

**PHASE II ENVIRONMENTAL SITE ASSESSMENT
REPORT**

**for
OHIO BLENDERS PROPERTY**

**NORTHWEST TRIANGLE INITIATIVE
City of York
York County, Pennsylvania**

September 2009

Prepared for:

**The City of York Redevelopment Authority
49 East Market Street
York, PA**

Prepared by:

**ARM Group Inc.
Hershey, Pennsylvania**

(ARM Project 07214)



ARM Group Inc.

Earth Resource Engineers and Consultants

1129 W. Governor Road, P.O. Box 797 - Hershey, PA 17033-0797

Voice: (717) 533-8600 Fax: (717) 533-8605

E-mail: info@armgroup.net

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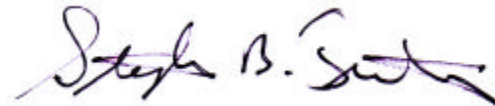
By:

ARM Group Inc.
1129 West Governor Road
P.O. Box 797
Hershey, PA 17033-0797

September 2009

ARM Project 07214

Respectfully submitted:



Stephen B. Fulton, P.G., P.E.
Vice President and Senior Geologist



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1.0 INTRODUCTION

1.1 Project Background

This Phase II Environmental Site Assessment Report (Phase II ESA) has been prepared by ARM Group Inc. (ARM) to summarize the environmental site characterization activities conducted to date for the Ohio Blenders property located within the City of York, York County, Pennsylvania. This report has been prepared at the request of the City of York Redevelopment Authority (RDA), a non-profit organization that is leading an initiative to remediate and redevelop properties within an approximately 14.5-acre portion of the City of York that is referred to as the Northwest Triangle (NWT) Initiative. The NWT is located in the northwestern corner of York, generally bounded to the north and west by the Codorus Creek, to the east by North Beaver Street, and to the south by West Gay Avenue; a general depiction of the site and surrounding area is presented on the attached Figure 1. The goal of the NWT Initiative is to revitalize and enhance this portion of the City of York through the demolition and/or remodeling of contaminated, abandoned and/or under-utilized properties, and to establish new residential and commercial facilities.

This Phase II ESA presents the current investigation results for the Ohio Blenders (AlfaGreen Supreme) property located at 260 North Beaver Street and 132-152 North Pershing Avenue, in the City of York, York County, Pennsylvania (see Figure 1). The site encompasses approximately 2.04 acres, and is split up by railroad right-of-ways that are owned by York Rail. Ohio Blenders has eight grain storage silos and a small office located in the northwestern corner of the property. Review of historical information indicates that the property was originally used for coal and utility pole storage prior to the 1950s. Beginning in the mid-1950s, the property was used as a feed mill, and that use has continued up to the date of ARM's investigation.

The Ohio Blenders has undergone various stages of investigation. Phase I and limited Phase II ESAs were completed by other firms prior to ARM's involvement with the project. ARM was subsequently contracted by the RDA to perform additional site sampling and characterization of the property, and to support the development and implementation of environmental remediation plans. ARM's work was conducted in accordance with the June 2007 Supplemental Phase II Environmental Site Assessment (ESA) Sampling and Analysis Plan (SAP) and Quality Assurance Project Plan (QAPP), which was reviewed and approved by the Pennsylvania Department of Environmental Protection (PADEP).

1.2 Geologic Setting

The NWT site is underlain by the Conestoga Formation and the Pure Limestone Member of the Kinzers Formation. The Conestoga Formation consists of impure, gray limestone. Both units are susceptible to sinkholes and a highly irregular, pinnacled bedrock surface may occur below a deceptively smooth land surface.



The site is located within the Codorus Creek watershed, and the Creek is the receptor for local surface and groundwater. Groundwater and surface water at and in the vicinity of the site flows to the north and northwest. Groundwater is 13 to 21 feet below the ground surface.

1.3 Previous Investigation Activities

Various phases of investigation were conducted prior to ARM's most recent investigation activities. These previous investigation activities included the following:

- Edge Environmental, Inc. prepared an initial Phase I Environmental Site Assessment Report dated June 1, 2004, which addressed all of the NWT properties of concern. For the Ohio Blenders property, this report identified historical site uses and potential environmental issues. State and federal records were reviewed, a site reconnaissance was performed, and local officials, owners, and occupants were interviewed regarding the site's environmental history. The report identified two coal storage yards (Coal Yards No. 1 and 2) and a former utility pole storage area as potential Areas of Concern (AOCs) at the property.
- A Revised Phase I Environmental Site Assessment (ESA) of the properties of concern was completed by Pennoni Associates, Inc. on June 2, 2005. This report expanded on the Edge Environmental assessment report, and included Sanborn maps, historical aerial photographs, and an Environmental Data Resources (EDR) Report. Historical above-ground storage tanks (ASTs), two fire-proof doors, potential PCBs, PAHs, metals associated with the railroad tracks, and numerous mercury-containing thermostats were identified as items of potential environmental concern at the site.
- GTS Technologies, Inc. (GTS) completed an Interim Site Characterization Report for the Keystone Color Works and Ohio Blenders properties dated December 21, 2005. Three geophysical surveys, including metal detection, terrain conductivity, and ground-penetrating radar, were performed on the Ohio Blenders property. The geophysical surveys identified six potential USTs. Potential PCB-containing transformers were also found on the Ohio Blenders property. Thirty six (36) surface soils samples were collected across the Ohio Blenders property, and antimony, arsenic, total chromium, lead and 1,2-diphenylhydrazine were detected in soils at concentrations that exceed the associated PADEP Statewide Health Medium Specific Concentrations (MSCs) in Coal Yards No. 1 and 2. An additional 12 surface soil samples were collected from the area where utility poles had been stored, and the concentrations of creosote-related compounds in these soil samples did not exceed any PADEP MSCs. Three surface soil samples were collected from the area where the transformers were located, and the concentrations of PCBs in these samples were below the applicable PADEP MSCs. Eight geoprobe borings were also completed across the site near the suspected UST systems; soil samples collected from these borings were analyzed for leaded gasoline parameters. One sample indicated a concentration of lead in excess of the PADEP MSC, although all other results were below the applicable PADEP MSCs. A summary of this



data from the GTS report is presented in Appendix C, along with the analytical data sheets.

2.0 SITE ASSESSMENT ACTIVITIES

2.1 Sampling Rationale and Methodology

Based on the results of the previous investigation activities, supplemental investigation activities were conducted by ARM to support the identification and delineation of contaminants of potential concern in soils and groundwater at the site, and to ultimately facilitate the completion of an Act 2 Final Report for the site following the implementation of any remediation activities. In general, sampling locations and depths were biased towards locations of potential contamination identified by the previous investigation activities, and/or through supplemental field observations (e.g., staining, odors, proximity to potential discharge locations, and elevated VOC concentrations in air based on field-screening with a photo-ionization detector). In locations where chemical concentrations were previously identified at levels exceeding the PADEP Statewide Health MSCs (25 PA Code Chapter 250), additional sampling was conducted to delineate the lateral and vertical extent of contamination as required by the Chapter 250 regulations for Act 2 projects. Monitoring well locations were selected to help define groundwater flow directions and to provide for monitoring of groundwater quality along the downgradient site boundary.

All sampling and analysis was conducted in accordance with the PADEP-approved Supplemental Phase II ESA SAP and QAPP dated June 2007, as well as all applicable PADEP regulations and guidance for the collection and analysis of environmental samples (e.g., the PADEP's Act 2 Technical Guidance Manual). Specific protocols included the decontamination of non-disposable sampling equipment prior to sample collection, and the proper preservation and chain-of-custody handling of all samples selected for laboratory analysis. All samples were analyzed by Analytical Laboratory Services, Inc. (ALSI) of Middletown, Pennsylvania.

2.2 Sampling Activities and Results

ARM's supplemental sampling of the Ohio Blenders property was conducted from June to August 2009. The sampling activities included: test pit excavations to explore suspected UST locations; the use of Geoprobe direct-push equipment to facilitate the collection of soil samples; installation of groundwater monitoring wells using an air rotary drill rig; and sampling of groundwater. Sample locations were determined based upon analytical results from prior site investigations, including the Edge Environmental, Pennoni Associates, and GTS Technologies reports, and supplemental sampling events were added as appropriate to help better delineate the horizontal and vertical extent of contamination detected at the site.

As generally depicted on the attached Figure 1, the site area consists of eight grain silos, two associated work buildings, a gravel lot, truck scales, and one set of railroad tracks owned by



Ohio Blenders. Rail lines owned by York Rail divide the property south of the silos; the York Rail property was not sampled as part of this work. Selected site photographs are provided in Appendix E.

The sampling activities and results are discussed in the following subsections. The sampling locations are shown on the figures that follow the text of this report, and the sampling results are summarized on the attached data summary tables. The laboratory data sheets from ARM's investigation activities are presented as Appendix B to this report, while historical laboratory data from previous events is presented in Appendix C.

2.2.1 Soil Sampling

A mini-excavator was used on June 12, 2009 to investigate potential UST locations that were identified in the GTS Technologies interim site characterization report. No USTs were discovered during the test pit activities, and it appears that all USTs have been previously removed from the site.

ARM collected 165 shallow and deep subsurface soil samples across the Ohio Blenders property using Geoprobe direct-push equipment. These samples were collected over the course of a series of investigations, from June through August 2009, with the primary goals of characterizing the nature of contamination in the soils at the site, and delineating the vertical and horizontal extent of contamination at the site. The sample locations are shown on the attached Figures 2, 3, and 4, and the laboratory results are summarized on Table 1.

Per the approved SAP, samples were initially collected from the previously identified areas of potential concern, with analyses conducted for the previously identified constituents of potential concern (i.e., arsenic, lead, total chromium and/or 1,2-diphenylhydrazine). Following receipt of the initial samples, subsequent samples were analyzed for arsenic, lead, and/or chromium as needed to help delineate the extent of contamination, as defined by exceedances of the PADEP Statewide Health MSCs. In some cases, the delineation sampling was limited by existing site features, obstructions (e.g., subsurface utilities), and property boundaries. Because there is a different MSC for the different species of chromium, analysis was also conducted for hexavalent chromium (chromium VI) to characterize the species of chromium at the site, and the applicable MSC.

As shown on the attached Table 1, Appendix C, and Figures 2 through 4, a number of samples contained concentrations in excess of the PADEP Statewide Health MSCs. The MSC exceedances were generally limited to the upper 4 feet of soil and fill materials, and the contaminant concentrations typically decrease with depth. Arsenic was by far the most common contaminant detected at the site at elevated concentrations, although lead was detected at concentrations above the MSCs in a few samples collected from the northeast corner of the site. The contamination is believed to be largely associated with previous operations and activities performed on the site (e.g., coal storage), and/or historic fill placement at the site (test pit



excavations indicated that the materials observed near the ground surface contained large amounts of brick, coal ash, and cinders).

2.2.2 Groundwater Sampling

A total of six monitoring wells were installed on the Ohio Blenders property using air-rotary drilling methods. Following installation, each of the monitoring wells was developed by over-pumping, although the well yields were relatively low because of the low-permeability of the formation. Monitoring wells MW-3S, MW-4S, and MW-5S were installed to approximately 50 feet below ground surface (bgs), and are used to monitor shallow groundwater. Monitoring wells MW-3B, MW-4B, and MW-5B were installed from 130 feet to 150 feet bgs, and are used to monitor groundwater found in the bedrock at the site. These wells were installed to supplement the information provided by the two monitoring wells (MW-1 and MW-2) previously installed at upgradient properties within the NWT area. The monitoring well locations are shown on the attached Figure 1, and the monitoring well logs are provided in Appendix D.

Groundwater sampling events were conducted on June 29, 2009 and July 27, 2009 to support the groundwater characterization. Depth to groundwater measurements were collected from each of the monitoring wells at the start of each sampling event, and prior to the removal of water from any of the wells. Each of the wells was then purged of water, and samples were collected in accordance with standard PADEP practices.

Groundwater contour maps were developed from the depth-to-groundwater data to estimate groundwater flow directions and gradients. To support the development of these maps, the well casings were surveyed with a level and rod using a local benchmark with an estimated elevation. The groundwater level measurements are summarized on the attached Table 2, and the estimated groundwater table contour maps are presented as Figures 5 and 6. Based on the inferred groundwater contours presented on Figures 5 and 6, the groundwater flow direction in the area is generally towards the northwest corner of the Ohio Blenders property, in the vicinity of monitoring wells MW-4S and MW-4B. Groundwater flow is expected to be towards the creek, although the apparent localized depression in the groundwater table could be the result of preferential flow conditions and/or off-site pumping across the creek.

The groundwater quality results are summarized on the attached Table 3, and the analytical data sheets are presented in Appendix B. As presented on Table 3, the analytical results indicate concentrations of lead, trichloroethene (TCE), and bis(2-ethylhexyl)phthalate at concentrations that exceed the PADEP Statewide Health Standards for used aquifers. All exceedances were only slightly above the applicable MSCs, and none of the exceedances occurred during both events at any of the wells. The elevated lead concentrations may have been related to excessive turbidity in the original samples. The TCE was detected at monitoring well pairs MW-4 and MW-5, although the source of the TCE has not been identified in the site soils or elsewhere.



2.3 Pre-demolition Site Inspection

In addition to the investigation of soils and groundwater, a hazardous materials survey of the on-site structures was completed by ARM on July 20, 2009 as part of the site assessment process. These inspection activities included an assessment of potential asbestos, lead-based paint, PCB-containing light ballasts, mercury-containing switches, and other materials that would require special handling and/or disposal in association with any structure demolition and site redevelopment. A copy of the building inspection report and associated results is presented in Appendix A of this report.

3.0 SUMMARY AND CONCLUSIONS

Based on the site investigation activities discussed above, the environmental conditions at the Ohio Blenders site are generally summarized as follows:

- Soil contamination has been detected across a majority of the site at concentrations that exceed the PADEP Statewide Health MCSs. The contamination is generally limited to the upper 2 to 4 feet of material across the site, with concentrations decreasing with depth. Arsenic was the most commonly detected contaminant, although lead was also detected at elevated concentrations. The total volume of soil that exceeds the PADEP's Statewide Health MSCs for unrestricted use is approximately 6,000 cubic yards (cy), while the volume of soil that exceeds the PADEP's MSCs for non-residential use is approximately 600 cy.
- Groundwater flow at the site is inferred to be towards the northwest corner of the site towards the Codorus Creek. Lead, TCE, and bis(2-ethylhexyl)phthalate were detected in groundwater at concentrations that exceed the PADEP's Statewide Health MSCs for used aquifers. The exceedances were generally marginal and intermittent, and no apparent source area was identified. Because groundwater is not used at the site, there are no current exposure pathways of concern.

To the extent required, remediation of the site should be conducted under Pennsylvania's Act 2 program, as presented in the regulations at 25 PA Code Chapter 250. The cleanup standard selected should be compatible with the current and proposed future site use, and could include soil removal, soil treatment, in-place containment, and/or institutional controls to prevent unacceptable exposures to soil and groundwater. On behalf of the City of York RDA, a Notice of Intent to Remediate (NIR) the site was submitted to the PADEP in September 2008. Following the completion of any remedial activities and PADEP approval of a Final Report, environmental cleanup liability protection would be available to the site owner and remediator.



FIGURES



LEGEND

- PROPERTY BOUNDARY (APPROX.) FOR OHIO BLENTERS (PROPERTY F)
- MW-4B BEDROCK MONITORING WELL
- MW-4S SHALLOW MONITORING WELL



Site Layout

Ohio Blenders
Northwest Triangle Initiative
City of York, PA

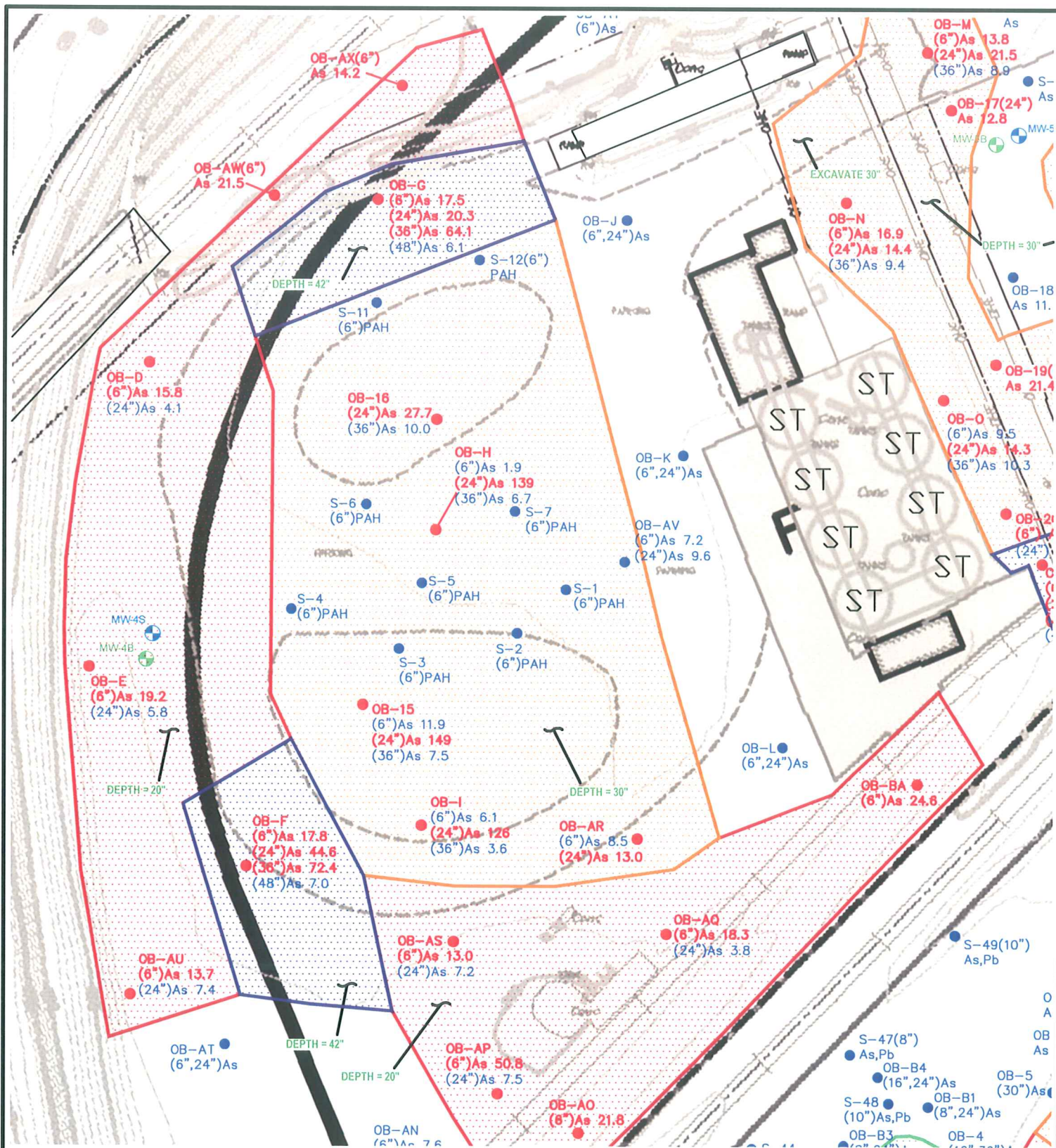
07/01/2009 Scale: 1" = 100' 07214



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Figure
1



Base map from C.S. DAVIDSON, INC.

LEGEND

- MW-3S Shallow Monitoring Well
- MW-3B Bedrock Monitoring Well
- S-22(8") As, Pb Sample Location Below MSC
- OB-15(24") As 149 Sample Location Exceeding MSC
- Estimated Extent and Depth of Soils Exceeding Residential MSCs



Soil Sample Locations Northwest Corner of Site

Ohio Blenders
Northwest Triangle Initiative
City of York, PA

07/09/2009

Scale: 1" = 40'

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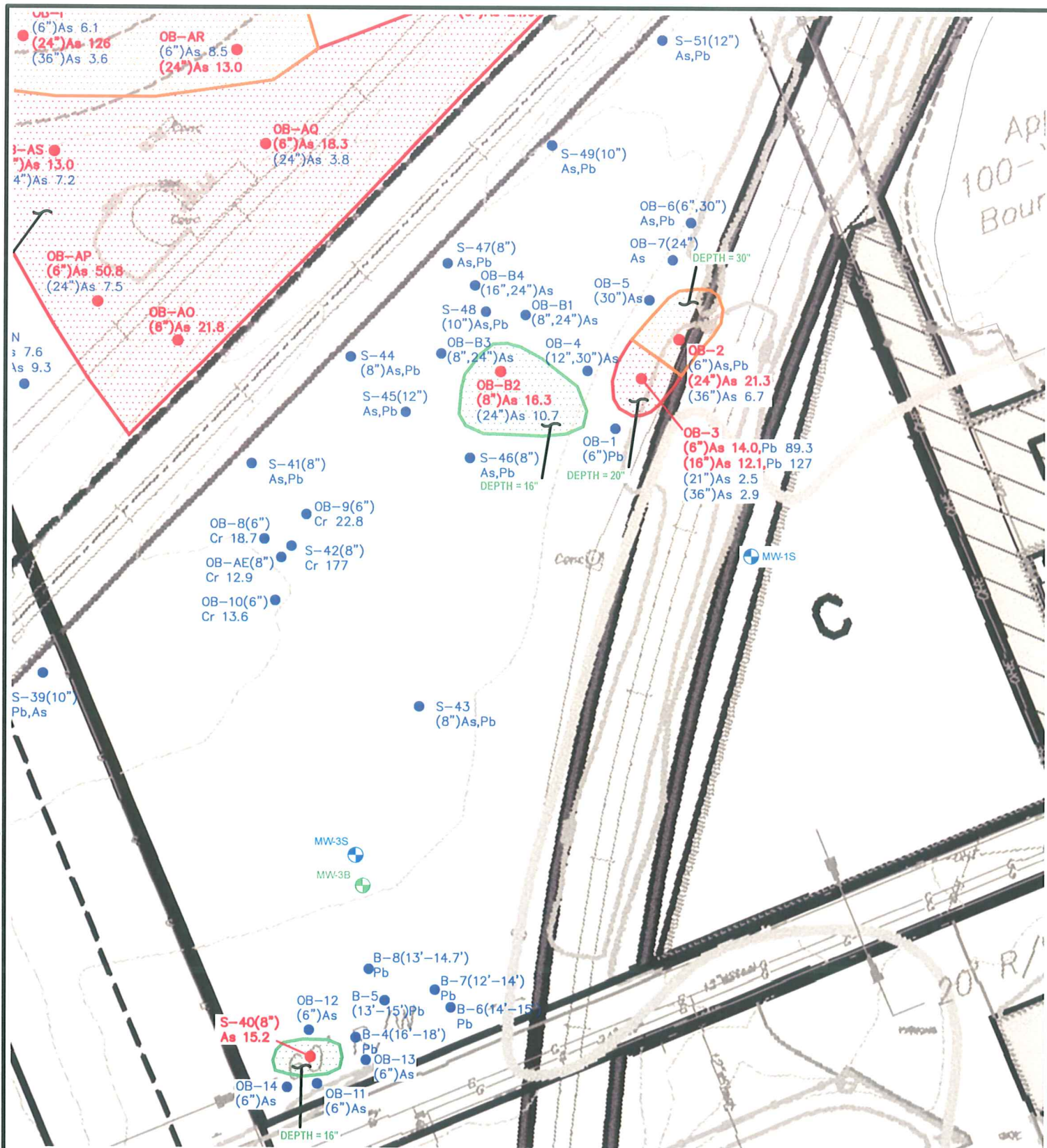



ARM Group Inc.

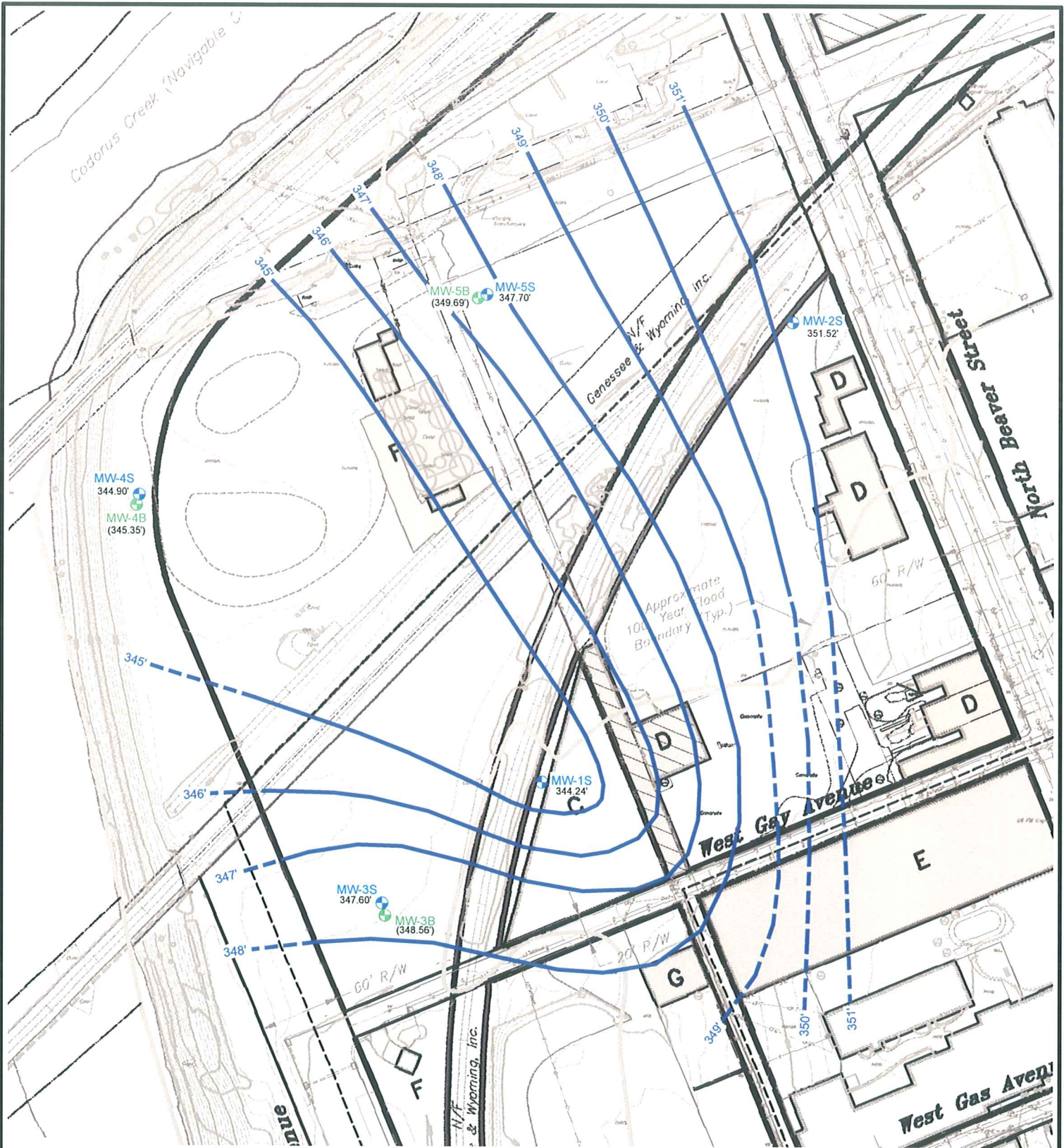
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Figure

2



<h2 style="text-align: center;">Soil Sample Locations</h2> <h3 style="text-align: center;">Southwest Corner of Site</h3> <p style="text-align: center;">Ohio Blenders Northwest Triangle Initiative City of York, PA</p>		
07/09/2009	Scale: 1" = 40'	07214
 ARM Group Inc. Earth Resource Engineers and Consultants 1129 West Governor Road • Hershey, PA 17033-0797		Figure <h1 style="font-size: 2em;">4</h1>



Base map from C.S. Davidson, Inc.

LEGEND

- MW-3S — Shallow Monitoring Well
- MW-3B — Bedrock Monitoring Well
- 347.60' — Relative Groundwater Elevation
- (348.56') — Bedrock Groundwater Elevation Not Used For Mapping
- — Groundwater Elevation Contour



Groundwater Elevations June 29, 2009

Ohio Blenders
Northwest Triangle Initiative
City of York, PA

July 2009

Scale: 1" = 100'

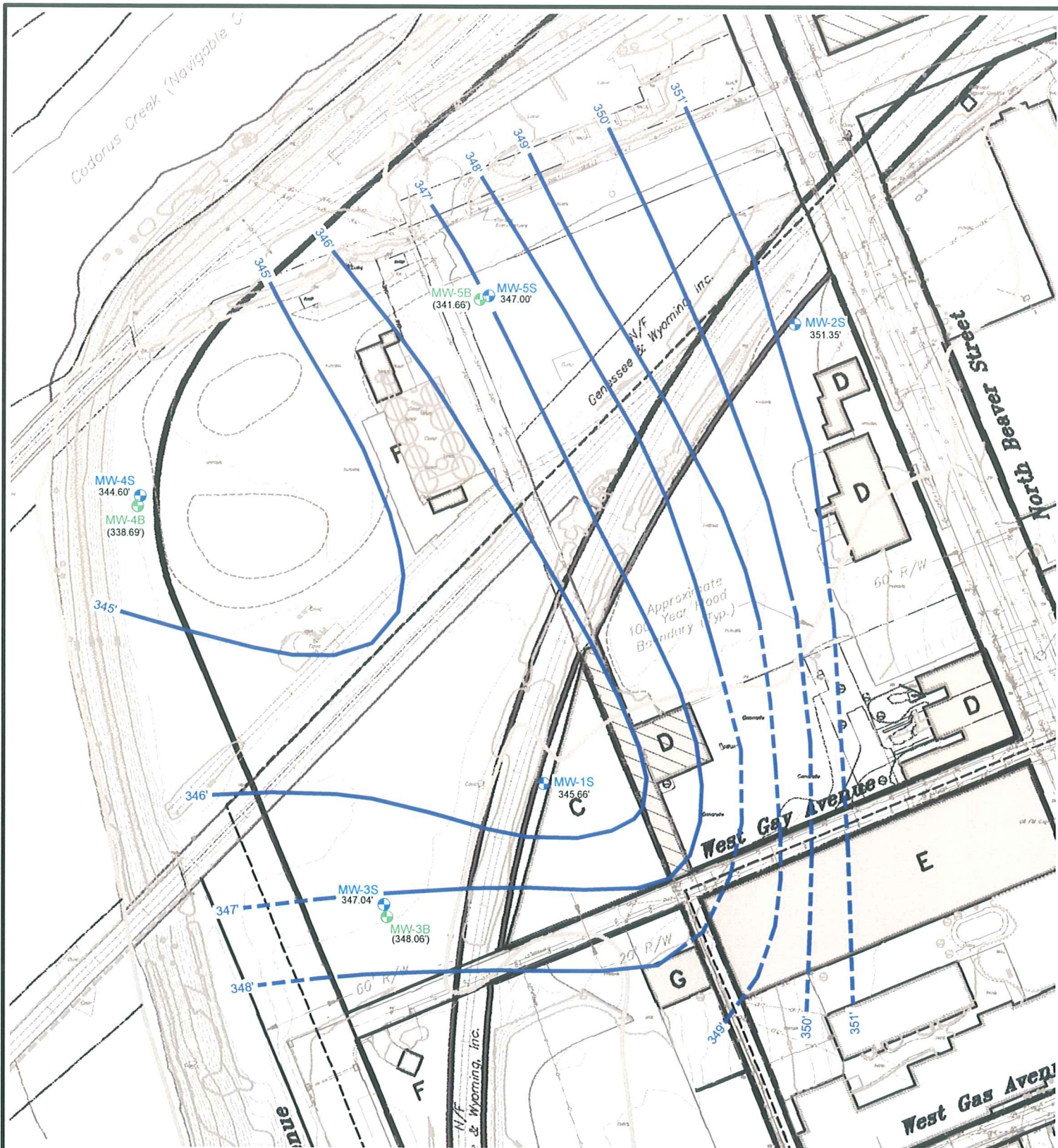
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Figure
5



Base map from C.S. Davidson, Inc.

LEGEND

- MW-3S — Shallow Monitoring Well
- MW-3B — Bedrock Monitoring Well
- 347.04' — Relative Groundwater Elevation
- (348.06') — Bedrock Groundwater Elevation Not Used For Mapping
- — Groundwater Elevation Contour



Groundwater Elevations July 27, 2009

Ohio Blenders
Northwest Triangle Initiative
City of York, PA

July 2009

Scale: 1" = 100'

07214



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Figure

6

TABLES

Table 1
Analytical Results for Total Metals in Soils
Sample Dates June 8-12, 2009

Ohio Blenders Property
Northwest Triangle Initiative
City of York, Pennsylvania

Parameter	Residential Direct Contact MSC (0- 15')	Non-Residential Direct Contact MSC (0-2')	Soil to Groundwater MSC	OB-1 (6")	OB-2 (6")	OB-3 (6")	OB-3 (16")	OB-4 (30")	OB-5 (30")	OB-6 (6")	OB-6 (30")	OB-7 (24")	OB-8 (6")	OB-9 (6")	OB-10 (6")	OB-11 (24")	OB-12 (6")
Arsenic	12	53	150	NA	NA	14.0	12.1	6.4	4.9	8.2	5.3	6.2	NA	NA	NA	10.6	6.0
Chromium	190,000	190,000	190,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	18.7	22.8	13.6	NA	NA
Lead	500	1,000	450	97.5	232	89.3	127	NA	NA	68.9	48.5	NA	NA	NA	NA	NA	NA

Parameter	Residential Direct Contact MSC (0- 15')	Non-Residential Direct Contact MSC (0-2')	Soil to Groundwater MSC	OB-13 (6")	OB-14 (6")	OB-15 (24")	OB-16 (24")	OB-17 (24")	OB-18 (24")	OB-19 (24")	OB-20 (6")	OB-20 (24")	OB-21 (6")	OB-21 (24")	OB-22 (24")	OB-23 (24")	OB-24 (24")
Arsenic	12	53	150	10.5	5.9	149	27.7	12.8	11.7	21.4	14.0	9.3	41.4	23.6	19.4	9.6	9.1
Chromium	190,000	190,000	190,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	500	1,000	450	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Parameter	Residential Direct Contact MSC (0- 15')	Non-Residential Direct Contact MSC (0-2')	Soil to Groundwater MSC	OB-25 (24")	OB-26 (24")	OB-27 (6")	OB-28 (6")	OB-29 (6")	OB-29 (24")	OB-30 (6")	OB-31 (12")	OB-32 (12")	OB-33 (12")	OB-34 (12")	OB-S1 (5')	OB-S2 (5')
Arsenic	12	53	150	4.5	4.0	NA	8.0	47.7	18.7	5.1J	58.3	7.1	9.7	5.2	NA	NA
Chromium	190,000	190,000	190,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	500	1,000	450	NA	NA	NA	NA	NA	NA	NA	169	101	392	144	91.3	72.0
1,2-Diphenylhydrazine	22	99	0.083	NA	<0.0198	<0.0174	<0.0187	<0.0172	<0.0191	<0.0164	NA	NA	NA	NA	NA	NA

All values in milligrams per kilogram (mg/kg)
MSC = PADEP Statewide Health Medium Specific Concentration (25 PA Code Chapter 250)
821 Result exceeds PADEP MSC
NA = Not Analyzed

Table 1 (continued)
Analytical Results for Total Metals in Soils
Sample Date July 2 2009

Ohio Blenders Property
Northwest Triangle Initiative
City of York, Pennsylvania

Parameter	Residential Direct Contact MSC (0- 15')	Non-Residential Direct Contact MSC (0-2')	Soil to Groundwater MSC	OB-2 (24")	OB-3 (24")	OB-3 (36")	OB-4 (12")	OB-15 (6")	OB-15 (36")	OB-31 (24")	OB-B1 (8")	OB-B1 (24")	OB-B2 (8")	OB-B2 (24")	OB-B3 (8")	OB-B3 (24")	OB-B4 (16")	OB-B4 (24")	OB-D (6")	OB-D (24")	OB-E (6")	OB-E (24")
Arsenic	12	53	150	21.3	2.5	2.9	7.6	11.9	7.5	9.8	8.2	6.4	16.3	10.7	8.8	4.6	7.1	5.9	15.8	4.1	19.2	5.8
Chromium	190,000	190,000	190,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	500	1,000	450	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Parameter	Residential Direct Contact MSC (0- 15')	Non-Residential Direct Contact MSC (0-2')	Soil to Groundwater MSC	OB-F (6")	OB-F (24")	OB-F (36")	OB-G (6")	OB-G (24")	OB-G (36")	OB-H (6")	OB-H (24")	OB-H (36")	OB-I (6")	OB-I (24")	OB-I (36")	OB-J (6")	OB-J (24")	OB-K (6")	OB-K (24")	OB-K (36")	OB-L (6")	OB-L (24")
Arsenic	12	53	150	17.8	44.6	72.4	17.5	20.3	64.1	1.9	139	6.7	6.1	126	3.6	<0.19	4.4	<0.19	4.3	6.8	5.0	8.5
Chromium	190,000	190,000	190,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	500	1,000	450	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Parameter	Residential Direct Contact MSC (0- 15')	Non-Residential Direct Contact MSC (0-2')	Soil to Groundwater MSC	OB-M (6")	OB-M (24")	OB-M (36")	OB-N (6")	OB-N (24")	OB-N (36")	OB-O (6")	OB-O (24")	OB-O (36")	OB-P (6")	OB-P (24")	OB-Q (36")	OB-R (6")	OB-R (24")	OB-R (36")	OB-S (24")	OB-T (12")	OB-T (24")	OB-U (9")
Arsenic	12	53	150	13.8	21.5	8.9	16.9	14.4	9.4	9.5	14.3	10.3	12.2	32.0	7.6	8.5	12.3	12.9	11.3	4.0	3.3	5.2
Chromium	190,000	190,000	190,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	500	1,000	450	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	109	300	NA

Parameter	Residential Direct Contact MSC (0- 15')	Non-Residential Direct Contact MSC (0-2')	Soil to Groundwater MSC	OB-V (24")	OB-W (36")	OB-X (6")	OB-X (24")	OB-Y (6")	OB-Y (24")	OB-Z (6")	OB-Z (24")	OB-AA (6")	OB-AA (24")	OB-AB (24")	OB-AB (36")	OB-AC (24")	OB-AC (36")	OB-AD (24")	OB-AE (8")
Arsenic	12	53	150	5.2	4.1	29.7	3.8	7.5	6.8	18.6	7.4	5.9	5.6	10.4	6.2	11.8	750	21.7	NA
Chromium	190,000	190,000	190,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	12.9
Chromium VI	94	420	190,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.2
Lead	500	1,000	450	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	463	62.9	197	32,000	NA	NA

All values in milligrams per kilogram (mg/kg)
MSC = PADEP Statewide Health Medium Specific Concentration (25 PA Code Chapter 250)
821 Result exceeds PADEP MSC
NA = Not Analyzed

Table 1 (continued)
Analytical Results for Total Metals in Soils
Sample Date July 27, 2009

Ohio Blenders Property
Northwest Triangle Initiative
City of York, Pennsylvania

Parameter	Residential Direct Contact MSC (0- 15')	Non-Residential Direct Contact MSC (0-2')	Soil to Groundwater MSC	OB-2 (36")	S-31 (24")	OB-F (48")	OB-G (48")	OB-P (36")	OB-P (48")	OP-R (48")	OB-AC (48")	OB-AD (36")	OB-AF (12")	OB-AF (24")	OB-AG (12")	OB-AG (24")	OB-AH (8")
Arsenic	12	53	150	6.7	29.6	7.0	6.1	13.2	5.9	6.7	17.0	9.9	5.6	2.9	27.5	2.6	2.1
Lead	500	1,000	450	NA	NA	NA	NA	NA	NA	NA	133	NA	NA	NA	NA	NA	NA

Parameter	Residential Direct Contact MSC (0- 15')	Non-Residential Direct Contact MSC (0-2')	Soil to Groundwater MSC	OB-AI (12")	OB-AI (24")	OB-AJ (12")	OB-AJ (24")	OB-AK (8")	OB-AL (12")	OB-AL (24")	OB-AL (36")	OB-AM (12")	OB-AM (36")
Arsenic	12	53	150	5.0	5.8	9.1	7.0	5.3	15.8	20.1	11.6	3.9	12.7

All values in milligrams per kilogram (mg/kg)

MSC = PADEP Statewide Health Medium Specific Concentration (25 PA Code Chapter 250)

821 Result exceeds PADEP MSC

NA = Not Analyzed

Table 1 (continued)
Analytical Results for Total Metals in Soils
Sample Date August 10, 2009

Ohio Blenders Property
Northwest Triangle Initiative
City of York, Pennsylvania

Parameter	Residential Direct Contact MSC (0- 15')	Non-Residential Direct Contact MSC (0-2')	Soil to Groundwater MSC	OB-AM (48")	OB-AN (6")	OB-AN (24")	OB-AO (6")	OB-AP (6")	OB-AP (24")	OB-AQ (6")	OB-AQ (24")	OB-AR (6")	OB-AR (24")	OB-AR (36")	OB-AS (6")	OB-AS (24")	OB-AT (6")	OB-AT (24")
Arsenic	12	53	150	5.7	7.6	9.3	21.8	50.8	7.5	18.3	3.8	8.5	13.0	-	13.0	7.2	10.1	9.5

Parameter	Residential Direct Contact MSC (0- 15')	Non-Residential Direct Contact MSC (0-2')	Soil to Groundwater MSC	OB-AU (6")	OB-AU (24")	OB-16 (36")	OB-AV (6")	OB-AV (24")	OB-AW (6")	OB-AX (6")	OB-AY (6")	OB-AZ (8")	OB-AZ (24")	OB-AZ (36")	OB-BA (6")
Arsenic	12	53	150	13.7	7.4	10.0	7.2	9.6	21.5	14.2	9.2	1.9	17.2	-	24.6

All values in milligrams per kilogram (mg/kg)

MSC = PADEP Statewide Health Medium Specific Concentration (25 PA Code Chapter 250)

821 Result exceeds PADEP MSC

NA = Not Analyzed

Table 2
Groundwater Elevation Summary

Ohio Blenders Property
Northwest Triangle Initiative
City of York, Pennsylvania

Monitoring Well	Top of Casing Elevation	1/15/2008		2/21/2008		6/29/2009		7/27/2009	
		DTW	GWE	DTW	GWE	DTW	GWE	DTW	GWE
MW-1S	362.07	47.57	314.50	35.07	327.00	17.83	344.24	16.41	345.66
MW-2S	365.00	13.75	351.25	13.09	351.91	13.48	351.52	13.65	351.35
MW-3S	362.94	NA	NA	NA	NA	15.34	347.60	15.90	347.04
MW-3B	362.96	NA	NA	NA	NA	14.40	348.56	14.90	348.06
MW-4S	366.03	NA	NA	NA	NA	21.13	344.90	21.43	344.60
MW-4B	366.10	NA	NA	NA	NA	20.75	345.35	27.41	338.69
MW-5S	363.91	NA	NA	NA	NA	16.21	347.70	16.91	347.00
MW-5B	363.48	NA	NA	NA	NA	13.79	349.69	21.82	341.66

All elevations in feet, based on estimated local benchmark.

DTW = Depth to groundwater

GWE = Groundwater Elevation

NA = Not Applicable (well was not yet installed)

Table 3
Groundwater Analytical Results

Ohio Blenders Property
Northwest Triangle Initiative
City of York, Pennsylvania

Parameter	PADEP Residential Used Aquifer MSC	PADEP Residential Non-Use Aquifer MSC	MW-1S			MW-2S			MW-3S		MW-3B		MW-4S		MW-4B		MW-5S		MW-5B		Trip Blank			
			1/15/2008	2/21/2008	9/10/2008	1/15/2008	2/21/2008	7/27/2009	6/29/2009	7/27/2009	6/29/2009	7/27/2009	6/29/2009	7/27/2009	6/29/2009	7/27/2009	6/29/2009	7/27/2009	6/29/2009	7/27/2009	2/21/2008	6/29/2009	7/27/2009	
VOLATILES																								
Acetone	3,700	37,000	8.3J	7.0J	NA	<10.0	7.0J	NA	<10.0	<10.0	9.3J	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	
2-Butanone	2,800	280,000	<10.0	<10.0	NA	<10.0	<10.0	NA	<10.0	<10.0	7.0J	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	
Carbon Disulfide	1,900	1,900	1.6	0.27J	NA	<1.0	<1.0	NA	0.42J	<1.0	0.73J	1.6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Chloroform	100	1,000	<1.0	0.23J	NA	<1.0	<1.0	NA	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.79J	<1.0	0.52J	<1.0	<1.0	0.35J	<1.0	
1,1-Dichloroethane	27	270	<1.0	<1.0	NA	<1.0	<1.0	NA	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.1	0.78J	0.60J	0.62J	<1.0	0.45J	<1.0	<1.0	<1.0	
cis-1,2-Dichloroethene	70	700	<1.0	0.98J	NA	<1.0	<1.0	NA	<1.0	<1.0	<1.0	<1.0	1.5	0.47J	2.5	1.7	2.7	3.2	1.7	1.7	<1.0	<1.0	<1.0	
Methylene Chloride	5	500	<1.0	1.2	NA	<1.0	1.0	NA	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Tetrachloroethene	5	50	<1.0	0.62J	NA	<1.0	<1.0	NA	0.41J	0.47J	<1.0	<1.0	0.63J	<1.0	<1.0	<1.0	1.2	1.5	0.57J	0.55J	<1.0	<1.0	<1.0	
1,1,1-Trichloroethane	200	2,000	<1.0	<1.0	NA	<1.0	<1.0	NA	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.56J	0.46J	<1.0	<1.0	<1.0	<1.0	<1.0	
Trichloroethene	5	50	<1.0	0.30J	NA	<1.0	<1.0	NA	<1.0	<1.0	<1.0	<1.0	4.4	1.8	4.5	3.1	3.8	6.3	2.5	2.9	<1.0	<1.0	<1.0	
SEMIVOLATILES																								
Acenaphthene	2,200	3,800	NA	<2.9	<2.9	3.2	1.7J	NA	0.33J	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	NA	NA	NA
Di-n-Butylphthalate	-	-	NA	<2.9	<2.9	0.60J	<2.8	NA	0.32J	<2.9	0.41J	<2.9	<2.9	<2.9	<2.8	<2.9	<2.9	<2.9	<2.8	<2.8	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	6	290	NA	0.92J	<2.9	<2.9	<2.8	NA	0.86J	<2.9	6.9	3.1	0.79J	<2.9	<2.8	0.88J	4.8	<2.9	<2.8	0.82J	NA	NA	NA	NA
Fluorene	1,500	1,900	NA	<1.9	<1.9	3.8	2.0	NA	0.49J	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	NA	NA	NA	NA
Phenanthrene	1,100	1,100	NA	<1.4	<1.4	1.6	<1.4	NA	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	NA	NA	NA	NA
Pyrene	130	130	NA	<1.4	<1.4	<1.4	<1.4	NA	0.49J	<1.4	<1.4	<1.4	0.57J	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	NA	NA	NA	NA
METALS																								
Arsenic	10	50,000	<10	3J	NA	7J	7J	8.3	<8.0	3.7J	<8.0	4.6J	<8.0	6.6J	<8.0	4.1J	<8.0	3.4J	<8.0	4.0J	NA	NA	NA	NA
Chromium	100	100,000	47	7	NA	<5	<5	2.3J	2.2J	2.2J	26	3.2J	2.8J	4.5J	2.4J	1.9J	2.6J	3.9J	1.8J	<5	NA	NA	NA	NA
Copper	1,000	1,000,000	<10	12	NA	<10	<10	<10	3.7J	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	NA	NA	NA	NA
Lead	5	5,000	<2	<2	NA	7J	<2	<2	5.7J	<2	4.6J	<2	4.9J	<2	7.0	<2	2.8J	<2	5.6J	<2	NA	NA	NA	NA
Nickel	100	100,000	3J	2J	NA	<20	<20	<20	7.6J	<20	9.5J	<20	6.7J	14J	<20	<20	<20	<20	<20	<20	NA	NA	NA	NA
Zinc	2,000	2,000,000	6J	390	NA	5J	<20	<20	30	<20	<20	<20	59	44	18J	8.0J	19J	63	9.4J	8.7J	NA	NA	NA	NA

All values in micrograms per liter (ug/L)
MSC = PADEP Statewide Health Medium Specific Concentration (25 PA Code Chapter 250)
6.9 Result exceeds PADEP Used Aquifer MSC
NA = Not Analyzed
J = indicates concentration estimated by laboratory