbent pads at ~~outfall~~ outfall area
- noticed very small amounts of oil along the seep, cleaned up with sorbents, nothing near the water; outfall areas look good, no oil noticed at these spots

11/4/13 continued

no new seeps discovered, down  
Stream looks in good shape

November 11th 2013

NP onsite @ 10:00

Liquid Levels

		Flow Rate
MW-1	11.26	
MW-4	7.10	OF-1 0.25
MW-5	5.41	OF-2 0.25
MW-6	7.79	
MW-9	3.90	
MP-15	8.20	
MP-16	7.79	

- Campground Parks & Rec on site to  
check in @ 1045
- Silt fence in good shape
- River is up higher than usual
- Seep area has some evidence of  
oil
- organic sheen noticed in seep
- Phalling (orange) present in seep
- Both ~~OF-1~~ OF-1 & OF-2 little water
- NP ~~off~~ site @ 11:45

November 15 2013

NP onsite @ 10:05

- Site looks normal big tanker  
truck parked out front of  
site when arrived
- silt fence looks good & sturdy
- ~~one~~ One of the new hail  
bails is missing? large  
tank about 10ft from bails  
has the missing hail bail in it.
- ~~OF-1 has little water  
coming out of it~~
- OF-1 - has no water flowing  
out of it very dry
- No new seeps down stream
- noticed ~~small~~ large amounts of  
organic sheen up stream (nothing  
new)
- OF-2 very minimal water  
flow oil pads look in good shape
- Replaced 4 old oil pads with  
new ones when I removed oil pads  
noticed small amounts of oil seep out  
this was at the seep area

N3 on site 830 meet AEC  
 Drills held up in bad accident at 95  
 check drill and seeps both ok no seep  
 10:00 AEC arrives and starts to set up

MW-3A 0-3' silt sand and debris (fill) opps  
 Bron moist no clods

3-6 grey ash soil mixed w grey clay  
 silt opps slight pebbles  
 refer at 6' will set core 4' screen  
 try MW-2 to catch refer at 2.5' west  
 west and soil appears dark grey  
 with some odor

MW-7 Grey brown silt sand w Rubbles

Slight odor PID=0 moist some sand  
 of Rubbles distinct drilling due to

small cobbles refer at bottom ~ 3' <sup>7'</sup>  
 have 2' ruler visible in borehole

Set 4.5' screen 5' riser

plus f Rock n aug tip return in first

horn run ~ 4 ft west

3 Bags sand to bottom 3' of auger west

New MW between MW-8 and MW-2 (MW-10)

red brown silt sand and stone (fill)

moist no odor opps

refer at 9' water level open hole ~ 2'

volcanic will set 4' screen on 5' casing

3 Bags of Sand in bag bank

MW-8 lower

Red brown silt sand moist some gravel 0-3 ft

orange gravel (#2 basket) 3-7 ft

grey silt sand wet some pebbles

7-8' OPID

refer at 8' 5' screen 5' riser  
 drum screen cutting

MW-7A BA 10-0470 9.24 (9.60 to)

MW-10 BA 10-0471 9.33 8.89

MW-8A BA 10 0472 4.79 10.05

MW-3A BA 10 0469 8.36 9.08

340 AEC leaves site

400 post-punch leaves site

NO 11/25/13

~~11/25/13~~

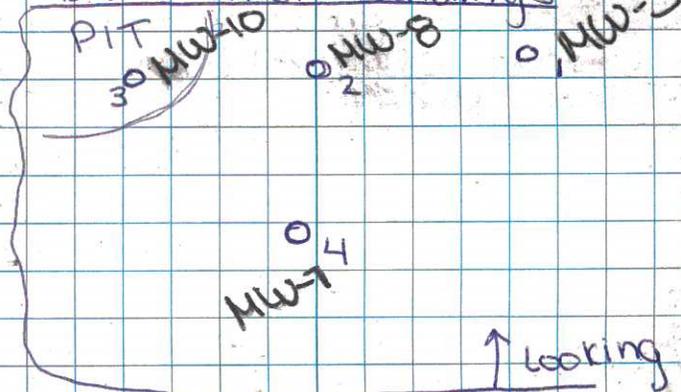
arrived at 9:08 a.m.

- conditions cold brisk morning with some overcast/reek higher water level
- oil can was moved
- silt fence along the waterside looks in great shape
- silt fence on top of the hill also looks like its in good shape
- ice formation at seep area, but oil pads look ~~like~~ in great shape no change, very little water flow
- downstream nothing unusual
- outflow no flow whatsoever
- also ice starting to form around the area
- seep area has a lot of leaves
- surround area & are somewhat clogging
- if
- up stream the same organic sheen present in most spots, may have grown a little
- outflow 2 very small water flows, oil pads holding up well

12-2-13

on site @ 0815

Demolished Buildings



RIVER

Well 1 - MW-3

- Developed clean immediately
  - no sand/silt (clear)
  - well was dry after 15 mins
- Well 2 - MW-8
- blue/urawn water
  - slight sheen/no odor
  - was clear > 15 minutes

Location \_\_\_\_\_ Date \_\_\_\_\_

Project / Client \_\_\_\_\_

Well 3 - MW-10

- Black / brown water
- no sheen or odor
- Pam clear > 15 mins

Well 4 - MW-7

- Dry-purges < 30 seconds
- developed with a hauler

- Seep &amp; OF-1 &amp; OF-2

Seep - little oil - organic sheen (replace bottom)

OF-1 &amp; OF-2 look good

- Retention well still in great condition.

- Hay bales look good

The manufacturers of "Rite in the Rain" all-weather writing products are grateful to the numerous environmental experts who have contributed to the development of this book. Should you have any additions, improvements or corrections for future publications of this field book or have suggestions for other environmental field book formats, we welcome your input.

Although much effort has been taken to ensure the accuracy of the following reference pages, the J. L. Darling Corp. cannot guarantee the accuracy of the data.

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[www.RiteintheRain.com](http://www.RiteintheRain.com) / [sales@riteintherain.com](mailto:sales@riteintherain.com)

### Common Field Data Error Codes

Error codes are used to explain common mistakes and are written above or close to the mistake.

Commonly used error codes include:

RE	Recording Error
CE	Calculation Error
TE	Transcription Error
SE	Spelling Error
CL	Changed for Clarity
DC	Original Sample Description Changed After Further Evaluation
WO	Write Over
NI	Not Initialed and Dated at Time of Entry
OB	Not Recorded at the Time of Initial Observation

Note: Error code should be circled, dated, and initialed when recorded.

### Hazard Classifications

- Class 1 Explosives
- Class 2 Gas
- Class 3 Flammable Liquid
- Class 4 Flammable Solids (Potential spontaneous combustion, or emission of flammable gases when in contact with water)
- Class 5 Oxidizing Substances and Organic Peroxides
- Class 6 Toxic (poisonous) and infectious substances
- Class 7 Radioactive material
- Class 8 Corrosives
- Class 9 Miscellaneous dangerous goods

### Container type abbreviations (for sampling guidelines)

- BR - Boston Round • ABR - Amber Boston Round • AJ - Amber Jug • AWM - Amber Wide Mouth • Poly - Polyethylene Bottles • BOD - Bottle • CWM - Clear Wide Mouth



Location Axil-Belko Date 12-16-13

Project / Client \_\_\_\_\_

Nate &amp; Nora on site @ 0915

Groundwater Sampling  
 MW-9, MW-4, MW-6, MW-7,  
 MW-10A, MW-7A, MW-8A,  
 MW-3A, MP-15 and MW-5

Low flow sampled MW-5  
 and MW-10A.

Wells MW-7A and MW-3A  
 take a while to sample  
 due to slow recharge.

Nate & Nora off site  
 around 3:30.

Location Axil-Belko Date 12-17-13

Project / Client \_\_\_\_\_

Nate &amp; Nora on site @ 0915

Sampling OF-1, OF-2  
 and Slep

Low flow sampling  
 POT-1 and POT-2.

POT-1: should re-do  
 entrance. Wood is dry,  
 rotted and should be  
 replaced.

POT-2: needs a cap and  
 a flag for locating.

Nora & Nate off site  
 around 2:00.

6 Location Axil-Belko Date 12/23/03

Project / Client 12

Rainy

- Outflow 2 steady flow most likely from all the rain
- MW-1 guss, depth to bottom 21.65 12 mins
- Seep looks normal no ~~noticeable~~ NO oil sheen in any areas
- Silt fence still looks & feels in ~~great~~ NO great shape, still standing tall
- Outflow 1 looks a little more of a heavy flow than normal but mostly by feel
- upstream ~~of seeps~~ ~~for~~ NO organic iron falling looks like it may have grown
- down stream seems to be normal <sup>water level</sup>
- creek 15' high from rain

7 Location Kingsville, MD Date 12-30-13

Project / Client Axil-Belko # 3607-03

NP on site @ 10:00

River very high due to a lot of rainfall over the past week.

Pit area filled w/ water

- NO Sheen or odor
- close to overflowing
- Hay berm looks good

Seep area: organic ~~no~~

- ~~to~~ visible sheen or Oil
- a lot of branches/leaves and debris
- need to change out boom on next visit
- River VERY high → covering parts of the River Bank

OF-2: Steady flow coming out; organic sheen; lots of Fe phalling

OF-1: Steady flow; NO visible sheen; Fe phalling  
Erosion of soil up top due to

Location \_\_\_\_\_

Date 12/30/13  
(cont'd)

Project / Client \_\_\_\_\_

excess Rain

Overall site looks good  
No environmental concerns  
seen.

NP off-site @ 11:00

Location \_\_\_\_\_

Project / Client \_\_\_\_\_

Rain/Cloud

- arrived at lock
- lock
- cut channel
- use of
- to either
- like
- entry
- River
- snow
- Pit area
- high
- is
- the
- silt
- river
- need
- silt
- good
- Itay
- Ten
- look
- down
- falling

## **APPENDIX II – BORING LOGS**



**LOG OF SOIL BORING**

Coordinates (East): \_\_\_\_\_  
 Coordinates (North): \_\_\_\_\_  
 Surface Elevation: \_\_\_\_\_  
 Top of PVC Casing: \_\_\_\_\_  
 Permit #: BA10-0472

Job No. 367	Client	Location Axil Belko
Drilling Method: Geoprobe Auger		Boring No. <b>MW-8A</b>
Sampling Method:		Sheet 1 of 1
		Drilling
Water Level		Start
Time		Finish
Date		11/22/2013
Reference		11/22/2013

Sample Type	Inches Drvn/In. Recvrd	Dpth. Csg.	Samp. # /samp. depth	PID (ppm)	Blows per 6 in.	Depth in Feet	USCS Log	Surface Conditions: Soil
				0		0		Red brown Silty sand some gravel, moist, no odor (fill)
						1		
						2		
				0		3		Grey angular gravel
						4		
						5		
						6		
				0		7		Grey silty Sand, wet, some petroleum odor
						8		Refusal at 8'
						9		
						10		
						11		
						12		
						13		
						14		
						15		
						16		
						17		
						18		
						19		
						20		

Logged by: N Santella Date: 11/22/2013

Drilling Contractor: AEC Driller: Greg

WELL SPECIFICATIONS:  
 Diam. of casing: 4" Screen Interval: 8-3 Sandpack: 8-2 Grout: \_\_\_\_\_  
 BOH: 8 Riser Interval: 3-0 Bentonite: 2-0 Cover: \_\_\_\_\_



**LOG OF SOIL BORING**

Coordinates (East): \_\_\_\_\_  
 Coordinates (North): \_\_\_\_\_  
 Surface Elevation: \_\_\_\_\_  
 Top of PVC Casing: \_\_\_\_\_  
 Permit #: BA10-0471

Job No. 367	Client	Location Axil Belko
Drilling Method: Geoprobe Auger		Boring No. <b>MW-10</b>
Sampling Method:		Sheet 1 of 1
		Drilling
Water Level		Start 12:30 Finish 1:30
Time		11/22/2013 11/22/2013
Date		
Reference		

Sample Type	Inches Drvn/In. Recvrd	Dpth. Csg.	Samp. # /samp. depth	PID (ppm)	Blows per 6 in.	Depth in Feet	USCS Log	Surface Conditions: Soil
				0		0		Red brown Silty sand and gravel, moist, no odor (fill)
						1		
						2		
				0		3		
						4		
						5		Refusal at 5'
						6		
						7		
						8		
						9		
						10		
						11		
						12		
						13		
						14		
						15		
						16		
						17		
						18		
						19		
						20		

Logged by: N Santella Date: 11/22/2013

Drilling Contractor: AEC Driller: Greg

WELL SPECIFICATIONS:  
 Diam. of casing: 4" Screen Interval: 5-1 Sandpack: 6-1 Grout: \_\_\_\_\_  
 BOH: 5 Riser Interval: 1-0 Bentonite: Jan-00 Cover: \_\_\_\_\_



**LOG OF SOIL BORING**

Coordinates (East): \_\_\_\_\_  
 Coordinates (North): \_\_\_\_\_  
 Surface Elevation: \_\_\_\_\_  
 Top of PVC Casing: \_\_\_\_\_  
 Permit #: BA10-0470

Job No. 367	Client	Location Axil Belko
Drilling Method: Geoprobe Auger		Boring No. <b>MW-7A</b>
Sampling Method:		Sheet 1 of 1
		Drilling
Water Level		Start 11:30 Finish 0:30
Time		11/22/2013 11/22/2013
Date		
Reference		

Sample Type	Inches Drvn/In. Recvrd	Dpth. Csg.	Samp. # /samp. depth	PID (ppm)	Blows per 6 in.	Depth in Feet	USCS Log	Surface Conditions: Soil
				0		0		Grey brown Silty sand and rubber, moist, slight petroleum odor
						1		
						2		
				0		3		
						4		
						5		
				0		6		Grey brown Silty sand some cobbles, wet, slight petroleum odor
						7		Refusal at 7'
						8		
						9		
						10		
						11		
						12		
						13		
						14		
						15		
						16		
						17		
						18		
						19		
						20		

Logged by: N Santella

Date: 11/22/2013

Drilling Contractor: AEC

Driller: Greg

WELL SPECIFICATIONS:

Diam. of casing: 4" Screen Interval: 7-3.5 Sandpack: 7-3 Grout: \_\_\_\_\_  
 BOH: 7 Riser Interval: 3.5-0 Bentonite: 3-0 Cover: \_\_\_\_\_



**LOG OF SOIL BORING**

Coordinates (East): \_\_\_\_\_  
 Coordinates (North): \_\_\_\_\_  
 Surface Elevation: \_\_\_\_\_  
 Top of PVC Casing: \_\_\_\_\_  
 Permit #: BA10-0469

Job No. 367	Client	Location Axil Belko
Drilling Method: Geoprobe Auger		Boring No. <b>MW-3A</b>
Sampling Method:		Sheet 1 of 1
		Drilling
Water Level		Start 10:30
Time		Finish 11:30
Date		11/22/2013 11/22/2013
Reference		

Sample Type	Inches Drvn/In. Recvrd	Dpth. Csg.	Samp. # /samp. depth	PID (ppm)	Blows per 6 in.	Depth in Feet	USCS Log	Surface Conditions: Soil
				0		0		Brown Silty sand, some brick fragments, moist (fill)
						1		
						2		
				0		3		Grey angular gravel mixed with grey stilty clay, most to wet, slight petroleum odor
						4		
				0		5		
						6		Refusal at 6'
						7		
						8		
						9		
						10		
						11		
						12		
						13		
						14		
						15		
						16		
						17		
						18		
						19		
						20		

Logged by: N Santella Date: 11/22/2013  
 Drilling Contractor: AEC Driller: Greg

WELL SPECIFICATIONS:  
 Diam. of casing: 4" Screen Interval: 6-2 Sandpack: 6-3.5 Grout: \_\_\_\_\_  
 BOH: 6 Riser Interval: 2-0 Bentonite: 3.5-0 Cover: \_\_\_\_\_

## Groundwater Sampling Data

Project Name: Axil Belko

Date: 12-17-13 and 12-18-13

Project Location: Kingsville, MD

Samplers: NO and NP

Location	Depth to Water (Ft)	Depth to Bottom (Ft)	Well Diameter (in)	Water Column (Ft)	Volume to Purge (Gal)	Volume Purged (Gal)	Purge Method	Sample Time	Sample Method
W-1	9.41	21.65	4	12.24	23.98	24	W	13:00	Bailer
W-2	-	27	8	-	-	-	W	-	Bailer
W-3A	6.48	9.08	4	2.6	5.09	5	W		Bailer
W-4	6.81	14.06	4	7.25	14.20	14	W	10:40	Bailer
W-5	5.02	17.8	4	12.78	25.04	25	W	11:00	Bailer
W-6	7.72	10.5	4	2.78	5.45	5.5	W	11:15	Bailer
W-7A	7.69	9.6	4	1.91	3.74	4	W	13:25	Bailer
W-8A	4.43	10.05	4	5.62	11.01	11	W	13:35	Bailer
W-9	3.54	12.4	4	8.86	17.36	17	W	10:00	Bailer
W-10A	4.56	8.89	4	4.33	8.48	8.5	W	12:05	Bailer
POT-1	19.44	200	6	-	-	-	Low Flow	11:40	Grab
POT-2	23.73	106	6	-	-	-	Low Flow	13:10	Grab
W-11									
W-12									
W-13									
W-14									
W-15	7.5	18	4	10.5	20	20	W		Bailer
W-16	7.2								

Location	Flow Rate	Sample Time	DTW
Outfall 1	1/4 gpm	9:30	0.7
Outfall 2	1/4 gpm	9:35	-
Seep	-	9:55	4.64

Purge Coefficients	
2"	0.163
4"	0.653
6"	1.469
8"	2.611

W: Whale pump  
G: Grundfos pump

Comments: Low Flow Sampled  
Low Flow Sampled and Sampled by Purging Three Well Volumes  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



**BROWNFIELD SCIENCE & TECHNOLOGY, INC.**  
**LOW FLOW PURGING AND SAMPLING**  
**DATA SHEET**

SHEET: 1 OF: 1

PROJECT NAME: <u>Axil-Belko</u>		PROJECT NUMBER: <u>367</u>		DATE: <u>12/17/2013</u>		WEATHER: <u>overcast</u>										
TECHNICIAN: <u>NP</u>																
MONITORING WELL NO.: <u>MW-10A</u>		WELL DEPT: <u>8.89</u> ft below TOC		WELL DIAMETER: <u>4"</u>		SCREEN LENGTH: _____ ft below TOC										
PUMP INTAKE DEPTH: _____ ft below TOC				DEPTH TO WATER BEFORE PUMP INSTALLATION: <u>4.43</u> ft below TOC												
PURGING DEVIC: _____		SAMPLING METHOD: <u>LFPS</u>		TUBING TYPE: <u>POLY</u>												
ANALYTICAL LABORATORY: <u>ACCUTEST</u>			SAMPLE ANALYSIS: _____			NUMBER OF BOTTLES: _____										
TIME	PURGING	SAMPLING	pH (pH units)		SPECIFIC CONDUCTIVITY (mS/cm)		ORP (mv)		DISSOLVED OXYGEN (mg/L)		TEMPERATURE (° C)		TURBIDITY (NTU)		PUMPING RATE (ml/min)	DEPTH TO WATER (ft below TOC)
			READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*		
1125	X		1.78	± 0.1	0.025	± 3%	417.9	± 10	9.9	± 10%	7.82	± 3%	-	± 10%	240	4.42
1130	X		6.22		0.025		463		2.35		8.11		-		220	4.33
1135	X		6.8		0.025		300		1.75		8.43		-		240	4.43
1140	X		6.83		0.025		250.7		1.55		8.45		-		240	4.46
1145	X		6.79		0.025		259		1.5		8.45		-		240	4.47
1150	X		2		0.025		399		1.27		8.88		-		220	4.46
1155	X		1.64		0.025		397.3		1.21		8.63		-		240	4.51
1200	X		2.18		0.025		362.4		1.15		8.6		-		240	4.51
1205	X	X														
COMMENTS: pH and ORP meter malfunction. YSI calibrated before use. Sampled at 1205																

\* INDICATOR PARAMETERS HAVE STABILIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ±0.1 for pH; ±3% for Conductivity and Temperature; ± 10 mv for ORP; and ± 10% for Dissolved Oxygen and Turbidity.





## **APPENDIX IV – ANALYTICAL DATA**

## Technical Report for

### Brownfield Science & Technology

Axil Belko, Kingsville, MD

367

Accutest Job Number: JB55980

Sampling Date: 12/17/13

#### Report to:

Brownfield Associates, Inc.

[npearse@bstiweb.com](mailto:npearse@bstiweb.com)

ATTN: Nora Pearse

Total number of pages in report: **34**



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.



**Nancy Cole**  
Laboratory Director

**Client Service contact: Kevin Dovedytis 732-329-0200**

Certifications: NJ(12129), NY(10983), CA, CT, DE, FL, IL, IN, KS, KY, LA, MA, MD, MI, MT, NC, OH VAP (CL0056), PA, RI, SC, TN, VA, WV, DoD ELAP (L-A-B L2248)

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Test results relate only to samples analyzed.

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1

2

3

4

5

## Sample Summary

**Brownfield Science & Technology**

**Job No: JB55980**

**Axil Belko, Kingsville, MD**  
**Project No: 367**

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
JB55980-1	12/17/13	10:05 NO	12/18/13	AQ	Ground Water	MW-9
JB55980-2	12/17/13	10:32 NO	12/18/13	AQ	Ground Water	MW-5 LOW
JB55980-3	12/17/13	11:00 NO	12/18/13	AQ	Ground Water	MW-5
JB55980-4	12/17/13	10:40 NO	12/18/13	AQ	Ground Water	MW-4
JB55980-5	12/17/13	11:15 NO	12/18/13	AQ	Ground Water	MW-6
JB55980-6	12/17/13	12:05 NO	12/18/13	AQ	Ground Water	MW-10A LOW
JB55980-7	12/17/13	13:00 NO	12/18/13	AQ	Ground Water	MW-1
JB55980-8	12/17/13	13:00 NO	12/18/13	AQ	Ground Water	MW-10A
JB55980-9	12/17/13	13:25 NO	12/18/13	AQ	Ground Water	MW-7A
JB55980-10	12/17/13	13:35 NO	12/18/13	AQ	Ground Water	MW-8A
JB55980-11	12/17/13	14:10 NO	12/18/13	AQ	Ground Water	MP-15
JB55980-12	12/17/13	14:15 NO	12/18/13	AQ	Ground Water	MW-3A



## CASE NARRATIVE / CONFORMANCE SUMMARY

**Client:** Brownfield Science & Technology

**Job No** JB55980

**Site:** Axil Belko, Kingsville, MD

**Report Date** 1/7/2014 9:02:02 AM

On 12/18/2013, 12 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were received at Accutest Laboratories at a temperature of 1 C. Samples were intact and chemically preserved, unless noted below. An Accutest Job Number of JB55980 was assigned to the project. Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

### Extractables by GCMS By Method SW846 8270D

<b>Matrix:</b> AQ	<b>Batch ID:</b> OP71572
-------------------	--------------------------

- All samples were extracted within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.

### Extractables by GC By Method SW846 8015C

<b>Matrix:</b> AQ	<b>Batch ID:</b> OP71572
-------------------	--------------------------

- All samples were extracted within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB55980-9 have surrogates outside control limits. Probable cause due to matrix interference.
- JB55980-9: Confirmation run.
- JB55980-9 for Tetracosane-d50: Outside of in house control limits, refer to re-extract.
- JB55980-9 for 5a-Androstane: Outside of in house control limits, refer to re-extract.

<b>Matrix:</b> AQ	<b>Batch ID:</b> OP71822
-------------------	--------------------------

- All method blanks for this batch meet method specific criteria.
- The following samples were extracted outside of holding time for method SW846 8015C: JB55980-9 Sample extracted outside the holding time.
- Sample(s) JB55980-9 have surrogates outside control limits. Probable cause due to matrix interference.
- JB55980-9: Sample extracted outside the holding time.

Accutest certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting Accutest's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

Accutest Laboratories is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. Data release is authorized by Accutest Laboratories indicated via signature on the report cover

## Summary of Hits

**Job Number:** JB55980  
**Account:** Brownfield Science & Technology  
**Project:** Axil Belko, Kingsville, MD  
**Collected:** 12/17/13



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JB55980-1	MW-9					
Naphthalene		1.4	1.0	0.26	ug/l	SW846 8270D
TPH-DRO (C10-C28)		8.98	0.10	0.053	mg/l	SW846 8015C
JB55980-2	MW-5 LOW					
TPH-DRO (C10-C28)		2.25	0.10	0.053	mg/l	SW846 8015C
JB55980-3	MW-5					
TPH-DRO (C10-C28)		2.60	0.10	0.053	mg/l	SW846 8015C
JB55980-4	MW-4					
TPH-DRO (C10-C28)		2.39	0.10	0.053	mg/l	SW846 8015C
JB55980-5	MW-6					
Benzo(a)pyrene		0.46 J	1.0	0.23	ug/l	SW846 8270D
Chrysene		0.45 J	1.0	0.29	ug/l	SW846 8270D
TPH-DRO (C10-C28)		2.89	0.10	0.053	mg/l	SW846 8015C
JB55980-6	MW-10A LOW					
TPH-DRO (C10-C28)		6.61	0.10	0.053	mg/l	SW846 8015C
JB55980-7	MW-1					
TPH-DRO (C10-C28)		4.92	0.10	0.053	mg/l	SW846 8015C
JB55980-8	MW-10A					
TPH-DRO (C10-C28)		6.14	0.10	0.053	mg/l	SW846 8015C
JB55980-9	MW-7A					
TPH-DRO (C10-C28) <sup>a</sup>		8.49	0.10	0.053	mg/l	SW846 8015C
JB55980-10	MW-8A					
TPH-DRO (C10-C28)		1.49	0.10	0.053	mg/l	SW846 8015C

## Summary of Hits

**Job Number:** JB55980  
**Account:** Brownfield Science & Technology  
**Project:** Axil Belko, Kingsville, MD  
**Collected:** 12/17/13



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JB55980-11	MP-15					
TPH-DRO (C10-C28)		6.13	0.10	0.053	mg/l	SW846 8015C
JB55980-12	MW-3A					
TPH-DRO (C10-C28)		26.8	0.11	0.061	mg/l	SW846 8015C

(a) Sample extracted outside the holding time.

**Sample Results**

---

**Report of Analysis**

---

## Report of Analysis

Client Sample ID: MW-9	Date Sampled: 12/17/13
Lab Sample ID: JB55980-1	Date Received: 12/18/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8270D SW846 3510C	
Project: Axil Belko, Kingsville, MD	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6P3033.D	1	12/21/13	ALS	12/20/13	OP71576	E6P123
Run #2							

Run #	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

## BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	1.0	0.26	ug/l	
208-96-8	Acenaphthylene	ND	1.0	0.23	ug/l	
120-12-7	Anthracene	ND	1.0	0.29	ug/l	
56-55-3	Benzo(a)anthracene	ND	1.0	0.23	ug/l	
50-32-8	Benzo(a)pyrene	ND	1.0	0.23	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	1.0	0.46	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	1.0	0.32	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	1.0	0.51	ug/l	
218-01-9	Chrysene	ND	1.0	0.29	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	1.0	0.38	ug/l	
206-44-0	Fluoranthene	ND	1.0	0.32	ug/l	
86-73-7	Fluorene	ND	1.0	0.28	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	1.0	0.37	ug/l	
91-20-3	Naphthalene	1.4	1.0	0.26	ug/l	
85-01-8	Phenanthrene	ND	1.0	0.29	ug/l	
129-00-0	Pyrene	ND	1.0	0.27	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	50%		28-131%
321-60-8	2-Fluorobiphenyl	60%		30-121%
1718-51-0	Terphenyl-d14	18%		16-147%

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b> MW-9 <b>Lab Sample ID:</b> JB55980-1 <b>Matrix:</b> AQ - Ground Water <b>Method:</b> SW846 8015C SW846 3510C <b>Project:</b> Axil Belko, Kingsville, MD	<b>Date Sampled:</b> 12/17/13 <b>Date Received:</b> 12/18/13 <b>Percent Solids:</b> n/a
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Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Y58476.D	1	12/30/13	JM	12/20/13	OP71572	G2Y2281
Run #2							

Run #	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	8.98	0.10	0.053	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	69%		36-144%		
16416-32-3	Tetracosane-d50	102%		32-138%		
438-22-2	5a-Androstane	93%		31-136%		

ND = Not detected      MDL - Method Detection Limit  
 RL = Reporting Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

4.1  
4

## Report of Analysis

Client Sample ID: MW-5 LOW	Date Sampled: 12/17/13
Lab Sample ID: JB55980-2	Date Received: 12/18/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8270D SW846 3510C	
Project: Axil Belko, Kingsville, MD	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6P3034.D	1	12/21/13	ALS	12/20/13	OP71576	E6P123
Run #2							

Run #	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

## BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	1.0	0.26	ug/l	
208-96-8	Acenaphthylene	ND	1.0	0.23	ug/l	
120-12-7	Anthracene	ND	1.0	0.29	ug/l	
56-55-3	Benzo(a)anthracene	ND	1.0	0.23	ug/l	
50-32-8	Benzo(a)pyrene	ND	1.0	0.23	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	1.0	0.46	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	1.0	0.32	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	1.0	0.51	ug/l	
218-01-9	Chrysene	ND	1.0	0.29	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	1.0	0.38	ug/l	
206-44-0	Fluoranthene	ND	1.0	0.32	ug/l	
86-73-7	Fluorene	ND	1.0	0.28	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	1.0	0.37	ug/l	
91-20-3	Naphthalene	ND	1.0	0.26	ug/l	
85-01-8	Phenanthrene	ND	1.0	0.29	ug/l	
129-00-0	Pyrene	ND	1.0	0.27	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	56%		28-131%
321-60-8	2-Fluorobiphenyl	55%		30-121%
1718-51-0	Terphenyl-d14	29%		16-147%

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b> MW-5 LOW <b>Lab Sample ID:</b> JB55980-2 <b>Matrix:</b> AQ - Ground Water <b>Method:</b> SW846 8015C SW846 3510C <b>Project:</b> Axil Belko, Kingsville, MD	<b>Date Sampled:</b> 12/17/13 <b>Date Received:</b> 12/18/13 <b>Percent Solids:</b> n/a
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Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Y58477.D	1	12/30/13	JM	12/20/13	OP71572	G2Y2281
Run #2							

Run #	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	2.25	0.10	0.053	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	85%		36-144%		
16416-32-3	Tetracosane-d50	53%		32-138%		
438-22-2	5a-Androstane	49%		31-136%		

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ND = Not detected RL = Reporting Limit E = Indicates value exceeds calibration range	MDL - Method Detection Limit J = Indicates an estimated value B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound
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4.2  
4

## Report of Analysis

Client Sample ID: MW-5	Date Sampled: 12/17/13
Lab Sample ID: JB55980-3	Date Received: 12/18/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8270D SW846 3510C	
Project: Axil Belko, Kingsville, MD	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	6P3035.D	1	12/21/13	ALS	12/20/13	OP71576	E6P123

Run #1	Initial Volume	Final Volume
Run #2	1000 ml	1.0 ml

## BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	1.0	0.26	ug/l	
208-96-8	Acenaphthylene	ND	1.0	0.23	ug/l	
120-12-7	Anthracene	ND	1.0	0.29	ug/l	
56-55-3	Benzo(a)anthracene	ND	1.0	0.23	ug/l	
50-32-8	Benzo(a)pyrene	ND	1.0	0.23	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	1.0	0.46	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	1.0	0.32	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	1.0	0.51	ug/l	
218-01-9	Chrysene	ND	1.0	0.29	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	1.0	0.38	ug/l	
206-44-0	Fluoranthene	ND	1.0	0.32	ug/l	
86-73-7	Fluorene	ND	1.0	0.28	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	1.0	0.37	ug/l	
91-20-3	Naphthalene	ND	1.0	0.26	ug/l	
85-01-8	Phenanthrene	ND	1.0	0.29	ug/l	
129-00-0	Pyrene	ND	1.0	0.27	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	40%		28-131%
321-60-8	2-Fluorobiphenyl	37%		30-121%
1718-51-0	Terphenyl-d14	22%		16-147%

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b> MW-5 <b>Lab Sample ID:</b> JB55980-3 <b>Matrix:</b> AQ - Ground Water <b>Method:</b> SW846 8015C SW846 3510C <b>Project:</b> Axil Belko, Kingsville, MD	<b>Date Sampled:</b> 12/17/13 <b>Date Received:</b> 12/18/13 <b>Percent Solids:</b> n/a
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Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Y58478.D	1	12/31/13	JM	12/20/13	OP71572	G2Y2281
Run #2							

Run #	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	2.60	0.10	0.053	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	83%		36-144%		
16416-32-3	Tetracosane-d50	52%		32-138%		
438-22-2	5a-Androstane	51%		31-136%		

ND = Not detected      MDL - Method Detection Limit  
 RL = Reporting Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

4.3  
4

## Report of Analysis

Client Sample ID: MW-4	Date Sampled: 12/17/13
Lab Sample ID: JB55980-4	Date Received: 12/18/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8270D SW846 3510C	
Project: Axil Belko, Kingsville, MD	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6P3036.D	1	12/21/13	ALS	12/20/13	OP71576	E6P123
Run #2							

Run #	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

## BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	1.0	0.26	ug/l	
208-96-8	Acenaphthylene	ND	1.0	0.23	ug/l	
120-12-7	Anthracene	ND	1.0	0.29	ug/l	
56-55-3	Benzo(a)anthracene	ND	1.0	0.23	ug/l	
50-32-8	Benzo(a)pyrene	ND	1.0	0.23	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	1.0	0.46	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	1.0	0.32	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	1.0	0.51	ug/l	
218-01-9	Chrysene	ND	1.0	0.29	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	1.0	0.38	ug/l	
206-44-0	Fluoranthene	ND	1.0	0.32	ug/l	
86-73-7	Fluorene	ND	1.0	0.28	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	1.0	0.37	ug/l	
91-20-3	Naphthalene	ND	1.0	0.26	ug/l	
85-01-8	Phenanthrene	ND	1.0	0.29	ug/l	
129-00-0	Pyrene	ND	1.0	0.27	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	57%		28-131%
321-60-8	2-Fluorobiphenyl	54%		30-121%
1718-51-0	Terphenyl-d14	29%		16-147%

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b> MW-4 <b>Lab Sample ID:</b> JB55980-4 <b>Matrix:</b> AQ - Ground Water <b>Method:</b> SW846 8015C SW846 3510C <b>Project:</b> Axil Belko, Kingsville, MD	<b>Date Sampled:</b> 12/17/13 <b>Date Received:</b> 12/18/13 <b>Percent Solids:</b> n/a
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Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Y58479.D	1	12/31/13	JM	12/20/13	OP71572	G2Y2281
Run #2							

Run #	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	2.39	0.10	0.053	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	74%		36-144%		
16416-32-3	Tetracosane-d50	55%		32-138%		
438-22-2	5a-Androstane	57%		31-136%		

ND = Not detected      MDL - Method Detection Limit  
 RL = Reporting Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

4.4  
4

## Report of Analysis

<b>Client Sample ID:</b> MW-6 <b>Lab Sample ID:</b> JB55980-5 <b>Matrix:</b> AQ - Ground Water <b>Method:</b> SW846 8270D SW846 3510C <b>Project:</b> Axil Belko, Kingsville, MD	<b>Date Sampled:</b> 12/17/13 <b>Date Received:</b> 12/18/13 <b>Percent Solids:</b> n/a
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Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6P3037.D	1	12/21/13	ALS	12/20/13	OP71576	E6P123
Run #2							

Run #	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

**BN PAH List**

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	1.0	0.26	ug/l	
208-96-8	Acenaphthylene	ND	1.0	0.23	ug/l	
120-12-7	Anthracene	ND	1.0	0.29	ug/l	
56-55-3	Benzo(a)anthracene	ND	1.0	0.23	ug/l	
50-32-8	Benzo(a)pyrene	0.46	1.0	0.23	ug/l	J
205-99-2	Benzo(b)fluoranthene	ND	1.0	0.46	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	1.0	0.32	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	1.0	0.51	ug/l	
218-01-9	Chrysene	0.45	1.0	0.29	ug/l	J
53-70-3	Dibenzo(a,h)anthracene	ND	1.0	0.38	ug/l	
206-44-0	Fluoranthene	ND	1.0	0.32	ug/l	
86-73-7	Fluorene	ND	1.0	0.28	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	1.0	0.37	ug/l	
91-20-3	Naphthalene	ND	1.0	0.26	ug/l	
85-01-8	Phenanthrene	ND	1.0	0.29	ug/l	
129-00-0	Pyrene	ND	1.0	0.27	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	36%		28-131%
321-60-8	2-Fluorobiphenyl	33%		30-121%
1718-51-0	Terphenyl-d14	22%		16-147%

ND = Not detected      MDL - Method Detection Limit      J = Indicates an estimated value  
 RL = Reporting Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

4.5  
4

## Report of Analysis

<b>Client Sample ID:</b> MW-6 <b>Lab Sample ID:</b> JB55980-5 <b>Matrix:</b> AQ - Ground Water <b>Method:</b> SW846 8015C SW846 3510C <b>Project:</b> Axil Belko, Kingsville, MD	<b>Date Sampled:</b> 12/17/13 <b>Date Received:</b> 12/18/13 <b>Percent Solids:</b> n/a
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Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Z36456.D	1	12/30/13	JM	12/20/13	OP71572	G2Z1394
Run #2							

Run #	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	2.89	0.10	0.053	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	78%		36-144%		
16416-32-3	Tetracosane-d50	51%		32-138%		
438-22-2	5a-Androstane	42%		31-136%		

ND = Not detected      MDL - Method Detection Limit  
 RL = Reporting Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

4.5  
4

## Report of Analysis

Client Sample ID:	MW-10A LOW	Date Sampled:	12/17/13
Lab Sample ID:	JB55980-6	Date Received:	12/18/13
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D SW846 3510C		
Project:	Axil Belko, Kingsville, MD		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6P3038.D	1	12/21/13	ALS	12/20/13	OP71576	E6P123
Run #2							

Run #	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

## BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	1.0	0.26	ug/l	
208-96-8	Acenaphthylene	ND	1.0	0.23	ug/l	
120-12-7	Anthracene	ND	1.0	0.29	ug/l	
56-55-3	Benzo(a)anthracene	ND	1.0	0.23	ug/l	
50-32-8	Benzo(a)pyrene	ND	1.0	0.23	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	1.0	0.46	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	1.0	0.32	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	1.0	0.51	ug/l	
218-01-9	Chrysene	ND	1.0	0.29	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	1.0	0.38	ug/l	
206-44-0	Fluoranthene	ND	1.0	0.32	ug/l	
86-73-7	Fluorene	ND	1.0	0.28	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	1.0	0.37	ug/l	
91-20-3	Naphthalene	ND	1.0	0.26	ug/l	
85-01-8	Phenanthrene	ND	1.0	0.29	ug/l	
129-00-0	Pyrene	ND	1.0	0.27	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	49%		28-131%
321-60-8	2-Fluorobiphenyl	42%		30-121%
1718-51-0	Terphenyl-d14	45%		16-147%

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b> MW-10A LOW <b>Lab Sample ID:</b> JB55980-6 <b>Matrix:</b> AQ - Ground Water <b>Method:</b> SW846 8015C SW846 3510C <b>Project:</b> Axil Belko, Kingsville, MD	<b>Date Sampled:</b> 12/17/13 <b>Date Received:</b> 12/18/13 <b>Percent Solids:</b> n/a
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Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Z36457.D	1	12/30/13	JM	12/20/13	OP71572	G2Z1394
Run #2							

Run #	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	6.61	0.10	0.053	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	84%		36-144%		
16416-32-3	Tetracosane-d50	61%		32-138%		
438-22-2	5a-Androstane	54%		31-136%		

ND = Not detected      MDL - Method Detection Limit  
 RL = Reporting Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

4.6  
4

## Report of Analysis

Client Sample ID: MW-1	Date Sampled: 12/17/13
Lab Sample ID: JB55980-7	Date Received: 12/18/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8270D SW846 3510C	
Project: Axil Belko, Kingsville, MD	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	6P3039.D	1	12/21/13	ALS	12/20/13	OP71576	E6P123

Run #1	Initial Volume	Final Volume
Run #2	1000 ml	1.0 ml

## BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	1.0	0.26	ug/l	
208-96-8	Acenaphthylene	ND	1.0	0.23	ug/l	
120-12-7	Anthracene	ND	1.0	0.29	ug/l	
56-55-3	Benzo(a)anthracene	ND	1.0	0.23	ug/l	
50-32-8	Benzo(a)pyrene	ND	1.0	0.23	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	1.0	0.46	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	1.0	0.32	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	1.0	0.51	ug/l	
218-01-9	Chrysene	ND	1.0	0.29	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	1.0	0.38	ug/l	
206-44-0	Fluoranthene	ND	1.0	0.32	ug/l	
86-73-7	Fluorene	ND	1.0	0.28	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	1.0	0.37	ug/l	
91-20-3	Naphthalene	ND	1.0	0.26	ug/l	
85-01-8	Phenanthrene	ND	1.0	0.29	ug/l	
129-00-0	Pyrene	ND	1.0	0.27	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	50%		28-131%
321-60-8	2-Fluorobiphenyl	47%		30-121%
1718-51-0	Terphenyl-d14	42%		16-147%

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b> MW-1 <b>Lab Sample ID:</b> JB55980-7 <b>Matrix:</b> AQ - Ground Water <b>Method:</b> SW846 8015C SW846 3510C <b>Project:</b> Axil Belko, Kingsville, MD	<b>Date Sampled:</b> 12/17/13 <b>Date Received:</b> 12/18/13 <b>Percent Solids:</b> n/a
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Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Z36458.D	1	12/30/13	JM	12/20/13	OP71572	G2Z1394
Run #2							

Run #	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	4.92	0.10	0.053	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	85%		36-144%		
16416-32-3	Tetracosane-d50	58%		32-138%		
438-22-2	5a-Androstane	51%		31-136%		

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ND = Not detected RL = Reporting Limit E = Indicates value exceeds calibration range	MDL - Method Detection Limit J = Indicates an estimated value B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound
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4.7  
4

## Report of Analysis

Client Sample ID: MW-10A	Date Sampled: 12/17/13
Lab Sample ID: JB55980-8	Date Received: 12/18/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8270D SW846 3510C	
Project: Axil Belko, Kingsville, MD	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6P3040.D	1	12/21/13	ALS	12/20/13	OP71576	E6P123
Run #2							

Run #	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

## BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	1.0	0.26	ug/l	
208-96-8	Acenaphthylene	ND	1.0	0.23	ug/l	
120-12-7	Anthracene	ND	1.0	0.29	ug/l	
56-55-3	Benzo(a)anthracene	ND	1.0	0.23	ug/l	
50-32-8	Benzo(a)pyrene	ND	1.0	0.23	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	1.0	0.46	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	1.0	0.32	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	1.0	0.51	ug/l	
218-01-9	Chrysene	ND	1.0	0.29	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	1.0	0.38	ug/l	
206-44-0	Fluoranthene	ND	1.0	0.32	ug/l	
86-73-7	Fluorene	ND	1.0	0.28	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	1.0	0.37	ug/l	
91-20-3	Naphthalene	ND	1.0	0.26	ug/l	
85-01-8	Phenanthrene	ND	1.0	0.29	ug/l	
129-00-0	Pyrene	ND	1.0	0.27	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	52%		28-131%
321-60-8	2-Fluorobiphenyl	49%		30-121%
1718-51-0	Terphenyl-d14	50%		16-147%

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b> MW-10A <b>Lab Sample ID:</b> JB55980-8 <b>Matrix:</b> AQ - Ground Water <b>Method:</b> SW846 8015C SW846 3510C <b>Project:</b> Axil Belko, Kingsville, MD	<b>Date Sampled:</b> 12/17/13 <b>Date Received:</b> 12/18/13 <b>Percent Solids:</b> n/a
--	---

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Z36461.D	1	12/30/13	JM	12/20/13	OP71572	G2Z1394
Run #2							

Run #	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	6.14	0.10	0.053	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	73%		36-144%		
16416-32-3	Tetracosane-d50	52%		32-138%		
438-22-2	5a-Androstane	46%		31-136%		

ND = Not detected      MDL - Method Detection Limit  
 RL = Reporting Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

4.8  
4

## Report of Analysis

Client Sample ID: MW-7A	Date Sampled: 12/17/13
Lab Sample ID: JB55980-9	Date Received: 12/18/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8270D SW846 3510C	
Project: Axil Belko, Kingsville, MD	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6P3041.D	1	12/21/13	ALS	12/20/13	OP71576	E6P123
Run #2							

Run #	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

## BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	1.0	0.26	ug/l	
208-96-8	Acenaphthylene	ND	1.0	0.23	ug/l	
120-12-7	Anthracene	ND	1.0	0.29	ug/l	
56-55-3	Benzo(a)anthracene	ND	1.0	0.23	ug/l	
50-32-8	Benzo(a)pyrene	ND	1.0	0.23	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	1.0	0.46	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	1.0	0.32	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	1.0	0.51	ug/l	
218-01-9	Chrysene	ND	1.0	0.29	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	1.0	0.38	ug/l	
206-44-0	Fluoranthene	ND	1.0	0.32	ug/l	
86-73-7	Fluorene	ND	1.0	0.28	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	1.0	0.37	ug/l	
91-20-3	Naphthalene	ND	1.0	0.26	ug/l	
85-01-8	Phenanthrene	ND	1.0	0.29	ug/l	
129-00-0	Pyrene	ND	1.0	0.27	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	48%		28-131%
321-60-8	2-Fluorobiphenyl	44%		30-121%
1718-51-0	Terphenyl-d14	31%		16-147%

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b> MW-7A <b>Lab Sample ID:</b> JB55980-9 <b>Matrix:</b> AQ - Ground Water <b>Method:</b> SW846 8015C SW846 3510C <b>Project:</b> Axil Belko, Kingsville, MD	<b>Date Sampled:</b> 12/17/13 <b>Date Received:</b> 12/18/13 <b>Percent Solids:</b> n/a
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Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 <sup>a</sup>	2Z36572.D	1	01/06/14	JM	01/02/14	OP71822	G2Z1397
Run #2 <sup>b</sup>	2Z36462.D	1	12/30/13	JM	12/20/13	OP71572	G2Z1394

Run #	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2	1000 ml	1.0 ml

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	8.49	0.10	0.053	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	72%	54%	36-144%
16416-32-3	Tetracosane-d50	41%	31% <sup>c</sup>	32-138%
438-22-2	5a-Androstane	37%	28% <sup>c</sup>	31-136%

- (a) Sample extracted outside the holding time.
- (b) Confirmation run.
- (c) Outside of in house control limits, refer to re-extract.

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ND = Not detected RL = Reporting Limit E = Indicates value exceeds calibration range	MDL - Method Detection Limit J = Indicates an estimated value B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound
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4.9  
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## Report of Analysis

Client Sample ID: MW-8A	Date Sampled: 12/17/13
Lab Sample ID: JB55980-10	Date Received: 12/18/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8270D SW846 3510C	
Project: Axil Belko, Kingsville, MD	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	6P3042.D	1	12/21/13	ALS	12/20/13	OP71576	E6P123

Run #1	Initial Volume	Final Volume
Run #2	1000 ml	1.0 ml

## BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	1.0	0.26	ug/l	
208-96-8	Acenaphthylene	ND	1.0	0.23	ug/l	
120-12-7	Anthracene	ND	1.0	0.29	ug/l	
56-55-3	Benzo(a)anthracene	ND	1.0	0.23	ug/l	
50-32-8	Benzo(a)pyrene	ND	1.0	0.23	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	1.0	0.46	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	1.0	0.32	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	1.0	0.51	ug/l	
218-01-9	Chrysene	ND	1.0	0.29	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	1.0	0.38	ug/l	
206-44-0	Fluoranthene	ND	1.0	0.32	ug/l	
86-73-7	Fluorene	ND	1.0	0.28	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	1.0	0.37	ug/l	
91-20-3	Naphthalene	ND	1.0	0.26	ug/l	
85-01-8	Phenanthrene	ND	1.0	0.29	ug/l	
129-00-0	Pyrene	ND	1.0	0.27	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	61%		28-131%
321-60-8	2-Fluorobiphenyl	56%		30-121%
1718-51-0	Terphenyl-d14	46%		16-147%

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b> MW-8A <b>Lab Sample ID:</b> JB55980-10 <b>Matrix:</b> AQ - Ground Water <b>Method:</b> SW846 8015C SW846 3510C <b>Project:</b> Axil Belko, Kingsville, MD	<b>Date Sampled:</b> 12/17/13 <b>Date Received:</b> 12/18/13 <b>Percent Solids:</b> n/a
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Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Z36463.D	1	12/31/13	JM	12/20/13	OP71572	G2Z1394
Run #2							

Run #	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	1.49	0.10	0.053	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	85%		36-144%		
16416-32-3	Tetracosane-d50	34%		32-138%		
438-22-2	5a-Androstane	31%		31-136%		

ND = Not detected      MDL - Method Detection Limit  
 RL = Reporting Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

4.10  
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## Report of Analysis

Client Sample ID: MP-15	Date Sampled: 12/17/13
Lab Sample ID: JB55980-11	Date Received: 12/18/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8270D SW846 3510C	
Project: Axil Belko, Kingsville, MD	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	6P3043.D	1	12/21/13	ALS	12/20/13	OP71576	E6P123

Run #1	Initial Volume	Final Volume
Run #2	1000 ml	1.0 ml

## BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	1.0	0.26	ug/l	
208-96-8	Acenaphthylene	ND	1.0	0.23	ug/l	
120-12-7	Anthracene	ND	1.0	0.29	ug/l	
56-55-3	Benzo(a)anthracene	ND	1.0	0.23	ug/l	
50-32-8	Benzo(a)pyrene	ND	1.0	0.23	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	1.0	0.46	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	1.0	0.32	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	1.0	0.51	ug/l	
218-01-9	Chrysene	ND	1.0	0.29	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	1.0	0.38	ug/l	
206-44-0	Fluoranthene	ND	1.0	0.32	ug/l	
86-73-7	Fluorene	ND	1.0	0.28	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	1.0	0.37	ug/l	
91-20-3	Naphthalene	ND	1.0	0.26	ug/l	
85-01-8	Phenanthrene	ND	1.0	0.29	ug/l	
129-00-0	Pyrene	ND	1.0	0.27	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	60%		28-131%
321-60-8	2-Fluorobiphenyl	59%		30-121%
1718-51-0	Terphenyl-d14	53%		16-147%

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b> MP-15 <b>Lab Sample ID:</b> JB55980-11 <b>Matrix:</b> AQ - Ground Water <b>Method:</b> SW846 8015C SW846 3510C <b>Project:</b> Axil Belko, Kingsville, MD	<b>Date Sampled:</b> 12/17/13 <b>Date Received:</b> 12/18/13 <b>Percent Solids:</b> n/a
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Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Z36464.D	1	12/31/13	JM	12/20/13	OP71572	G2Z1394
Run #2							

Run #	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	6.13	0.10	0.053	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	87%		36-144%		
16416-32-3	Tetracosane-d50	57%		32-138%		
438-22-2	5a-Androstane	50%		31-136%		

ND = Not detected      MDL - Method Detection Limit  
 RL = Reporting Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

4.11  
4

## Report of Analysis

Client Sample ID: MW-3A	Date Sampled: 12/17/13
Lab Sample ID: JB55980-12	Date Received: 12/18/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8270D SW846 3510C	
Project: Axil Belko, Kingsville, MD	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6P3044.D	1	12/21/13	ALS	12/20/13	OP71576	E6P123
Run #2							

Run #	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

## BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	1.0	0.26	ug/l	
208-96-8	Acenaphthylene	ND	1.0	0.23	ug/l	
120-12-7	Anthracene	ND	1.0	0.29	ug/l	
56-55-3	Benzo(a)anthracene	ND	1.0	0.23	ug/l	
50-32-8	Benzo(a)pyrene	ND	1.0	0.23	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	1.0	0.46	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	1.0	0.32	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	1.0	0.51	ug/l	
218-01-9	Chrysene	ND	1.0	0.29	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	1.0	0.38	ug/l	
206-44-0	Fluoranthene	ND	1.0	0.32	ug/l	
86-73-7	Fluorene	ND	1.0	0.28	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	1.0	0.37	ug/l	
91-20-3	Naphthalene	ND	1.0	0.26	ug/l	
85-01-8	Phenanthrene	ND	1.0	0.29	ug/l	
129-00-0	Pyrene	ND	1.0	0.27	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	52%		28-131%
321-60-8	2-Fluorobiphenyl	51%		30-121%
1718-51-0	Terphenyl-d14	49%		16-147%

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b> MW-3A <b>Lab Sample ID:</b> JB55980-12 <b>Matrix:</b> AQ - Ground Water <b>Method:</b> SW846 8015C SW846 3510C <b>Project:</b> Axil Belko, Kingsville, MD	<b>Date Sampled:</b> 12/17/13 <b>Date Received:</b> 12/18/13 <b>Percent Solids:</b> n/a
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Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Z36465.D	1	12/31/13	JM	12/20/13	OP71572	G2Z1394
Run #2							

Run #	Initial Volume	Final Volume
Run #1	870 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	26.8	0.11	0.061	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	88%		36-144%		
16416-32-3	Tetracosane-d50	57%		32-138%		
438-22-2	5a-Androstane	55%		31-136%		

ND = Not detected      MDL - Method Detection Limit  
 RL = Reporting Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

4.12  
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## Misc. Forms

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5

### Custody Documents and Other Forms

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**Includes the following where applicable:**

- Chain of Custody

aw

**CHAIN OF CUSTODY**

2235 Route 130, Dayton, NJ 08810  
TEL: 732-329-0200 FAX: 732-329-3499/3480  
www.accutest.com

FED-EX Tracking #  
Accutest Quote #  
Bottle Order Control #  
Accutest Job # **JB55980**

Client / Reporting Information		Project Information		Requested Analysis ( see TEST CODE sheet)												Matrix Codes
Company Name: <b>Brownfield science</b> <b>Axill Belko &amp; Technology</b>		Project Name: <b>Axill Belko</b>		<b>BROIS DRO</b> <b>B8210 PAH</b>												DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge SED - Sediment OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe FB - Field Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank
Street Address: <b>3157 Limestone Road</b>		Street: <b>Cochranville, PA 19330</b>														
City: <b>Cochranville, PA 19330</b>		City: <b>Cochranville, PA 19330</b>														
State: <b>PA</b>		State: <b>MD</b>														
Project Contact: <b>Tripp Fischer</b>		Project #: <b>307</b>		Billing Information (if different from Report to)												LAB USE ONLY
Phone #: <b>(610) 593-5500</b>		Client Purchase Order #:		Company Name:												
Sampler(s) Name(s): <b>Nate O. &amp; Nora P.</b>		Project Manager: <b>Tripp Fischer</b>		Street Address:												
Phone #:		Attention:		City: State: Zip:												
Turnaround Time (Business days):		Approved By (Accutest PM) / Date:		Data Deliverable Information												Comments / Special Instructions
<input checked="" type="checkbox"/> Std. 10 Business Days <input type="checkbox"/> 5 Day RUSH <input type="checkbox"/> 3 Day EMERGENCY <input type="checkbox"/> 2 Day EMERGENCY <input type="checkbox"/> 1 Day EMERGENCY <input type="checkbox"/> other _____ <small>Emergency &amp; Rush T/A data available VIA Lablink</small>		<input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> FULLLT1 (Level 3+4) <input type="checkbox"/> NJ Reduced <input type="checkbox"/> Commercial "C" <small>Commercial "A" = Results Only Commercial "B" = Results + QC Summary NJ Reduced = Results + QC Summary + Partial Raw data</small>		<input type="checkbox"/> NYASP Category A <input type="checkbox"/> NYASP Category B <input type="checkbox"/> State Forms <input type="checkbox"/> EDD Format <input type="checkbox"/> Other _____												
<b>Sample Custody must be documented below each time samples change possession, including courier delivery.</b>																
Reinquished by Sampler: <b>1 Nora &amp; Pearse</b>		Date Time: <b>11-17-13 1430</b>		Received By: <b>1 [Signature]</b>		Date Time: <b>12/18/13 1630</b>		Reinquished By: <b>2 [Signature]</b>		Date Time: <b>12/18/13 1630</b>		Received By: <b>2 [Signature]</b>		On Ice <input checked="" type="checkbox"/> Cooler Temp: <b>1.0 C/G</b> <b>1.5 C/G</b> <b>1.1 C/G</b> <b>1.3 C/G</b>		
Reinquished by Sampler: <b>3 [Signature]</b>		Date Time: <b>12/18/13 1750</b>		Received By: <b>3 [Signature]</b>		Reinquished By: <b>4 [Signature]</b>		Date Time: <b>12/18/13 1750</b>		Received By: <b>4 [Signature]</b>		Custody Seal # <b>NONE</b>				
Reinquished by: <b>5 [Signature]</b>		Date Time: <b>12/18/13 1750</b>		Received By: <b>5 [Signature]</b>		Reinquished By: <b>5 [Signature]</b>		Date Time: <b>12/18/13 1750</b>		Received By: <b>5 [Signature]</b>		Preserved where applicable <input type="checkbox"/>				

3B (DJB)

5.1  
5

**JB55980: Chain of Custody**

**Page 1 of 2**



# Accutest Laboratories Sample Receipt Summary

Accutest Job Number: JB55980      Client: \_\_\_\_\_      Project: \_\_\_\_\_  
 Date / Time Received: 12/18/2013      Delivery Method: \_\_\_\_\_      Airbill #'s: \_\_\_\_\_

Cooler Temps (Initial/Adjusted): #1: (1/1); #2: (1.5/1.5); #3: (1.1/1.1); #4: (1.3/1.3); 0

<u>Cooler Security</u>	<u>Y</u>	<u>or</u>	<u>N</u>		<u>Y</u>	<u>or</u>	<u>N</u>
1. Custody Seals Present:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	3. COC Present:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. Custody Seals Intact:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	4. Smpl Dates/Time OK	<input checked="" type="checkbox"/>		<input type="checkbox"/>

<u>Cooler Temperature</u>	<u>Y</u>	<u>or</u>	<u>N</u>
1. Temp criteria achieved:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. Cooler temp verification:	IR Gun		
3. Cooler media:	Ice (Bag)		
4. No. Coolers:	4		

<u>Quality Control Preservation</u>	<u>Y</u>	<u>or</u>	<u>N</u>	<u>N/A</u>
1. Trip Blank present / cooler:	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Trip Blank listed on COC:	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Samples preserved properly:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
4. VOCs headspace free:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>

<u>Sample Integrity - Documentation</u>	<u>Y</u>	<u>or</u>	<u>N</u>
1. Sample labels present on bottles:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. Container labeling complete:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
3. Sample container label / COC agree:	<input checked="" type="checkbox"/>		<input type="checkbox"/>

<u>Sample Integrity - Condition</u>	<u>Y</u>	<u>or</u>	<u>N</u>
1. Sample recvd within HT:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. All containers accounted for:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
3. Condition of sample:	Intact		

<u>Sample Integrity - Instructions</u>	<u>Y</u>	<u>or</u>	<u>N</u>	<u>N/A</u>
1. Analysis requested is clear:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
2. Bottles received for unspecified tests:	<input type="checkbox"/>		<input checked="" type="checkbox"/>	
3. Sufficient volume recvd for analysis:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
4. Compositing instructions clear:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Filtering instructions clear:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>

Comments

5.1  
5

**Technical Report for**

**Brownfield Science & Technology**

**Axil Belko, Kingsville, MD**

**367**

**Accutest Job Number: JB56072**

**Sampling Date: 12/18/13**

**Report to:**

**Brownfield Associates, Inc.**

**npearse@bstiweb.com**

**ATTN: Nora Pearse**

**Total number of pages in report: 20**



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.



**Nancy Cole**  
**Laboratory Director**

**Client Service contact: Kevin Dovedytis 732-329-0200**

Certifications: NJ(12129), NY(10983), CA, CT, DE, FL, IL, IN, KS, KY, LA, MA, MD, MI, MT, NC, OH VAP (CL0056), PA, RI, SC, TN, VA, WV, DoD ELAP (L-A-B L2248)

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## Sample Summary

**Brownfield Science & Technology**

**Job No: JB56072**

**Axil Belko, Kingsville, MD**  
**Project No: 367**

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
JB56072-1	12/18/13	09:30 NO	12/19/13	AQ	Ground Water	OF-1
JB56072-2	12/18/13	09:35 NO	12/19/13	AQ	Ground Water	OF-2
JB56072-3	12/18/13	09:55 NO	12/19/13	AQ	Ground Water	SEEP
JB56072-4	12/18/13	11:40 NO	12/19/13	AQ	Ground Water	POT 1
JB56072-5	12/18/13	13:10 NO	12/19/13	AQ	Ground Water	POT 2

## CASE NARRATIVE / CONFORMANCE SUMMARY

**Client:** Brownfield Science & Technology

**Job No** JB56072

**Site:** Axil Belko, Kingsville, MD

**Report Date** 1/6/2014 11:48:30 AM

On 12/19/2013, 5 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were received at Accutest Laboratories at a temperature of 1.4 C. Samples were intact and chemically preserved, unless noted below. An Accutest Job Number of JB56072 was assigned to the project. Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

### Volatiles by GCMS By Method SW846 8260B

**Matrix:** AQ

**Batch ID:** V4V168

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB56158-5MS, JB56158-5MSD were used as the QC samples indicated.

### Extractables by GCMS By Method SW846 8270D

**Matrix:** AQ

**Batch ID:** OP71600

- All samples were extracted within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- OP71600-BS1 for Benzo(a)anthracene: Outside of in house control limits.
- OP71600-BS1 for Benzo(a)pyrene: Outside of in house control limits.

**Matrix:** AQ

**Batch ID:** OP71819

- The data for SW846 8270D meets quality control requirements.
- The following samples were extracted outside of holding time for method SW846 8270D: JB56072-1, JB56072-2, JB56072-3
- JB56072-3: Confirmation run.
- JB56072-2: Confirmation run.
- JB56072-1: Confirmation run.

### Extractables by GC By Method SW846 8015C

**Matrix:** AQ

**Batch ID:** OP71605

- All samples were extracted within the recommended method holding time.
- Sample(s) JB56133-5MS, JB56133-5MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- JB56072-3 for 5a-Androstane: Outside of in house control limits.

**Matrix:** AQ

**Batch ID:** OP71719

- The data for SW846 8015C meets quality control requirements.
- The following samples were extracted outside of holding time for method SW846 8015C: JB56072-3
- JB56072-3: Confirmation run.

Accutest certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting Accutest's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

Accutest Laboratories is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. Data release is authorized by Accutest Laboratories indicated via signature on the report cover

## Summary of Hits

Job Number: JB56072  
Account: Brownfield Science & Technology  
Project: Axil Belko, Kingsville, MD  
Collected: 12/18/13



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
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JB56072-1      OF-1

TPH-DRO (C10-C28)      0.172      0.10      0.053      mg/l      SW846 8015C

JB56072-2      OF-2

TPH-DRO (C10-C28)      0.829      0.10      0.053      mg/l      SW846 8015C

JB56072-3      SEEP

TPH-DRO (C10-C28)      4.12      0.10      0.053      mg/l      SW846 8015C

JB56072-4      POT 1

No hits reported in this sample.

JB56072-5      POT 2

No hits reported in this sample.

**Sample Results**

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**Report of Analysis**

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## Report of Analysis

Client Sample ID: OF-1		
Lab Sample ID: JB56072-1		Date Sampled: 12/18/13
Matrix: AQ - Ground Water		Date Received: 12/19/13
Method: SW846 8270D SW846 3510C		Percent Solids: n/a
Project: Axil Belko, Kingsville, MD		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Z87408.D	1	12/23/13	EP	12/21/13	OP71600	EZ4372
Run #2 <sup>a</sup>	6P3386.D	1	01/03/14	EP	01/02/14	OP71819	E6P134

Run #	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2	960 ml	1.0 ml

## BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	1.0	0.26	ug/l	
208-96-8	Acenaphthylene	ND	1.0	0.23	ug/l	
120-12-7	Anthracene	ND	1.0	0.29	ug/l	
56-55-3	Benzo(a)anthracene	ND	1.0	0.23	ug/l	
50-32-8	Benzo(a)pyrene	ND	1.0	0.23	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	1.0	0.46	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	1.0	0.32	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	1.0	0.51	ug/l	
218-01-9	Chrysene	ND	1.0	0.29	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	1.0	0.38	ug/l	
206-44-0	Fluoranthene	ND	1.0	0.32	ug/l	
86-73-7	Fluorene	ND	1.0	0.28	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	1.0	0.37	ug/l	
91-20-3	Naphthalene	ND	1.0	0.26	ug/l	
85-01-8	Phenanthrene	ND	1.0	0.29	ug/l	
129-00-0	Pyrene	ND	1.0	0.27	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	71%	83%	28-131%
321-60-8	2-Fluorobiphenyl	64%	74%	30-121%
1718-51-0	Terphenyl-d14	47%	57%	16-147%

(a) Confirmation run.

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b> OF-1 <b>Lab Sample ID:</b> JB56072-1 <b>Matrix:</b> AQ - Ground Water <b>Method:</b> SW846 8015C SW846 3510C <b>Project:</b> Axil Belko, Kingsville, MD	<b>Date Sampled:</b> 12/18/13 <b>Date Received:</b> 12/19/13 <b>Percent Solids:</b> n/a
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Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Z36324.D	1	12/26/13	JM	12/23/13	OP71605	G2Z1391
Run #2							

Run #	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	0.172	0.10	0.053	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	83%		36-144%		
16416-32-3	Tetracosane-d50	72%		32-138%		
438-22-2	5a-Androstane	62%		31-136%		

ND = Not detected      MDL - Method Detection Limit  
 RL = Reporting Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

4.1  
4

## Report of Analysis

Client Sample ID: OF-2	Date Sampled: 12/18/13
Lab Sample ID: JB56072-2	Date Received: 12/19/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8270D SW846 3510C	
Project: Axil Belko, Kingsville, MD	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Z87409.D	1	12/23/13	EP	12/21/13	OP71600	EZ4372
Run #2 <sup>a</sup>	6P3387.D	1	01/03/14	EP	01/02/14	OP71819	E6P134

Run #	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2	1000 ml	1.0 ml

## BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	1.0	0.26	ug/l	
208-96-8	Acenaphthylene	ND	1.0	0.23	ug/l	
120-12-7	Anthracene	ND	1.0	0.29	ug/l	
56-55-3	Benzo(a)anthracene	ND	1.0	0.23	ug/l	
50-32-8	Benzo(a)pyrene	ND	1.0	0.23	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	1.0	0.46	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	1.0	0.32	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	1.0	0.51	ug/l	
218-01-9	Chrysene	ND	1.0	0.29	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	1.0	0.38	ug/l	
206-44-0	Fluoranthene	ND	1.0	0.32	ug/l	
86-73-7	Fluorene	ND	1.0	0.28	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	1.0	0.37	ug/l	
91-20-3	Naphthalene	ND	1.0	0.26	ug/l	
85-01-8	Phenanthrene	ND	1.0	0.29	ug/l	
129-00-0	Pyrene	ND	1.0	0.27	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	67%	77%	28-131%
321-60-8	2-Fluorobiphenyl	65%	67%	30-121%
1718-51-0	Terphenyl-d14	39%	32%	16-147%

## (a) Confirmation run.

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b> OF-2 <b>Lab Sample ID:</b> JB56072-2 <b>Matrix:</b> AQ - Ground Water <b>Method:</b> SW846 8015C SW846 3510C <b>Project:</b> Axil Belko, Kingsville, MD	<b>Date Sampled:</b> 12/18/13 <b>Date Received:</b> 12/19/13 <b>Percent Solids:</b> n/a
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Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Y58550.D	1	01/02/14	JM	12/23/13	OP71605	G2Y2283
Run #2							

Run #	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	0.829	0.10	0.053	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	68%		36-144%		
16416-32-3	Tetracosane-d50	47%		32-138%		
438-22-2	5a-Androstane	41%		31-136%		

ND = Not detected      MDL - Method Detection Limit  
 RL = Reporting Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

4.2  
4

## Report of Analysis

Client Sample ID: SEEP		Date Sampled: 12/18/13
Lab Sample ID: JB56072-3		Date Received: 12/19/13
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8270D SW846 3510C		
Project: Axil Belko, Kingsville, MD		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Z87410.D	1	12/23/13	EP	12/21/13	OP71600	EZ4372
Run #2 <sup>a</sup>	6P3388.D	1	01/03/14	EP	01/02/14	OP71819	E6P134

Run #	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2	950 ml	1.0 ml

**BN PAH List**

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	1.0	0.26	ug/l	
208-96-8	Acenaphthylene	ND	1.0	0.23	ug/l	
120-12-7	Anthracene	ND	1.0	0.29	ug/l	
56-55-3	Benzo(a)anthracene	ND	1.0	0.23	ug/l	
50-32-8	Benzo(a)pyrene	ND	1.0	0.23	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	1.0	0.46	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	1.0	0.32	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	1.0	0.51	ug/l	
218-01-9	Chrysene	ND	1.0	0.29	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	1.0	0.38	ug/l	
206-44-0	Fluoranthene	ND	1.0	0.32	ug/l	
86-73-7	Fluorene	ND	1.0	0.28	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	1.0	0.37	ug/l	
91-20-3	Naphthalene	ND	1.0	0.26	ug/l	
85-01-8	Phenanthrene	ND	1.0	0.29	ug/l	
129-00-0	Pyrene	ND	1.0	0.27	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	67%	78%	28-131%
321-60-8	2-Fluorobiphenyl	64%	61%	30-121%
1718-51-0	Terphenyl-d14	62%	45%	16-147%

(a) Confirmation run.

ND = Not detected      MDL - Method Detection Limit      J = Indicates an estimated value  
 RL = Reporting Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

4.3  
4

## Report of Analysis

<b>Client Sample ID:</b> SEEP <b>Lab Sample ID:</b> JB56072-3 <b>Matrix:</b> AQ - Ground Water <b>Method:</b> SW846 8015C SW846 3510C <b>Project:</b> Axil Belko, Kingsville, MD	<b>Date Sampled:</b> 12/18/13 <b>Date Received:</b> 12/19/13 <b>Percent Solids:</b> n/a
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Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Y58266.D	1	12/24/13	JM	12/23/13	OP71605	G2Y2277
Run #2 <sup>a</sup>	2Z36450.D	1	12/30/13	JM	12/27/13	OP71719	G2Z1394

Run #	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2	1000 ml	1.0 ml

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	4.12	0.10	0.053	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	51%	73%	36-144%		
16416-32-3	Tetracosane-d50	33%	54%	32-138%		
438-22-2	5a-Androstane	28% <sup>b</sup>	48%	31-136%		

- (a) Confirmation run.
- (b) Outside of in house control limits.

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ND = Not detected RL = Reporting Limit E = Indicates value exceeds calibration range	MDL - Method Detection Limit	J = Indicates an estimated value B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound
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4.3  
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## Report of Analysis

Client Sample ID: POT 1	Date Sampled: 12/18/13
Lab Sample ID: JB56072-4	Date Received: 12/19/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8260B	
Project: Axil Belko, Kingsville, MD	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	4V4148.D	1	12/30/13	LD	n/a	n/a	V4V168

Run #1	Purge Volume
Run #2	5.0 ml

## VOA TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	3.3	ug/l	
71-43-2	Benzene	ND	1.0	0.28	ug/l	
74-97-5	Bromochloromethane	ND	5.0	0.42	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.21	ug/l	
75-25-2	Bromoform	ND	4.0	0.30	ug/l	
74-83-9	Bromomethane	ND	2.0	0.56	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	3.2	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.18	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.23	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.35	ug/l	
75-00-3	Chloroethane	ND	1.0	0.39	ug/l	
67-66-3	Chloroform	ND	1.0	0.25	ug/l	
74-87-3	Chloromethane	ND	1.0	0.36	ug/l	
110-82-7	Cyclohexane	ND	5.0	0.18	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	10	1.3	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.19	ug/l	
106-93-4	1,2-Dibromoethane	ND	2.0	0.16	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.20	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.31	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.30	ug/l	
75-71-8	Dichlorodifluoromethane	ND	5.0	0.63	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.26	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.22	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.34	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.24	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.38	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.28	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.15	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.21	ug/l	
123-91-1	1,4-Dioxane	ND	130	73	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.21	ug/l	
76-13-1	Freon 113	ND	5.0	0.77	ug/l	

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

## Report of Analysis

Client Sample ID:	POT 1	Date Sampled:	12/18/13
Lab Sample ID:	JB56072-4	Date Received:	12/19/13
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260B		
Project:	Axil Belko, Kingsville, MD		

## VOA TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
591-78-6	2-Hexanone	ND	5.0	1.7	ug/l	
98-82-8	Isopropylbenzene	ND	2.0	0.22	ug/l	
79-20-9	Methyl Acetate	ND	5.0	1.5	ug/l	
108-87-2	Methylcyclohexane	ND	5.0	0.15	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.29	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	1.5	ug/l	
75-09-2	Methylene chloride	ND	2.0	0.86	ug/l	
100-42-5	Styrene	ND	5.0	0.30	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.20	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.25	ug/l	
108-88-3	Toluene	ND	1.0	0.44	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	0.24	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	0.22	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.21	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.50	ug/l	
75-69-4	Trichlorofluoromethane	ND	5.0	0.33	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.41	ug/l	
	m,p-Xylene	ND	1.0	0.40	ug/l	
95-47-6	o-Xylene	ND	1.0	0.19	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.19	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		79-117%
17060-07-0	1,2-Dichloroethane-D4	91%		72-123%
2037-26-5	Toluene-D8	99%		82-118%
460-00-4	4-Bromofluorobenzene	90%		75-118%

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

## Report of Analysis

Client Sample ID: POT 2	Date Sampled: 12/18/13
Lab Sample ID: JB56072-5	Date Received: 12/19/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8260B	
Project: Axil Belko, Kingsville, MD	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	4V4149.D	1	12/30/13	LD	n/a	n/a	V4V168

Run #1	Purge Volume
Run #2	5.0 ml

## VOA TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	3.3	ug/l	
71-43-2	Benzene	ND	1.0	0.28	ug/l	
74-97-5	Bromochloromethane	ND	5.0	0.42	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.21	ug/l	
75-25-2	Bromoform	ND	4.0	0.30	ug/l	
74-83-9	Bromomethane	ND	2.0	0.56	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	3.2	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.18	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.23	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.35	ug/l	
75-00-3	Chloroethane	ND	1.0	0.39	ug/l	
67-66-3	Chloroform	ND	1.0	0.25	ug/l	
74-87-3	Chloromethane	ND	1.0	0.36	ug/l	
110-82-7	Cyclohexane	ND	5.0	0.18	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	10	1.3	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.19	ug/l	
106-93-4	1,2-Dibromoethane	ND	2.0	0.16	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.20	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.31	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.30	ug/l	
75-71-8	Dichlorodifluoromethane	ND	5.0	0.63	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.26	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.22	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.34	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.24	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.38	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.28	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.15	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.21	ug/l	
123-91-1	1,4-Dioxane	ND	130	73	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.21	ug/l	
76-13-1	Freon 113	ND	5.0	0.77	ug/l	

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

## Report of Analysis

Client Sample ID:	POT 2	Date Sampled:	12/18/13
Lab Sample ID:	JB56072-5	Date Received:	12/19/13
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260B		
Project:	Axil Belko, Kingsville, MD		

## VOA TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
591-78-6	2-Hexanone	ND	5.0	1.7	ug/l	
98-82-8	Isopropylbenzene	ND	2.0	0.22	ug/l	
79-20-9	Methyl Acetate	ND	5.0	1.5	ug/l	
108-87-2	Methylcyclohexane	ND	5.0	0.15	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.29	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	1.5	ug/l	
75-09-2	Methylene chloride	ND	2.0	0.86	ug/l	
100-42-5	Styrene	ND	5.0	0.30	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.20	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.25	ug/l	
108-88-3	Toluene	ND	1.0	0.44	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	0.24	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	0.22	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.21	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.50	ug/l	
75-69-4	Trichlorofluoromethane	ND	5.0	0.33	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.41	ug/l	
	m,p-Xylene	ND	1.0	0.40	ug/l	
95-47-6	o-Xylene	ND	1.0	0.19	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.19	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		79-117%
17060-07-0	1,2-Dichloroethane-D4	92%		72-123%
2037-26-5	Toluene-D8	100%		82-118%
460-00-4	4-Bromofluorobenzene	91%		75-118%

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

## Misc. Forms

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### Custody Documents and Other Forms

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**Includes the following where applicable:**

- Chain of Custody





**Technical Report for**

**Brownfield Science & Technology**

**Axil Belko, Kingsville, MD**

**367**

**Accutest Job Number: JB56462**

**Sampling Date: 12/23/13**

**Report to:**

**Brownfield Associates, Inc.**

**npearse@bstiweb.com**

**ATTN: Nora Pearse**

**Total number of pages in report: 12**



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.



**Nancy Cole**  
**Laboratory Director**

**Client Service contact: Kevin Dovedytis 732-329-0200**

Certifications: NJ(12129), NY(10983), CA, CT, DE, FL, IL, IN, KS, KY, LA, MA, MD, MI, MT, NC, OH VAP (CL0056), PA, RI, SC, TN, VA, WV, DoD ELAP (L-A-B L2248)

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Test results relate only to samples analyzed.

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## Sample Summary

**Brownfield Science & Technology**

**Job No: JB56462**

**Axil Belko, Kingsville, MD**  
**Project No: 367**

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
JB56462-1	12/23/13	11:00 NP	12/24/13	AQ	Effluent	C-EFFLUENT

## CASE NARRATIVE / CONFORMANCE SUMMARY

**Client:** Brownfield Science & Technology

**Job No** JB56462

**Site:** Axil Belko, Kingsville, MD

**Report Date** 1/6/2014 4:22:04 PM

On 12/24/2013, 1 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were received at Accutest Laboratories at a temperature of 1.6 C. Samples were intact and chemically preserved, unless noted below. An Accutest Job Number of JB56462 was assigned to the project. Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

### Volatiles by GCMS By Method SW846 8260B

**Matrix:** AQ

**Batch ID:** V2B5238

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB56453-6MS, JB56453-6MSD were used as the QC samples indicated.

### Volatiles by GC By Method SW846 8015C

**Matrix:** AQ

**Batch ID:** GUV4442

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB56432-1MS, JB56432-1MSD were used as the QC samples indicated.

### Extractables by GC By Method SW846 8015C

**Matrix:** AQ

**Batch ID:** OP71700

- All samples were extracted within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.

Accutest certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting Accutest's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

Accutest Laboratories is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. Data release is authorized by Accutest Laboratories indicated via signature on the report cover

# Summary of Hits

**Job Number:** JB56462  
**Account:** Brownfield Science & Technology  
**Project:** Axil Belko, Kingsville, MD  
**Collected:** 12/23/13



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JB56462-1	C-EFFLUENT					
TPH-DRO (C10-C28)		1.55	0.10	0.055	mg/l	SW846 8015C



**Sample Results**

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**Report of Analysis**

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## Report of Analysis

<b>Client Sample ID:</b> C-EFFLUENT <b>Lab Sample ID:</b> JB56462-1 <b>Matrix:</b> AQ - Effluent <b>Method:</b> SW846 8260B <b>Project:</b> Axil Belko, Kingsville, MD	<b>Date Sampled:</b> 12/23/13 <b>Date Received:</b> 12/24/13 <b>Percent Solids:</b> n/a
--	---

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2B115129.D	1	12/27/13	KC	n/a	n/a	V2B5238
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

**Purgeable Aromatics, MTBE**

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.28	ug/l	
108-88-3	Toluene	ND	1.0	0.44	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.21	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.19	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.29	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		79-117%
17060-07-0	1,2-Dichloroethane-D4	102%		72-123%
2037-26-5	Toluene-D8	97%		82-118%
460-00-4	4-Bromofluorobenzene	96%		75-118%

ND = Not detected      MDL - Method Detection Limit      J = Indicates an estimated value  
 RL = Reporting Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

4.1  
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## Report of Analysis

<b>Client Sample ID:</b> C-EFFLUENT <b>Lab Sample ID:</b> JB56462-1 <b>Matrix:</b> AQ - Effluent <b>Method:</b> SW846 8015C <b>Project:</b> Axil Belko, Kingsville, MD	<b>Date Sampled:</b> 12/23/13 <b>Date Received:</b> 12/24/13 <b>Percent Solids:</b> n/a
--	---

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	UV12371.D	1	12/27/13	XPL	n/a	n/a	GUV4442
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	0.20	0.038	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
98-08-8	aaa-Trifluorotoluene	88%		68-114%		

ND = Not detected      MDL - Method Detection Limit  
 RL = Reporting Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

4.1  
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## Report of Analysis

<b>Client Sample ID:</b> C-EFFLUENT <b>Lab Sample ID:</b> JB56462-1 <b>Matrix:</b> AQ - Effluent <b>Method:</b> SW846 8015C SW846 3510C <b>Project:</b> Axil Belko, Kingsville, MD	<b>Date Sampled:</b> 12/23/13 <b>Date Received:</b> 12/24/13 <b>Percent Solids:</b> n/a
--	---

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Y58510.D	1	12/31/13	JM	12/26/13	OP71700	G2Y2282
Run #2							

Run #	Initial Volume	Final Volume
Run #1	960 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	1.55	0.10	0.055	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	66%		36-144%		
16416-32-3	Tetracosane-d50	42%		32-138%		
438-22-2	5a-Androstane	37%		31-136%		

ND = Not detected      MDL - Method Detection Limit  
 RL = Reporting Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

## Misc. Forms

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### Custody Documents and Other Forms

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**Includes the following where applicable:**

- Chain of Custody



## Accutest Laboratories Sample Receipt Summary

**Accutest Job Number:** JB56462      **Client:** \_\_\_\_\_      **Project:** \_\_\_\_\_  
**Date / Time Received:** 12/24/2013      **Delivery Method:** \_\_\_\_\_      **Airbill #'s:** \_\_\_\_\_  
**Cooler Temps (Initial/Adjusted):** #1: (1.6/1.6); 0

<u>Cooler Security</u>	<u>Y or N</u>	<u>Y or N</u>
1. Custody Seals Present:	<input checked="" type="checkbox"/> <input type="checkbox"/>	3. COC Present: <input checked="" type="checkbox"/> <input type="checkbox"/>
2. Custody Seals Intact:	<input checked="" type="checkbox"/> <input type="checkbox"/>	4. Smpl Dates/Time OK <input checked="" type="checkbox"/> <input type="checkbox"/>

<u>Cooler Temperature</u>	<u>Y or N</u>
1. Temp criteria achieved:	<input checked="" type="checkbox"/> <input type="checkbox"/>
2. Cooler temp verification:	IR Gun
3. Cooler media:	Ice (Bag)
4. No. Coolers:	1

<u>Quality Control Preservation</u>	<u>Y</u>	<u>or</u>	<u>N</u>	<u>N/A</u>
1. Trip Blank present / cooler:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Trip Blank listed on COC:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Samples preserved properly:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. VOCs headspace free:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<u>Sample Integrity - Documentation</u>	<u>Y</u>	<u>or</u>	<u>N</u>
1. Sample labels present on bottles:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Container labeling complete:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Sample container label / COC agree:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<u>Sample Integrity - Condition</u>	<u>Y</u>	<u>or</u>	<u>N</u>
1. Sample recvd within HT:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. All containers accounted for:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Condition of sample:	Intact		

<u>Sample Integrity - Instructions</u>	<u>Y</u>	<u>or</u>	<u>N</u>	<u>N/A</u>
1. Analysis requested is clear:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Bottles received for unspecified tests	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Sufficient volume recvd for analysis:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Compositing instructions clear:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Filtering instructions clear:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Comments

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