



Groundwater & Environmental Services, Inc.

WESTERN PENNSYLVANIA OFFICE

March 20, 2015

Mr. Don Hegburg
Pennsylvania Department of Environmental Protection
Northwest Regional Office
230 Chestnut Street
Meadville, PA 16335

RE: **Site Characterization Report**
Kwik Fill Station #M-061
PADEP ID #42-14809
227 East Main Street
Bradford, Pennsylvania


Dear Mr. Hegburg:

On behalf of our client, United Refining Company of Pennsylvania (UPA), enclosed please find a *Site Characterization Report* for the above-referenced facility.

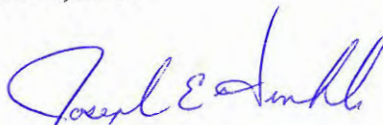
If you have any questions, please contact GES at (800) 267-2549 or Mr. Scott C. Wonsettler, P.G., the UPA Environmental Manager at (814) 726-4863.

Sincerely,

GROUNDWATER & ENVIRONMENTAL SERVICES, INC.



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GE - Dresser – E. Jamison, Jr.
G. Carlough, Jr.
File



Groundwater
& Environmental Services, Inc.

SITE CHARACTERIZATION REPORT

Kwik Fill Station #M-061
227 East Main Street
Bradford, Pennsylvania
PADEP ID #42-14809
USTIF Claim #2013-0035(F)

Prepared for:

Mr. Scott C. Wonsettler, P.G.
Environmental Manager
United Refining Company of Pennsylvania
814 Lexington Avenue
Warren, Pennsylvania 16365

UNITED REFINING COMPANY



Prepared by:

Groundwater & Environmental Services, Inc.
301 Commerce Park Drive
Cranberry Township, Pennsylvania 16066

March 2015



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March 2015

Facility Name: Kwik Fill Station #M-061 Bradford
Facility Address: 227 E. Main Street, Bradford, PA
Responsible Party : United Refining Company of Pennsylvania
RP Mailing Address: 814 Lexington Avenue
Warren, PA 16365
Storage Tank Facility ID#: 42-14809

Corrective Action Process Report/Plan Cover Sheet

CHAPTER 245 STORAGE TANK ACT

- ☐ **Site Characterization Report – Section 245.310(b)**
- ☐ **Site Characterization Report – Site-Specific Standard**
- ☐ **Site Characterization Report – Statewide Health or Background Standard**
- ☐ **Site Characterization Report PLUS – Statewide Health Standard**
- ☐ **Remedial Action Plan – Statewide Health or Background Standard**
- ☐ **Remedial Action Plan – Site Specific Standard**
- ☐ **Remedial Action Progress Report**
- ☒ **Remedial Action Completion Report – Statewide Health or Background Standard**
- ☐ **Remedial Action Completion Report – Site-Specific Standard**
- ☐ **Post Remediation Care Plan Report**
- ☐ **Environmental Covenant**

(check all that apply to the enclosed submission)



SITE CHARACTERIZATION REPORT

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PADEP ID #42-14809
USTIF Claim #2013-0035(F)
227 East Main Street
Bradford, Pennsylvania

Prepared for:

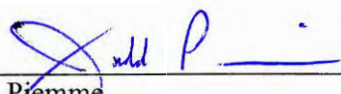
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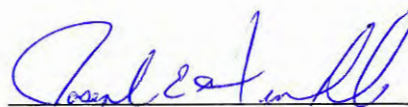


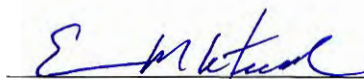
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By affixing my seal to this document, I am certifying that to the best of my knowledge the information is true and correct. I further certify that I am licensed to practice in the Commonwealth of Pennsylvania and that it is within my professional expertise to verify the correctness of the information.

March 2015



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ABBREVIATIONS AND ACRONYMS

Act 2	Pennsylvania Land Recycling Act, Title 25, 25 PA Code Chapter 250
APH	Adsorbed Phase Hydrocarbons
AS	air sparge
ASTM	American Society for Testing and Materials
BCWA	Bradford City Water Authority
bgs	below ground surface
BuC	Buchanan Association
COC	Constituent of Concern
COPIACs	Chemicals of Potential Indoor Air Concern
CSM	Conceptual Site Model
DC	Direct Contact
DOT	Department of Transportation
DPH	Dissolved Phase Hydrocarbons
EPA	Environmental Protection Agency
facility	Kwik Fill Station #M-061, 227 East Main Street, Bradford, Pennsylvania
f_{oc}	fraction organic carbon
ft	feet
ft/day	feet per day
ft/ft	feet per foot
g/cm^3	grams per cubic centimeter
GES	Groundwater & Environmental Services, Inc.
GC	clayey gravel
GM	silty gravels
gpm	gallon per minute
HQ	high quality waters
HSA	hollow stem auger
IAQ	Indoor Air Quality
IDEM	Indiana Department of Environmental Management
IDW	Investigation Derived Waste
in. Hg	inches of mercury
in. w.c.	inches of water column
J&E	Johnson & Ettinger
K_{oc}	Organic carbon partition coefficient for chemical
LDS	Leak Detection Services, Inc.
LNAPL	Light Non-Aqueous Phase Liquid
LRP	liquid ring pump
MEI	McCutcheon Enterprises, Apollo, PA
mg/kg	milligram per kilogram
mL/min	milliliter per minute
mm	millimeter
mmHg	millimeters of mercury



ABBREVIATIONS AND ACRONYMS (continued)

MNA	Monitored Natural Attenuation
MSC	Medium-Specific Concentration
MSC _{IAQ}	Medium-Specific Concentration - Indoor Air Quality
MSC _{SG}	Medium-Specific Concentration - Soil Gas
MSL	Mean Sea Level
MW	Monitoring Well
MTBE	methyl tert butyl ether
NA	Not Analyzed
NM	Not Measured
NORR	Notification of Reportable Release
NR	Non-residential
NWRO	Northwest Regional Office
NU	Non-use Aquifer
PADCNR	Pennsylvania Department of Conservation and Natural Resources
PADEP	Pennsylvania Department of Environmental Protection
PaGWIS	Pennsylvania Groundwater Information System
PD	positive displacement
PID	Photoionization Detector
POC	Point of compliance
PVC	poly-vinyl chloride
QA/QC	Quality assurance/Quality control
QD	Quick Domenico
R	Residential
R/NR	Residential/Non-residential
RACR	Remedial Action Completion Report
RAP	Remedial Action Plan
SB	Soil Boring
SC	clayey sand with gravel
scfm	standard cubic feet per minute
SCR	Site Characterization Report
SCRA	Site Characterization Report Addendum
S/GW	soil-to-groundwater
SHS	Statewide Health Standard
SSS	Site-Specific Standard
SP	gravelly sand
SPLP	Synthetic Precipitation Leaching Procedure
SVE	Soil Vapor Extraction
µg/L	micrograms per Liter
µg/kg	micrograms per kilogram
TDS	total dissolved solids
TPE	total phase extraction



ABBREVIATIONS AND ACRONYMS (continued)

U/R	Used aquifer, Residential
U/NR	Used aquifer, Non-Residential
UPA	United Refining Company of Pennsylvania
USCS	Unified Soil Classification System
USGS	U.S. Geological Survey
USDA	United States Department of Agriculture
UST	Underground Storage Tank
VEGE	Vacuum Enhanced Groundwater Extraction
VOC	Volatile Organic Compound
VP	Soil Gas Monitoring Point
VPH	vapor phase hydrocarbons
WWF	warm water fishes



EXECUTIVE SUMMARY

Groundwater & Environmental Services, Inc. (GES) was contracted by United Refining Company of Pennsylvania (UPA) to complete site characterization for an active Kwik Fill retail petroleum facility (facility) located at 227 East Main Street, Bradford, McKean County, Pennsylvania (Kwik Fill Station #M-061, PADEP ID #42-14809). GES was contracted by UPA to complete a *Site Characterization Report* (SCR) based on the results of these activities.

On February 25, 2013, personnel from Leak Detection Services, Inc. (LDS) were making preparations for routine tightness testing when they detected unusual levels of vapors in the regular unleaded gasoline submersible pump pit. Further inspection revealed a small product “weep” from a threaded piping fitting. This fitting connected a metallic hose to steel product piping. The affected underground storage tank (UST) system was removed from service, repaired and returned to service on February 26, 2013. A verbal *Notification of Reportable Release* (NORR) was called in to the Pennsylvania Department of Environmental Protection-Northwest Regional Office (PADEP-NWRO) on February 25, 2013, and a written NORR was submitted on March 1, 2013 (UPA, 2013).

Site characterization activities were initiated in June 2013 and assessment/delineation of soil, groundwater and soil gas continued through February 2015. Two water-bearing zones were observed during site characterization activities, a shallow on-site perched groundwater zone and an on- and off-site overburden aquifer. A total of ten on-site groundwater monitoring wells (MW-1R, MW-3R, MW-4 through MW-7, MW-12 and MW-14 through MW-16) were installed to monitor the on-site perched groundwater zone. A total of thirteen on- and off-site groundwater monitoring wells (MW-8 through MW-11, MW-13 and MW-17 through MW-24) were installed to monitor the overburden aquifer. Soil screening and sampling were performed during installation of the monitoring wells and at several soil boring locations. A total of four soil gas monitoring points (VP-1 through VP-4) were installed in October 2013 to assess potential vapor intrusion pathways.

Site characterization activities indicate the subsurface, to a depth of approximately 35 feet bgs, consists of unconsolidated fill material underlain by clay with shallow lenses of silty and/or clayey sand. Off-site (from the Carlough property to beyond York Street to Tunungwant Creek) site characterization activities indicate the subsurface, to a depth of approximately 30 feet bgs consists of clay with silty sand and clayey sand lenses underlain by layers of clayey sand, gravelly sand, clayey gravel, and silty gravel. Bedrock was not encountered during on- and off-site drilling activities.

Adsorbed phase hydrocarbon (APH) impacts were observed in site soil in the vicinity of the UST field (release area) and northwest (downgradient) of the UST field. Unleaded gasoline constituents were detected in soil between 5 and 11 feet bgs at concentrations above current Act 2 (Pennsylvania Land Recycling Act, Title 25, 25 PA Code Chapter 250) Statewide Health Standard (SHS) used aquifer, non-residential (U/NR) medium-specific concentrations (MSCs).



Residual shallow APH impacts were also observed in soil at an off-site, downgradient property (Carlough). Unleaded gasoline constituents were detected in soil between 2 and 3 feet bgs at concentrations above current Act 2 SHS used aquifer, residential (U/R) MSCs.

Groundwater monitoring wells have been gauged and/or sampled at the facility since June 2013. Dissolved phase hydrocarbon (DPH) impacts were detected in the perched groundwater zone near the release area (UST field) and to the northwest (downgradient) at concentrations above current U/R MSCs. DPH impacts were detected in groundwater in the overburden aquifer near the release area (UST field) and to the northwest (downgradient) towards York Street at concentrations above current U/R MSCs. Light non-aqueous phase liquid (LNAPL) has not been detected on- or off-site since groundwater gauging was initiated in June 2013. The most recent site groundwater sampling event was completed on February 3 and 4, 2015. Dissolved phase benzene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene in the perched groundwater zone and dissolved phase methyl tert-butyl ether (MTBE) in the overburden aquifer were detected at concentrations above current, respective, U/R MSCs.

Vapor intrusion assessment was performed for the facility. Soil gas samples were collected from on-site soil gas monitoring points VP-1 through VP-4 in November 2013 and VP-1, VP-3 and VP-4 in January 2014. Sampling at soil gas monitoring point VP-2 was not possible during the January 2014 sampling event due to a faulty valve on the laboratory-supplied SUMA canister. Unleaded gasoline constituents were detected in soil gas to the immediate north of the UST field at concentrations above residential/non-residential (R/NR) medium-specific concentrations – soil gas (MSC_{SG}) screening criteria (i.e., medium-specific concentrations – indoor air quality [MSC_{IAQ}] adjusted for attenuation) and/or minimum laboratory reporting limits. However, based on data from the remaining soil gas sample locations near the on-site receptor (i.e., station building) and near potential preferential pathways (i.e., utility trenching) that extend off-site, there is an incomplete soil vapor intrusion exposure pathway for the facility.

A conceptual site model (CSM) was developed based on evaluation of the site characterization observations and data. The CSM was used to evaluate potential remedial options to remediate on- and off-site APH and DPH impacts. The following report summarizes site characterization activities and findings, describes the CSM, evaluates potential exposure pathways and receptors, discusses the Act 2 standard selection rationale and presents planned supplemental site characterization and remedial feasibility testing activities. The Act 2 attainment goal for site soil are SHS, U/R-NR MSCs. The attainment goal for site groundwater are SHS, U/R MSCs. Vapor intrusion for the facility is addressed consistent with SHS requirements. Planned activity findings and the selected approach for remediation of identified on- and off-site unleaded gasoline impacts will be presented in an SCR Addendum and Remedial Action Plan (RAP).



1.0 INTRODUCTION

Unusual levels of vapors were detected during routine tightness testing of the UST system in February 2013. Upon further investigation, a small product “weep” from a threaded piping fitting was identified in the regular unleaded gasoline submersible pump pit. In response, corrective action activities were initiated consistent with the requirements of 25 PA Code § 245 (Administration of the Storage Tank and Spill Prevention Program, Subchapter D) (PADEP, 2001). The following report provides facility background and site characterization activities for unleaded gasoline constituents in on- and off-site soil, groundwater and soil gas.



2.0 FACILITY LOCATION AND DESCRIPTION

2.1 Location

The facility is located at 227 East Main Street, Bradford, McKean County, Pennsylvania. **Figure 1** (Site Location Map) illustrates the location of the facility on a United States Geological Survey (USGS) 7.5-Minute Topographic Quadrangle for 1983, Bradford, Pennsylvania - New York.

The facility is located in a mixed commercial and residential area, bordered to the north by residential properties on both sides of Mill Street; to the east, beyond East Main Street, by residential properties, to the west by residential properties; and to the south, an undeveloped property and commercial and residential properties on both sides of East Main Street. **Figure 2** (Local Area Map) illustrates the facility and adjacent properties.

2.2 Description

According to the McKean County Recorder of Deeds, the property is owned by UPA and has operated as a retail unleaded gasoline facility since December of 1989. Prior to UPA purchasing the site, the facility had operated as a retail petroleum station since at least 1960.

The facility occupies two rectangular shaped parcels (Parcel ID 06-025-205 and 06-205-207) that form one, irregular-shaped parcel that measures approximately 67 feet along the southern property boundary, approximately 101 feet along the northern property boundary (Mill Street), approximately 159 feet along the western property boundary and approximately 187 feet along the eastern property boundary (East Main Street). The property encompasses approximately 0.31 acres.

A one-story, masonry-block, slab-on-grade station building is located in the northern portion of the property. Three 12,000-gallon unleaded gasoline USTs are located along the southern property boundary south of the station building. One UST contains regular-grade unleaded gasoline, one UST contains premium-grade unleaded gasoline, and one UST contains mid-grade unleaded gasoline. According to the Regulated Storage Tank List for the PADEP-NWRO, one steel UST (tank #001) was installed December 1, 1967. Two additional steel USTs (tanks #002 and 003) were installed at the facility on December 1, 1980. Four product dispensers are located southeast of the station building on two dispenser islands.

The facility lot is comprised predominantly of asphalt. Grass was observed along the western and southern property boundaries, beyond the retaining wall. Based on current grading at the facility, surface water runoff in the asphalt-paved parking lot is multi-directional towards storm sewer basins located in the central and northern portions of the facility and along East Main Street.

Overhead electric lines run along the eastern property boundary and bisect the northeastern corner of the property with a line running to an off-site utility pole beyond Mill Street. Underground electric runs from the station building to the facility sign in the northeastern corner of the facility, to several light posts, and to the dispenser islands. An underground main potable water line runs parallel to the eastern and northern



property boundaries with a service lateral entering the northwest corner of the station building from Mill Street. Underground sanitary sewer and natural gas service lateral lines enter the northwest corner of the station building and run out toward main lines existing parallel to Mill Street. An underground fiber optic line runs parallel to East Main Street along the eastern property boundary.

A six-foot storm sewer easement bisects the northern portion of the facility. A dye test confirmed that the underground storm sewer connects from the manhole located along the eastern property boundary (East Main Street) to the manhole located directly behind the station building beyond the western property boundary and then curves off-site toward the underground storm sewer line that parallels Mill Street. Currently, it is unknown if additional inlets (i.e., storm sewer catch basins, manholes, etc.) are connected to the underground storm sewer line located along Mill Street. The eventual outfall location of the underground storm sewer is also not known at this time (**Section 10.0**).

A retaining wall is located along the southern and western property boundaries. Based on overall depths of 12,000-gallon USTs ranging from 12 to 13 feet bgs, and unconsolidated fill material observed during site characterization activities to approximately 12 feet bgs at groundwater monitoring well MW-13 (near the UST field), the depth of the retaining wall along the western property boundary is estimated to be 12 feet bgs.

Thirteen groundwater monitoring wells (MW-1R, MW-3R, MW-4 through MW-7, MW-12 through MW-16, MW-22 and MW-23) and four soil gas monitoring points (VP-1 through VP-4) are currently located on-site. Ten groundwater monitoring wells (MW-8 through MW-11, MW-17 through MW-21 and MW-24) are currently located off-site. Photographs are provided in **Appendix A** (Facility Photographs). **Figure 3** (Site Map) illustrates the location of facility features.

2.3 Sensitive Receptor Evaluation

2.3.1 Well Search

The Pennsylvania Department of Conservation and Natural Resources (PADCNR) *Ground Water Information System (PaGWIS v.3.0)* was used to identify potable or withdrawal wells within ½-mile of the facility. The database identified three private potable wells (Record #1 [PA Well ID 130576], Record #2 [PA Well ID 130809] and Record #3 [PA Well ID 130820]) and four industrial wells (Record #4 [PA Well ID 480341], Record #5 [PA Well ID 489070], Record #6 [PA Well ID 483727] and Record #7 [PA Well ID 483728]) within ½-mile of the facility. The identified potable wells do not appear to be hydraulically downgradient of the facility. A copy of the PaGWIS report is presented in **Appendix B** (PaGWIS Water Well Inventory Report, Local Water Supply Well Documentation & Ordinance Correspondence) which includes a map (**Appendix B – Figure 1**) illustrating approximate potable and industrial well locations. Details for the three potable wells and four industrial wells identified within ½-mile of the facility are summarized below:



Well ID	Name	Distance (miles)	Direction	Depth (feet)	Notes
130576	P. Rink	0.37	Southwest (sidegradient)	138	Domestic
130809	Joseph Konkus	0.28	Southeast (upgradient)	106	Domestic
130820	J. Hanson	0.34	Southeast (upgradient)	91	Domestic
480341	ARG Bradford Facility	0.24	West (sidegradient)	15	Industrial
489070	Bradford Refinery	0.47	Northeast (sidegradient)	21	Industrial
483727	Bradford Refinery	0.46	Northeast (sidegradient)	19	Industrial
483728	Bradford Refinery	0.46	Northeast (sidegradient)	21	Industrial

Bradford City Water Authority (BCWA) was contacted on February 13, 2015, in regards to the public water supply in the vicinity of the facility. Mr. Kim Benjamin, the office director, indicated that potable water is supplied to the facility and surrounding area by the BCWA. The BCWA obtains its raw water from three nearby reservoirs, Gilbert, Marilla and Heffner, located approximately 4.35, 5.45 and 6.20 miles, respectively, west of the facility. Water from the three reservoirs is treated at the BCWA Water Treatment Plant.

Correspondence with City of Bradford personnel on February 13, 2015, confirmed that an ordinance exists that requires all properties in the City of Bradford to connect to the community water supply (City Of Bradford Code, Chapter 216-27). However, the ordinance does not prohibit the installation of wells for domestic, agricultural or industrial use. A copy of the ordinance and correspondence with City of Bradford personnel and BCWA personnel are provided in **Appendix B**.

2.3.2 Potential Sensitive Receptors

A sensitive receptor survey was conducted for the facility and adjacent properties within a one-mile radius of the facility. Petroleum hydrocarbon impacts are currently present in on- and off-site soil at concentrations above current U/R-NR MSCs and groundwater at concentrations above current U/R MSCs. Potential on- and off-site sensitive receptors include the following relative to groundwater flow direction at the facility:

- the subject property and on-site station building;
- residential properties located to the north (sidegradient), beyond Mill Street;
- residential and commercial properties located to the south (sidegradient);
- residential properties located to the east (upgradient), beyond East Main Street;
- residential properties located to the west (downgradient); and
- Tunungwant Creek located to the west (downgradient) of the facility.



The nearest downgradient surface body of water to the facility is Tunungwant Creek. Tunungwant Creek is located approximately 0.09 miles west of the facility, and flows north of the facility.

The waters of Tunungwant Creek are designated as high quality (HQ) waters and warm water fishes (WWF) by PADEP (PA Code Chapter 93). The HQ designation is defined as surface waters having quality which exceeds levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water by satisfying PA Code § 93.4b(a). The WWF designation relates to the maintenance and/or propagation of fish species additional flora and fauna which are indigenous to a warm water habitat.

2.3.3 Potential Ecological Receptors

Pennsylvania Code §250.311 requires that potential ecological receptors be evaluated unless the following conditions are met:

- Jet fuel, gasoline, kerosene, No. 2 fuel oil or diesel fuel are the only constituents detected on-site.
- The area of contaminated soil is less than two acres, and the area of contaminated sediment is less than 1,000 square feet.
- The facility has features such as buildings, parking lots or gravel-paved areas that eliminate specific exposure pathways (e.g., soil exposure).

As discussed in throughout this report, unleaded gasoline constituents are the only constituents of concern (COCs) at the facility. Adsorbed phase hydrocarbon impacts were identified in facility soil north, east and west of the UST field and in a localized off-site area. The areas of impacts are less than two acres. The portion of the facility where APH impacts are identified is paved with concrete and asphalt, eliminating potential ecological exposure pathways. The localized off-site area of APH impacts is not paved; however, impacts occur at depths ranging from two to three feet bgs and will be removed via remedial soil excavation, which will be discussed in the forthcoming RAP. There are no sediment impacts at the facility, and no specific ecological exposure pathways related to facility groundwater were identified as the average depth to groundwater to date is approximately 6.19 feet bgs and 18.29 feet bgs in the perched groundwater zone and overburden aquifer, respectively. Based on the evaluation, no further ecological assessment is warranted.

2.3.4 Potential Migration Pathways

Underground utilities are typically located at depths ranging from two to six feet bgs and may serve as a potential pathway for groundwater and/or soil gas migration. Although APH and DPH impacts were confirmed in the southern and central portions of the facility, within the proximity of several known subsurface utilities identified in **Section 2.2**, and illustrated on **Figure 3**, soil gas migration to underground utility trenching and/or to on-site receptors is not considered a potential complete exposure pathway.

The underground storm sewer easement in the northern portion of the facility has the potential to be a preferential migration pathway if impacted groundwater from the site were to intersect the storm sewer trench. Based on groundwater analytical data from the most recent gauging and sampling event (February



2015) and the CSM discussed in **Section 6.3**, DPH impacts in the perched groundwater zone do not appear to extend to the storm sewer easement. To further evaluate this potential migration pathway, GES will attempt to confirm if the underground storm sewer is connected to off-site underground storm sewer lines and basins and determine the eventual outfall location.

2.3.5 Current and Future Land Use

The facility is currently an active retail petroleum facility. There are no plans for sale or redevelopment of the property at this time.

2.4 **Physical Setting**

2.4.1 Topography and Drainage

The facility is located at an elevation of approximately 1,466 feet above mean sea level (MSL) on an alluvial terrace of Tunungwant Creek. Local topography slopes towards Tunungwant Creek, which is at an elevation of approximately 1,421 feet above MSL. Tunungwant Creek flows to the north, discharging into the Allegheny River approximately 9.25 miles north of the facility.

The facility lot is comprised predominantly of concrete and asphalt. Based on current grading at the facility, surface water runoff in the parking lot is directed towards storm sewer basins located in the central and northern portions of the facility and along East Main Street. At the time of submittal of this report, it is unknown if the underground storm sewer line is connected to other storm sewer catch basins and manholes located along Mill Street and the eventual outfall location.

2.4.2 Stratigraphy

Regional Soil Lithology

Soil type at the facility was evaluated using current U.S. Department of Agriculture Natural Resources Conservation Service Website data. Information obtained from the website indicates that facility soils belong to the Buchanan (BuC) association. The BuC association consists of Buchanan silt loam and approximately 5% of minor components, and 8 to 15 percent slopes. Buchanan silt loam is moderately well drained. Soil survey information in the vicinity of the facility is illustrated on **Figure 4** (Soil Map).

Regional Bedrock Geology

The facility is situated within the western portion of the Appalachian Plateau Physiographic Province, which is characterized by rounded hills and steep-sided valleys. Strata within this section are gently folded, with dips typically being less than five degrees (Shultz, 1999). The underlying bedrock at the site belongs to the Devonian-Age Chadakoin Formation (Berg, T.M. et. al., 1980). The Formation consists of lightly-gray (or brownish) siltstone and some sandstone interbedded with medium gray shale as illustrated on **Figure 5** (Bedrock Geologic Map).

Facility Lithology

Soil boring logs and well construction diagrams, provided in **Appendix C**, (Soil Boring Logs and Well Construction Diagrams), developed from recent site characterization activities indicate the subsurface, to



a depth of approximately 35 feet bgs (on-site), consists of unconsolidated fill material underlain by clay with shallow lenses of silty and/or clayey sand. Site characterization activities indicate the subsurface, off-site (from the Carlough property to Tunungwant Creek) to a depth of approximately 30 feet bgs, consists of clay with silty sand and clayey sand lenses underlain by layers of clayey sand, gravelly sand, clayey gravel, and silty gravel. Bedrock was not encountered during on- and off-site drilling activities. Using these data, cross sections A-A', B-B' and C-C' were constructed. **Figure 6A** (Cross-Section Location Map) shows the location and orientation of each cross-section.

Figure 6B (Cross-Section A-A', B-B' and C-C') illustrates cross section A-A', extending from groundwater monitoring well MW-22 located in the southeastern portion of the facility along the eastern property boundary (East Main Street) to groundwater monitoring well MW-20 (located downgradient off-site near Tunungwant Creek). The cross section illustrates laterally extensive layer of unconsolidated fill material on-site ranging from approximately 1 to 12 feet thick. The fill material is underlain by clay with a shallow silty sand lens observed at groundwater monitoring well MW-13. Tapering downgradient to the adjacent off-site (Carlough) property, fill material was observed to approximately 5 feet bgs at groundwater monitoring well MW-11 underlain by silty clay to a depth of approximately 30 feet bgs. A shallow clayey gravel lens was observed at groundwater monitoring well MW-9 from approximately 10 to 15 feet bgs. From off-site groundwater monitoring well MW-19 (located in York Street) to MW-20 (located near Tunungwant Creek), silty clay was observed at a depth from approximately 0 to 14 feet bgs underlain by layers of clayey sand, gravelly sand, clayey gravel and silty gravel at depths of approximately 11 to 23 feet bgs.

Cross section B-B' extends from on-site soil gas monitoring point VP-3 (located directly west of the UST field) north/northeast to groundwater monitoring well MW-23 (northeast of the station building) in the northern portion of the facility. Lithologic observations for well locations depicted in cross section B-B' are generally consistent with the lithology observed in cross section A-A'. A laterally extensive layer of unconsolidated fill material was observed to a depth of approximately 11 feet bgs. The fill material is underlain by silty clay to a depth of at least 35 feet bgs. Shallow silty sand lenses were observed at groundwater monitoring wells MW-12 and MW-13 at depths of approximately 9.5 to 12 feet bgs and 22 to 23-feet bgs, respectively. Clayey sand lenses were observed at depths of approximately of 9 to 15 feet bgs at groundwater monitoring well MW-7 to 13.5-feet bgs and 20 to 21 feet bgs at groundwater monitoring wells MW-16 and MW-23.

Cross section C-C' extends from off-site groundwater monitoring well MW-8 (located west of the UST field and the western property boundary) north to off-site groundwater monitoring well MW-21 (located northwest of the station building and western property boundary). Lithologic observations for monitoring well locations depicted in cross section C-C' are generally consistent with the off-site lithology observed in cross sections A-A' and B-B'. Fill material was observed at groundwater monitoring well MW-10 to a depth of approximately 2.5 feet bgs. A laterally extensive silty clay layer was observed to a depth of approximately 30 feet bgs. A clayey gravel lens was observed at groundwater monitoring well MW-9 at a depth of approximately 10 to 15 feet bgs.



2.4.3 Hydrology

Surface Water

The facility is located at an elevation of approximately 1,466 feet above MSL on an alluvial terrace of Tunungwant Creek. Local topography slopes towards Tunungwant Creek, which is at an elevation of approximately 1,421 feet above MSL. Tunungwant Creek is located approximately 0.09 miles west of the facility at its closest point.

Tunungwant Creek is located within the Bolivar Run-Tunungwant Creek Watershed (Watershed HUC12) and is located within the Upper Allegheny Subbasin (Subbasin HUC8). The waters within the Upper Allegheny Subbasin are located within the Allegheny River Basin (US Environmental Protection Agency - My Waters Mapper).

Tunungwant Creek is approximately 45 feet below the facility elevation at its closest point to the facility. Tunungwant Creek is located within the Bolivar Run-Tunungwant Creek Watershed (Watershed HUC12) and is located within the Upper Allegheny Subbasin (Subbasin HUC8). The waters within the Upper Allegheny Subbasin are located within the Allegheny River Basin (US Environmental Protection Agency - My Waters Mapper).

Groundwater

The on-site perched groundwater zone was gauged and/or sampled during six separate monitoring and sampling events between June 2013 and February 2015. Based on gauging data, minimum, maximum and average depths to groundwater, groundwater flow direction and average gradient were as shown in the table below. The table includes data beginning with the June 12, 2013 gauging event, following installation of groundwater monitoring wells MW-4 through MW-6.

Date	Depth to Groundwater (feet) (Minimum)	Depth to Groundwater (feet) (Maximum)	Depth to Groundwater (feet) (Average)	Groundwater Flow Direction	Average Groundwater Gradient (feet/foot)
June 12, 2013	4.15 (MW-5)	6.97 (MW-4)	5.85	Northwest	0.04
November 1, 2013	4.25 (MW-3R)	6.75 (MW-7)	5.44	North	0.03
January 9, 2014	5.06 (MW-3R)	7.01 (MW-14)	6.13	Northwest	0.02
June 17, 2014	4.34 (MW-3R)	7.15 (MW-15)	6.09	Northwest	0.05
January 6, 2015	4.95 (MW-3R)	7.25 (MW-7)	6.11	North	0.03
February 3-4, 2015	6.21 (MW-3R)	8.95 (MW-7)	7.53	North	0.03

Based on groundwater gauging data, the underground storm sewer located in the northern portion of the facility appears to be acting as a groundwater barrier, therefore groundwater monitoring well MW-16 is not fully communicating with the perched groundwater zone. Groundwater elevation data from monitoring well MW-16 was not included in the above calculations.

The overburden aquifer was gauged and/or sampled during five separate sampling events between November 2013 and February 2015. Based on gauging data, minimum, maximum and average depths to



groundwater, groundwater flow direction and average gradient were as shown in the table below. The table includes data starting with the November 1, 2013 gauging event, following installation of groundwater monitoring well MW-10.

Date	Depth to Groundwater (feet) (Minimum)	Depth to Groundwater (feet) (Maximum)	Depth to Groundwater (feet) (Average)	Groundwater Flow Direction	Average Groundwater Gradient (feet/foot)
November 1, 2013	13.95 (MW-8)	22.95 (MW-9)	18.45	NA	NA
January 9, 2014	11.43 (MW-8)	33.00 (MW-13)	21.58	North	0.25
June 17, 2014	8.87 (MW-17)	21.87 (MW-13)	17.45	North	0.20
January 6, 2015	9.37 (MW-17)	33.21 (MW-22)	18.48	Northwest	0.11
February 3-4, 2015	10.12 (MW-17)	30.95 (MW-23)	17.32	Northwest	0.15

NA = Not available

Groundwater monitoring data are summarized in **Table 1** (Groundwater Data Summary). **Figure 7** (Groundwater Contour Map [Perched Groundwater Zone] – February 3-4, 2015) and **Figure 8** (Groundwater Contour Map [Overburden Aquifer] – February 3-4, 2015) illustrate groundwater flow for the most recent groundwater gauging event in February 2015 for the perched groundwater zone and the overburden aquifer, respectively.



3.0 REGIONAL HISTORY

3.1 Local Tank Search

The PADEP Regulated Storage Tank List (depweb.state.pa.us/landrecwaste/cwp/view) was utilized to determine potential off-site sources of contamination at the site. A search radius of one mile was utilized. Search results are summarized in the following table.

Facility Name	Dist. (miles)	Direction	UST Information
Kwik Fill # M-061 227 East Main St Bradford, PA 16701	0.00	Subject Property	(3) 12,000-gallon unleaded gasoline
Topps Market # 160 150 East Main St Bradford, PA 16701	0.18	West	(3) 10,000-gallon unleaded gasoline
Crosby Mini Mart 256 Jackson Ave Bradford, PA 16701	0.42	Northwest	(2) 8,000-gallon unleaded gasoline
American Refining Group Bradford 77 North Kendall Ave Bradford, PA 16701	0.51	Northeast	(107) various sized (ASTs only)
East End Quakerstate 457 East Main St Bradford, PA 16701	0.54	Northeast	(1) 6,800-gallon unleaded gasoline (1) 3,300-gallon unleaded gasoline (1) 2,800-gallon unleaded gasoline
Pacific Pride Bradford 142 Davis St Bradford, PA 16701	0.54	West	(1) 10,000-gallon unleaded gasoline (1) 10,000-gallon diesel (2) 4,000-gallon kerosene
Exxon 76 Chestnut St Bradford, PA 16701	0.84	Southeast	(1) 10,000-gallon unleaded gasoline (3) 4,000-gallon kerosene
Country Fair # 64 8 West Washington St Bradford, PA 16701	0.92	West / Southwest	(2) 15,000-gallon unleaded gasoline (1) 10,000-gallon unleaded gasoline (1) 8,000-gallon diesel (4) 6,000-gallon kerosene

UST = underground storage tank

AST = above ground storage tank

The PADEP Storage Tank Clean-Up Location database was utilized to identify sites within a one mile search radius with a confirmed release and associated site characterization and/or remedial activity. Search results are summarized in the following table.



Facility Name	Dist. (miles)	Direction	Facility Information
Kwik Fill M-061 227 East Main St Bradford, PA 16701	0.00	Subject Property	Release Date: 02/25/2013 Current Status: Interim or Remedial Actions Not Initiated
American Refining Group Bradford 77 North Kendall Ave Bradford, PA 16701	0.51	Northeast	Release Date: 05/11/1998 Current Status: Interim or Remedial Actions Initiated
American Refining Group Bradford 77 North Kendall Ave Bradford, PA 16701	0.51	Northeast	Release Date: 11/04/1999 Current Status: Cleanup Complete 11/30/2005
American Refining Group Bradford 77 North Kendall Ave Bradford, PA 16701	0.51	Northeast	Release Date: 04/15/2000 Current Status: Interim or Remedial Actions Initiated
American Refining Group Bradford 77 North Kendall Ave Bradford, PA 16701	0.51	Northeast	Release Date: 04/25/2000 Current Status: Interim or Remedial Actions Initiated
American Refining Group Bradford 77 North Kendall Ave Bradford, PA 16701	0.51	Northeast	Release Date: 10/24/2000 Current Status: Interim or Remedial Actions Initiated

Information regarding the current environmental status of these facilities was not reviewed.

3.2 Local Mining Activities

Information obtained from the PADCNr and the Department of Interior, Office of Surface Mining (OSM) website, does not indicate historical mining activities occurred in the area. Information obtained from the PADEP emap PA website indicates no historical underground mining activities occurred in the area of the facility.



4.0 FACILITY HISTORY

4.1 1990 Release – Unleaded Gasoline

In June 1990, UPA personnel discovered a line leak at the facility. Neither a verbal or written NORR were provided to the PADEP. Following product line closure activities, three groundwater monitoring wells (MW-1 through MW-3) were installed by Erie Geological Contractors in June 1990. In March 1992, a soil vapor extraction (SVE) remedial system was installed. The system consisted of seven SVE points plumbed into a 1 1/2 horsepower (hp) regenerative blower. The system operated from 1992 until 2003. Dissolved phase concentrations decreased during (and after) operation of the SVE system. Elevated DPH concentrations were still present in groundwater monitoring well MW-1 in 2013. Groundwater monitoring wells MW-2 and MW-3 were detected below concentrations of U/R MSCs. UPA searched the project file and is unable to locate any documentation regarding installation of the SVE system.

A PADEP file review was conducted on January 8, 2014. Based on the file contents, it appears this facility was characterized and remediated in accordance with PADEP corrective action policies that prevailed prior to Chapter 245. There was nothing in the file that indicated a "no further action" status or relief of liability was ever assigned for the 1990 release. However, it does seem apparent that a *de facto* "no further action" status was assigned to the facility in 2003. This is based on a lack of any type of corrective action directives by PADEP and that the facility was never listed on the PADEP Leaking Underground Storage Tank database.

4.2 2013 Reportable Release – Unleaded Gasoline

On February 25, 2013, LDS personnel were making preparations for routine tightness testing when they detected unusual levels of vapors in the regular unleaded gasoline submersible pump pit. Further inspection revealed a small product "weep" from a threaded piping fitting. This fitting connected a metallic hose to steel product piping. The affected UST system was removed from service, repaired and returned to service on February 26, 2013. A verbal NORR was called in to PADEP-NWRO on February 25, 2013, and a written NORR was submitted on March 1, 2013 (UPA, 2013).



5.0 SITE CHARACTERIZATION ACTIVITIES

GES completed site characterization activities from June 2013 through February 2015 to:

- Identify and quantify COCs in environmental media,
- Define the vertical and horizontal extent of COCs in environmental media,
- Identify appropriate interim or remedial response measures, and
- Define the nature and scope of appropriate response actions.

To achieve these objectives, the following tasks were completed:

- Advanced 11 soil borings on-site (SB-1 through SB-11),
- Collected Shelby tubes for an evaluation of soil properties,
- Installed four soil gas monitoring points (VP-1 through VP4),
- Constructed eight on-site groundwater monitoring wells in the perched zone (MW-4 through MW-7, MW-12, and MW-14 through MW-16),
- Replace existing groundwater monitoring wells MW-1 and MW-3 (MW-1R and MW-3R),
- Constructed three on-site groundwater monitoring wells in the overburden aquifer (MW-13, MW-22 and MW-23),
- Constructed ten off-site groundwater monitoring wells in the overburden aquifer (MW-8 through MW-11, MW-17 through MW-21, and MW-24),
- Collected two rounds of soil gas samples, and
- Collected samples of soil (54 samples) and groundwater (6 rounds) for analysis of the revised (March 2008) PADEP short list of unleaded gasoline constituents via EPA Method 5035/8260B.

The following sections describe investigative and sample collection methodologies utilized during these site characterization activities, and summarize the sample analytical results relative to current Act 2 MSCs.

5.1 Investigative Methods

The following sample collection methods were utilized during site characterization activities. Field activities were conducted in accordance with a site-specific health and safety plan (available on file).

Hand auguring and air knife methods were used to clear proposed soil boring/monitoring well and soil gas monitoring point locations to a minimum of five feet bgs to prevent damage to underground utilities, when possible. Groundwater monitoring wells were installed using an LC-60 drill rig with hollow-stem augers or a geoprobe track rig via direct push method. Soil samples were collected via two-foot split spoon or 5-foot macro-core sampling tools. Soil samples were screened for volatile organic compounds (VOCs) with a calibrated photoionization detector (PID).

During air knife/hand auguring activities, a soil sample was collected for laboratory analysis from the interval with the highest observed PID reading or at the base of the borehole (up to eight feet bgs) to assess potential shallow subsurface impacts. If the soil sample was collected from the base of the borehole, the sample was collected via a hand auger six inches below the contact point of the air knife



(i.e., undisturbed soil). During drilling, soil samples were collected from the interval with the highest observed PID reading and one interval below for delineation purposes. If PID readings were not observed, one sample was collected from the interval directly above the apparent soil/groundwater interface. Soil samples were collected from 1 to 35 feet bgs using laboratory-supplied disposable syringes, placed into the appropriate laboratory vials containing methanol or sodium bisulfate (EPA Method 5035), mixed and sealed. Samples were immediately placed on ice in a cooler to maintain appropriate sample temperature. Chain-of-custody forms were maintained from sample collection to laboratory receipt. Soil samples were analyzed for the revised (March 2008) PADEP shortlist of unleaded gasoline constituents (benzene, toluene, ethylbenzene, xylenes, MTBE, naphthalene, isopropyl benzene, 1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene) via EPA Method 8260B.

Groundwater monitoring wells were constructed with varying lengths of two and four-inch diameter, 0.020-inch machine-slot well screen set across the saturated zone to monitor the groundwater table interface. Poly-vinyl chloride (PVC) riser was added to the well screen to bring the wells to ground surface. The screen annulus was backfilled with sand from the base of the borehole to one foot above the screen. The remaining annulus was filled to approximately 1.5 to 2 feet bgs with hydrated bentonite chips. Groundwater monitoring wells were finished flush with grade with an eight-inch diameter road box and locking cap secured in a concrete pad. Two soil borings (SB-8 and SB-11) were constructed with four feet of one-inch diameter 0.020-inch machine-slot screen to temporarily monitor the overburden aquifer to the south of the retaining wall.

Soil gas monitoring points were installed on-site by hand clearing with an air knife and then constructed with six inches of ½-inch diameter, stainless steel screen, set between 3.5 and 4.5 feet bgs within the unconsolidated fill material. The boreholes were then backfilled with coarse sand to six inches above and below the screen. In the remaining annulus from the stainless steel screen to the surface, a 1/8-inch inside-diameter, approximately three-foot section of polyethylene tubing was used to extend the soil gas monitoring point to grade. The annulus surrounding the tubing was backfilled with bentonite chips to approximately 1.5 feet bgs. The soil gas monitoring points were finished flush with grade in an eight-inch diameter road box and secured in a concrete pad.

Soil and decontamination water generated during drilling activities were containerized in steel 55-gallon, Department of Transportation (DOT) approved drums for disposal. Waste was transported off-site for appropriate disposal (**Section 5.6**).

5.2 Soil Investigation

5.2.1 Number and Location of Soil Borings

On-Site

From June 3 through 7, 2013, eight soil borings (SB-1 through SB-8) were completed and three groundwater monitoring wells (MW-4, MW-5 and MW-6) were installed to evaluate potential soil impacts near the release area. From October 7 through 9, 2013, three soil borings (SB-9 through SB-11) were completed to further delineate and assess on-site APH impacts. Soil samples were also collected during installation of soil gas monitoring points in October 2013. Further horizontal and vertical delineation of soil impacts was completed by collecting soil samples during installation of groundwater



monitoring well MW-12 (December 2013), monitoring wells MW-15 and MW-16 (June 2014) and monitoring well MW-22 (December 2014).

Off-Site

Soil samples were collected during installation of monitoring wells MW-8 through MW-10 in October 2013 to determine if APH impacts were present in soil on the downgradient off-site property (Carlough) to the west. Additional soil samples were collected during installation of groundwater monitoring wells MW-10 and MW-11 (December 2013) and MW-21 (November 2014).

Soil boring locations are illustrated on **Figure 9** (Soil Boring Location Map). Groundwater monitoring well and soil gas monitoring point locations are illustrated on **Figure 3**. Soil samples were collected within each boring for PID screening, logging and sampling. Borings not converted to monitoring wells (SB-4, SB-5, and SB-7) were backfilled with top soil. Boring logs, including lithologic descriptions and PID readings, are included in **Appendix C**. Soil cuttings generated during site characterization activities were contained in 55-gallon drums pending off-site disposal. A summary of waste disposal activities is provided in **Section 5.6**.

5.2.2 Sample Collection

A total of 54 soil samples were collected during soil investigation activities. Soil samples (41 samples) were collected on-site at depths ranging from 1 to 35 feet bgs to evaluate potential soil impacts in the fill and overburden clay. Soil samples (13 samples) were collected on the off-site property to the west at depths ranging from 3 to 32 feet bgs to evaluate the potential for off-site soil impacts. Samples were collected consistent with the methods described in **Section 5.1**. Soil samples were collected and analyzed by a PA-certified laboratory for the revised (March 2008) PADEP short list of unleaded gasoline constituents via EPA Method 5035/8260B.

5.2.3 Soil Analytical Results

On-site soil analytical results are summarized in **Table 2A** (On-Site Soil Data Summary) relative to current U/NR MSCs. The unsaturated (and periodically saturated) and saturated soil intervals were established based on observations during drilling and evaluation of static high and low groundwater depth ranges observed during the gauging events completed to date. In the perched groundwater zone, the interval of unsaturated (and periodically saturated) soil impacts was determined to be from 2 to 7 feet bgs and the saturated zone from 7 to 12 feet bgs. The following exceedances were identified:



Soil Sample ID	Sample Date	Sample Depth (feet)	S/U	Benzene (µg/kg)	Toluene (µg/kg)	Ethylbenzene (µg/kg)	Naphthalene (µg/kg)	1,2,4-TMB (µg/kg)	1,3,5-TMB (µg/kg)
U/NR MSC (saturated / unsaturated) 2-15 ft bgs				500	100,000	70,000	10,000/ 25,000	6,200/ 35,000	5,300/ 9,300
SB-2/MW-4	6/5/2013	8-10	S	11,400	---	---	13,300	157,000	54,300
SB-6/MW-6	6/5/2013	5-7	U	3,660	---	---	---	---	---
SB-10	10/9/2013	8-10	S	3,470	---	---	---	44,600	19,600
MW-12	12/12/2013	9-11	S	2,560	104,000	93,400	28,500	445,000	---

U/NR MSCs = used aquifer, non-residential medium-specific concentrations

ft bgs = feet below ground surface

S/U = saturated or unsaturated soil

µg/kg = micrograms per kilogram

TMB = trimethylbenzene

--- = concentration reported below Act 2 U/NR MSC

Off-site soil analytical results are summarized in **Table 2B** (Off-Site Soil Data Summary) relative to current U/R MSCs. Saturated and unsaturated soil impacts were established based on observations during drilling and evaluation of static high and low groundwater depth ranges observed during previous gauging events. The following exceedances were identified:

Soil Sample ID	Sample Date	Sample Depth (feet)	Saturated / Unsaturated	1,3,5-Trimethylbenzene (µg/kg)
U/R MSC (saturated / unsaturated)				1,300/ 2,300
MW-10	12/4/2013	2-3	Unsaturated	3,870

U/R MSCs = used aquifer, residential medium-specific concentrations

µg/kg = micrograms per kilogram

Unleaded gasoline constituents in the remaining on- and off-site soil samples were either not detected or detected at concentrations below applicable U/R-NR MSCs. Soil laboratory reports and associated chain-of-custody forms are provided in **Appendix D** (Soil Laboratory Analytical Reports, 2013-2014).

5.2.2 Geotechnical Analytical Results

One Shelby tube sample was collected for geotechnical analysis at soil boring SB-10 from 9-11 feet bgs. Analyses conducted provided site-specific data to be used for fate and transport assessment and further CSM development. Additional Shelby tubes were attempted on- and off-site in the overburden aquifer, but due to the nature of the clay, the attempts were unsuccessful. Samples were submitted to Geotechnics, Inc. of East Pittsburgh, Pennsylvania for analysis of the following parameters.

- Loss-on-ignition (ASTM D2974-07a)
- Porosity (ASTM D7263-09)
- Sieve and wash sieve analysis (ASTM D422-63)
- Specific gravity (ASTM 854-10)



A sub-sample of SB-10 was collected from the Shelby tube at 10.1 to 11.0 feet bgs for analysis. Analytical results indicated the organic matter content of the sample was 2.6% from the loss-on-ignition processes. To determine the fraction of organic carbon (f_{oc}) from soil organic matter, a correction factor of 58% was utilized as recommended by the Indiana Department of Environmental Management (IDEM, 2010). Therefore, the f_{oc} for the SB-10 sample was approximately 1.51%. The average specific gravity and porosity were 2.65 and 0.36, respectively. Sieve analysis classified the soil as clayey sand with gravel (SC).

Geotechnical laboratory reports are included in **Appendix E** (Geotechnical Laboratory Report, 2013) and data are summarized in the following table:

Sample ID	Sample Depth (feet)	Soil Organic Matter	Fraction Organic Carbon (f_{oc})	Specific Gravity	Porosity	Sieve Analysis (USCS Classification)
SB-10	10.1-11.0	2.6%	1.51% (0.01508)	2.65	0.36	Clayey sand with gravel

USCS = Unified Soil Classification System

5.3 Groundwater Investigation

5.3.1 Well Installation

Groundwater monitoring wells MW-1R, MW-3R and MW-4 through MW-24, were installed at the locations illustrated on **Figure 3** to identify and delineate the extent of DPH impacts in on- and off-site groundwater. Construction details are included on the well construction logs in **Appendix C**, and are summarized in the following section.

5.3.2 Well Construction

Groundwater monitoring wells MW-1R, MW-3R and MW-4 through MW-24, were constructed as follows:

Well	Diameter (inches)	Length of Screen (feet)	Length of Riser (feet)	Total Well Depth (feet)
<i>Perched zone</i>				
MW-1R	4	13	3	16
MW-3R	4	6	2	8
MW-4	4	12	3	15
MW-5	4	10	2	12
MW-6	4	9	2.75	11.75
MW-7	4	13	3	16
MW-12	4	13	3	16
MW-14	4	13	3	16
MW-15	4	6	3.5	9.5
MW-16	4	12	4	16



Well	Diameter (inches)	Length of Screen (feet)	Length of Riser (feet)	Total Well Depth (feet)
<i>Overburden Aquifer</i>				
MW-8	2	14.75	5	19.75
MW-9	2	20	10	30
MW-10	2	20	10	30
MW-11	2	20	10	30
MW-13	4	12	23	35
MW-17	4	15	7	22
MW-18	4	20	10	30
MW-19	4	20	10	30
MW-20	4	15	8	23
MW-21	4	18	7	25
MW-22	4	12	22	34
MW-23	4	12.5	22	34.5
MW-24	4	20	7	27

5.3.3 Well Development/Survey

Groundwater monitoring wells were developed and surveyed following installation. Monitoring wells were developed following installation to remove sediments and fines from around the well screens and the well bore by bailing a minimum of five well volumes from each monitoring well, if sufficient recharge was available. Monitoring wells were surveyed to determine top-of-casing elevations and horizontal positions relative to an on-site benchmark. Survey elevations are provided in **Table 1**. Well positions were measured from existing facility features.

5.3.4 Groundwater Sampling – Monitoring Wells

Prior to collecting groundwater samples from the monitoring well network, static water level elevations were recorded for each well using an electronic oil/water interface probe capable of measuring to an accuracy of 0.01 feet. The interface probe is also capable of detecting static elevations of LNAPL to an accuracy of 0.01 feet. Three well volumes were purged from each well before sampling.

On-site groundwater monitoring wells monitoring the perched groundwater zone were gauged and/or sampled during six separate events conducted between June 2013 and February 2015. One groundwater sample from each well was analyzed for the revised (March 2008) PADEP short list of unleaded gasoline constituents via EPA Method 8260B during each event. Groundwater data are summarized in **Table 1** relative to current U/R MSCs. The following exceedances were identified:



Well ID	Sample Date	Benzene (µg/L)	1,2,4-TMB (µg/L)	1,3,5-TMB (µg/L)
U/R MSC		5	15	13
MW-1R	6/12/2013	118	94.3	35.8
MW-4		190	203	128
MW-6		135	88.4	43.8
MW-1R	11/1/2013	820	40.1	17.9
MW-4		774	64.7	18.2
MW-6		561	25.6	---
MW-7		135	---	---
MW-1R	1/9/2014	398	43.5	14.9
MW-4		422	179	34.6
MW-6		446	15.5	---
MW-7		44.6	---	---
MW-12		---	36.6	---
MW-14		511	233	94.5
MW-1R	6/7/2014	261	130	24.8
MW-4		212	173	17.0
MW-6		201	22.8	---
MW-7		49.4	---	---
MW-14		274	41.5	20.6
MW-15		12.5	---	---
MW-1R	1/6/2015	603	50.0	15.3
MW-4		542	127	18.7
MW-6		647	---	---
MW-7		12.5	---	---
MW-14		543	32.4	15.5
MW-1R	2/3-4/2015	678	53.2	14.7
MW-6		680	---	---
MW-7		79.9	67.5	17.0
MW-14		706	119	46.5

U/R MSC = used aquifer, residential medium-specific concentration

µg/L = micrograms per liter

TMB = trimethylbenzene

--- = concentration reported below Act 2 U/R MSC

Unleaded gasoline constituents in the remaining on- and off-site perched groundwater zone samples were either not detected or detected at concentrations below current U/R MSCs. Laboratory analytical results for the groundwater sampling events are provided in **Appendix F** (Groundwater Laboratory Analytical Reports, 2013-2015).

On- and off-site groundwater monitoring wells monitoring the overburden aquifer were gauged and/or sampled during five separate events conducted between November 2013 and February 2015. One groundwater sample from each well was analyzed for the revised (March 2008) PADEP short list of unleaded gasoline constituents via EPA Method 8260B during each event. Groundwater data are summarized in **Table 1** relative to current U/R MSCs. The following exceedances were identified during the groundwater sampling events:



Well ID	Sample Date	Benzene (µg/L)	MTBE (µg/L)
U/R MSC		5	20
MW-8	11/1/2013	---	626
MW-9		---	2,310
MW-8	1/9/2014	---	406
MW-9		---	3,330
MW-10		---	27.0
MW-11		---	914
MW-13		---	115
MW-8	6/7/2014	---	289
MW-9		---	2,870
MW-10		---	392
MW-11		8.6	1,360
MW-13		---	1,350
MW-19		---	525
MW-8	1/6/2015	---	173
MW-9		---	2,330
MW-10		---	396
MW-11		8.1	1,030
MW-13		---	1,610
MW-19		---	377
MW-21		---	27.0
MW-23		---	49.2
MW-8	2/3-4/2015	---	155
MW-9		---	1,230
MW-10		---	287
MW-11		---	854
MW-13		---	1,410
MW-19		---	377
MW-21		---	20.5
MW-23		---	46.7

U/R MSC = used aquifer, residential medium-specific concentration

µg/L = micrograms per liter

MTBE = methyl tert-butyl ether

--- = concentration reported below Act 2 U/NR MSC

Unleaded gasoline constituents in the remaining on- and off-site overburden aquifer groundwater samples were either not detected or detected at concentrations below current U/R MSCs. Laboratory analytical results for the groundwater sampling events are provided in **Appendix F**.

Since UPA was denied access to the adjacent property to the south, three soil borings (SB-7, SB-8 and SB-11) were completed at the base of the retaining wall along the southern property boundary as illustrated on **Figure 9**. Soil borings SB-8 and SB-11 were converted to one-inch shallow groundwater monitoring points constructed entirely of PVC screen (5-feet and 3.75-feet in total depth, respectively) to determine if DPH impacts had migrated off-site in a side-gradient direction. Groundwater samples were collected from both locations and analyzed by a PA-certified laboratory for the revised (March 2008) PADEP short list of unleaded gasoline constituents via EPA Method 5035/8260B. Unleaded gasoline



constituents in the groundwater samples were either not detected or detected at concentrations below current U/R MSCs as summarized on **Table 3** (Soil Boring Water Sample Data Summary). The groundwater laboratory reports and associated chain-of-custody forms are provided in **Appendix F**.

5.4 Limited Aquifer Testing

5.4.1 Pump Test Recharge Analyses

As part of remedial feasibility testing performed at the facility in April 2014, groundwater recharge data were analyzed following conclusion of a pump test on monitoring well MW-1R. Following deactivation of the pump, groundwater in the monitoring well recharged to 95% of the static water level after 28 minutes. The recharge data was analyzed and a hydraulic conductivity (K) of 84.99 feet per day (ft/day) was estimated for monitoring well MW-1R.

Groundwater recharge in off-site monitoring well MW-9 was also monitored and the data analyzed following conclusion of a feasibility testing pump test on monitoring well MW-9. Following deactivation of the pump, groundwater in the monitoring well recharged to 6% of the static level after 16 minutes. The recharge data was analyzed and a hydraulic conductivity of 24.16 ft/day was calculated for monitoring well MW-9.

Additional details regarding the April 2014 remedial feasibility testing and data analyses will be provided in the forthcoming RAP.

5.5 Vapor Intrusion Investigation

Potential vapor intrusion pathways at the facility were evaluated consistent with PADEP's *Land Recycling Program Technical Guidance Manual-Vapor Intrusion into Buildings from Groundwater and Soil under the Act 2 Statewide Health Standard* (January, 2004), which provides additional screening requirements to prevent the occurrence of unacceptable risks resulting from intrusion of vapors from soil and/or groundwater into indoor structures. The guidance identifies chemicals of potential indoor air concern (COPIACs) and determines if additional characterization or remedial actions are required to mitigate vapor impacts to sensitive receptors. Certain constituents typically associated with a release of unleaded gasoline are identified as COPIACs, and may represent a concern even at concentrations below U/NR soil-to-groundwater (S/GW) pathway MSCs. The guidance provides for utilizing the Indoor Air Quality Decision Matrix for Statewide Health Standards flow charts to determine if additional evaluation is necessary.

Based on the location of the release and the shallow depth to groundwater, further evaluation of the decision matrices was not warranted, and a soil vapor intrusion assessment was initiated.

5.5.1 Soil Gas Monitoring Point Installation

In October 2013, four soil gas monitoring points (VP-1 through VP-4) were installed at the locations illustrated on **Figure 3** and constructed using the methods described in **Section 5.1**. Construction diagrams for the soil gas monitoring points are provided in **Appendix C**. Soil gas monitoring point VP-1 was installed adjacent to the station building to assess potential migration of soil gas to on-site receptors



(i.e., station building). Soil gas monitoring points VP-2 and VP-3 were installed adjacent to the UST field and near identified preferential pathways (utility trenches) to assess soil gas concentrations surrounding the UST field. Soil gas monitoring point VP-4 was installed sidegradient of the release area near identified preferential pathways (utility trenches) to assess the potential migration of soil gas to off-site receptors.

5.5.2 Soil Gas Sample Collection

Soil gas samples were collected on November 6, 2013, from soil gas monitoring points VP-1 through VP-4 and on January 9, 2014, from soil gas monitoring points VP-1, VP-3 and VP-4. A soil gas sample was not collected during the January 2014 vapor intrusion sampling event at soil gas monitoring point VP-2 due to a faulty valve on the laboratory-provided SUMA canister. Prior to sampling, a personal air pump was utilized to evacuate (purge) ambient air from the monitoring points. Following purging, the tubing from each soil gas point was connected to a SUMA canister and the valve on the canister opened, which allowed vapor from the monitoring point to enter the canister. Based on site lithology, a flow controller was selected that restricted air flow into the canister to 200 milliliters per minute (mL/min), which allowed the 6-liter canister to be filled over a time period of 30 minutes. A duplicate sample was also collected at location VP-3 for laboratory analysis. The soil gas samples were submitted for analysis of the revised (March 2008) shortlist of unleaded gasoline constituents via Method TO-15.

5.5.3 Soil Gas Analytical Results

Soil gas analytical results for the November 2013 and January 2014 sampling events are summarized in **Table 4** (Soil Gas Monitoring Data Summary) and compared to current residential and non-residential attenuated PADEP indoor air screening criteria. A transfer factor (attenuation factor) equal to 0.01 was used in converting the PADEP indoor air screening criteria (MSC_{IAQ}) to the appropriate PADEP soil gas screening criteria (MSC_{SG}) (PADEP, 2004). The transfer factor is a conservative value relating concentrations in indoor air to concentrations in soil gas adjacent to a building. The data indicates that constituent concentrations at soil gas monitoring point VP-2 during the November 2013 sampling event are above current R-NR MSC_{SG} screening criteria. Copies of the soil gas laboratory analytical reports and chain-of-custody forms are provided in **Appendix G** (Soil Gas Laboratory Analytical Reports, 2013-2014).

Because residual isolated soil impacts have been identified between the UST field and the dispenser islands at concentrations above current U/NR MSCs, further indoor air evaluation is warranted. An evaluation of current soil impacts between the UST field and dispenser islands relative to applicable indoor air screening criteria is provided in Section **7.4.2**.

5.6 **Investigation Derived Waste**

Solid waste including soil cuttings and construction debris (i.e., asphalt) generated during drilling activities were containerized in steel 55-gallon, DOT-approved drums and stored in a secure on-site location. The solid waste was transported by McCutcheon Enterprises, Inc. (MEI) of Apollo, Pennsylvania, as non-hazardous waste to MEI's Biosolids Treatment Facility for disposal. A total of 22.72 tons of solid waste was transported to MEI for disposal between July 2013 and December 2014.



from site characterization activities. Waste disposal manifests are provided in **Appendix H** (Investigation and Remediation Derived Waste Documentation).

Approximately 28 gallons of decontamination water from drilling activities and 192 gallons of purge water from June 2013 were containerized in 55-gallon, DOT-approved drums and stored in a secure on-site location. The liquid waste was transported by MEI off-site for disposal on July 12, 2013. Following receipt of groundwater data from the June 26, 2013 groundwater monitoring event, purged groundwater from subsequent groundwater monitoring events was treated using granular activated carbon prior to on-site discharge by GES personnel.

Groundwater generated during the feasibility study in April 2014 was transferred to a poly-tank located on-site, then transferred to a tanker truck by MEI. A total of 172 gallons (1.04 tons) of investigation-derived groundwater were transported to MEI's Biosolids Treatment Facility for disposal. In addition, a total of 260 pounds of spent carbon used during feasibility testing was transported by Encotech, Inc. Carbon Service & Equipment Co. (Encotech) of Eighty-Four, Pennsylvania for disposal.

A total of approximately 438 gallons of liquid waste was transported to MEI for disposal from July 2014 through April 2014. Waste disposal manifests are provided in **Appendix H**.



6.0 CONCEPTUAL SITE MODEL

Analytical results from soil, groundwater and soil gas samples collected during site characterization activities indicate that petroleum hydrocarbon constituents typically associated with a release of unleaded gasoline are present at concentrations above applicable PADEP Act 2 U/R-NR MSCs. The nature and extent of the unleaded gasoline release and potential migration pathways, fate and transport of the each constituent of concern were evaluated through the comparison of current soil, groundwater and soil gas analytical data in relation to the geologic and hydrogeologic settings of the facility. The CSM developed from the evaluation is discussed in the following sections.

6.1 Nature and Extent of Release

On February 25, 2013, LDS personnel were making preparations for routine tightness testing when they detected unusual levels of vapors in the regular unleaded gasoline submersible pump pit. Further inspection revealed a small product “weep” from a threaded piping fitting. This fitting connected a metallic hose to steel product piping. The affected UST system was removed from service, repaired and returned to service on February 26, 2013. On February 25, 2013, a verbal NORR was reported to PADEP-NWRO, and on March 1, 2013, a written NORR was submitted to PADEP-NWRO by UPA describing the reportable release. The nature and extent of the release was evaluated through site characterization activities.

Based on evaluation of the existing site data, unleaded gasoline constituents have migrated through the unconsolidated fill material into the perched groundwater zone in the immediate vicinity of the UST field. Further evaluation of current and available historical site characterization data indicates unleaded gasoline constituents continued to migrate vertically into the overburden clay aquifer underlying the UST field. Impacts then migrated downgradient with groundwater beyond the western property boundary and York Street, towards Tunungwant Creek. A more detailed summary of areas and constituents of concern for facility soil, groundwater and soil gas are provided in the following sections.

6.2 Soil

6.2.1 On-site Soil

The lithology of the facility subsurface is composed of unconsolidated fill material with varying amounts of gravel, sand, silt, clay to a depths ranging from 1 to 12 feet bgs. Fill material is underlain by clay with shallow lenses of clayey sand, silty sand, clayey silt or sandy gravel lenses to a minimum depth of 35 feet bgs. Bedrock was not encountered on-site during drilling activities.

Benzene, toluene, ethylbenzene, naphthalene, 1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene have been detected in on-site unsaturated/periodically saturated soil between 2 and 7 feet bgs and in saturated soil between 7 and 12 feet bgs at concentrations above current U/NR MSCs. Constituent concentrations observed in facility soil likely reflect both constituents adsorbed to the soil particles as well as residual liquid unleaded gasoline being held within the soil matrix by capillary forces. However, for the purpose of presentation throughout this report, soil impacts are collectively referred to as adsorbed phase.



Unsaturated/Periodically Saturated Soil

Groundwater gauging data collected to date from the perched groundwater zone indicates unsaturated/periodically saturated soil occurs between 2 and 7 feet bgs. The minimum and maximum depths to groundwater observed since groundwater gauging activities were initiated were measured to be 4.15 (June 2013) and 8.95 (February 2013) feet, respectively. However, groundwater gauging has not been completed quarterly; therefore, the average minimum (5.44 feet bgs - November 2013) and maximum (7.53 feet bgs - February 2015) depth to groundwater in the perched groundwater zone were evaluated to establish the unsaturated/periodically saturated zone (**Section 2.4.3**). The unsaturated/periodically saturated and saturated soil intervals will be re-evaluated as additional data is collected.

Adsorbed phase benzene impacts were observed in unsaturated/periodically saturated soil at sample location MW-6 (5-7 feet bgs) at a concentration of 3,660 micrograms per kilogram ($\mu\text{g/kg}$), above the applicable U/NR MSC of 500 $\mu\text{g/kg}$. The approximate extent of benzene impacts in soil exceeding the U/NR MSC is illustrated on **Figure 10** (Benzene Soil Isoconcentration Map, June 2013 - December 2014 [2-7 Feet bgs]).

Adsorbed phase soil impacts are delineated horizontally and vertically on-site in unsaturated/periodically saturated soil.

Saturated Soil

Saturated soil in the perched groundwater zone was determined to be from approximately 7 to 12 feet bgs based on the discussion provided above for unsaturated/periodically saturated soil and the approximate base of the perched groundwater zone determined by site lithology.

Adsorbed phase benzene, toluene, ethylbenzene, naphthalene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene were reported in on-site saturated soil at concentrations above current U/NR MSCs as follows:

Soil Sample ID	Sample Date	Sample Depth (feet)	Benzene ($\mu\text{g/kg}$)	Toluene ($\mu\text{g/kg}$)	Ethylbenzene ($\mu\text{g/kg}$)	Naphthalene ($\mu\text{g/kg}$)	1,2,4-TMB ($\mu\text{g/kg}$)	1,3,5-TMB ($\mu\text{g/kg}$)
U/NR MSC (saturated/unsaturated)			500	100,000	70,000	10,000/ 25,000	6,200/ 35,000	5,300/ 9,300
SB-2/MW-4	6/5/2013	8-10	11,400	---	---	13,300	157,000	54,300
SB-10	10/9/2013	8-10	3,470	---	---	---	44,600	19,600
MW-12	12/12/2013	9-11	2,560	104,000	93,400	28,500	445,000	---

U/NR MSCs = used aquifer, non-residential medium-specific concentrations

$\mu\text{g/kg}$ = micrograms per kilogram

TMB = trimethylbenzene

--- = concentration reported below Act 2 U/NR MSC

Saturated soil impacts are located near the UST field and dispenser islands. The approximate extent of APH impacts in saturated soil from 7-12 feet bgs is illustrated on the following figures:

- **Figure 11** - Benzene Soil Isoconcentration Map, June 2013 - December 2014 (7-12 Feet bgs),



- **Figure 12** - Toluene Soil Isoconcentration Map, June 2013 - December 2014 (7-12 Feet bgs),
- **Figure 13** - Ethylbenzene Soil Isoconcentration Map, June 2013 - December 2014 (7-12 Feet bgs),
- **Figure 14** - Naphthalene Soil Isoconcentration Map, June 2013 - December 2014 (7-12 Feet bgs),
- **Figure 15** - 1,2,4 TMB Soil Isoconcentration Map, June 2013 - December 2014 (7-12 Feet bgs), and
- **Figure 16** - 1,3,5-TMB Soil Isoconcentration Map, June 2013 - December 2014 (7-12 Feet bgs).

Adsorbed phase soil impacts are delineated in on-site saturated soil, with exception to the western-most extent of the facility. Due to facility features (i.e., UST field, station building and retaining wall) and topography, further on-site horizontal soil delineation along the western property boundary is not possible. UPA was granted access to the Carlough property adjacent to the facility to the west (downgradient of release area) and off-site soil samples were collected. Off-site soil sampling results indicate on-site adsorbed phase soil impacts are limited primarily to the fill material retained by an approximately 12-foot retaining wall at the western extent of the facility (see **Section 2.2**).

Since UPA was denied access to the adjacent vacant property to the south, three soil borings (SB-7, SB-8 and SB-11) were completed at the base of the retaining wall along the southern property boundary as illustrated on **Figure 9**. Soil samples were collected from each location and analyzed by a PA-certified laboratory for the revised (March 2008) PADEP short list of unleaded gasoline constituents via EPA Method 5035/8260B. Unleaded gasoline constituents in the soil samples were either not detected or detected at concentrations below current U/NR MSCs as summarized on **Table 2**. The soil laboratory reports and associated chain-of-custody forms are provided in **Appendix D**.

6.2.2 Off-Site Soil

The lithology of off-site subsurface soil beneath the adjacent properties to the west (downgradient) of the facility is composed of unconsolidated fill material with varying amounts of gravel, sand, silt and clay at depths ranging from 0 to 5 feet bgs, underlain by clay with silty sand or clayey sand lenses to a depth of 30 feet bgs. Clay becomes less predominant and the silty sand and clayey sand layers appear to increase in thickness west of the facility, towards Tunungwant Creek. Bedrock was not encountered off-site during drilling activities.

Adsorbed phase 1,3,5-trimethylbenzene has been detected in off-site unsaturated soil between 2 and 3 feet bgs at concentrations above current U/R MSCs as illustrated on **Figure 16** (1,3,5-Trimethylbenzene Soil Isoconcentration Map, June 2013 - December 2014 [2-4 Feet bgs]).

Adsorbed phase soil impacts are delineated horizontally and vertically off-site. However, remedial action will be required to remove residual soil impacts identified off-site. A RAP will be submitted discussing a plan for future remedial action and demonstration of attainment of a selected standard.



6.3 Groundwater

Constituents of concern in groundwater are defined as regulated substances whose concentrations exceed Act 2 MSCs at and beyond the point of compliance (POC). For groundwater, Act 2 defines the POC as the property boundary that existed at the time of the release. Based on the distribution of groundwater monitoring wells across the property and adjacent off-site properties, groundwater monitoring wells MW-1R, MW-3R, MW-4, MW-5, MW-7, MW-12, MW-15 and MW-16 are considered POC wells for the perched groundwater zone and monitoring wells MW-8 through MW-11, MW-13, and MW-17 through MW-24 are considered POC wells for the overburden aquifer. Based on the overall static groundwater flow direction to the northwest for both the perched groundwater zone and overburden aquifer and location of the unleaded gasoline release (UST field), on-site monitoring wells MW-1R, MW-4, MW-7, MW-12 and MW-16 and on- and off-site monitoring wells MW-8, MW-11, MW-13, MW-17 through MW-24 are considered most relevant to evaluate groundwater attainment for the on-site perched groundwater zone and on- and off-site overburden aquifer, respectively.

6.3.1 Perched Groundwater Zone

Groundwater analytical data from the six sampling events completed between June 2013 and February 2015 identified unleaded gasoline constituents in facility groundwater at concentrations above U/R MSCs. Groundwater isoconcentration maps were generated from data collected on February 3 and 4, 2015, to illustrate the current horizontal extent of unleaded gasoline constituents in facility groundwater. Analytical data from the February 3 and 4, 2015 groundwater sampling event indicate that dissolved phase benzene, 1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene are present within the perched groundwater zone at concentrations above U/R MSCs.

Dissolved phase benzene was identified in perched groundwater at concentrations above U/R MSCs ranging from 79.9 micrograms per liter ($\mu\text{g/L}$) (MW-7) to 706 $\mu\text{g/L}$ (MW-14). The approximate extent of benzene in perched groundwater is illustrated on **Figure 18** (Benzene Groundwater Isoconcentration Map, February 3-4, 2015). Benzene is observed in groundwater at concentrations above the U/R MSC of 5 $\mu\text{g/L}$ to the west and north (downgradient) of the unleaded gasoline UST field (release area).

Dissolved phase 1,2,4-trimethylbenzene was identified in perched groundwater at concentrations above U/R MSCs ranging from 53.2 $\mu\text{g/L}$ (MW-1R) to 119 $\mu\text{g/L}$ (MW-14). The approximate extent of 1,2,4-trimethylbenzene in perched groundwater is illustrated on **Figure 19** (1,2,4-TMB Groundwater Isoconcentration Map, February 3-4, 2015). 1,2,4-trimethylbenzene is observed in groundwater at concentrations exceeding U/R MSCs west and north (downgradient) of the release area.

Dissolved phase 1,3,5-trimethylbenzene was identified in perched groundwater at concentrations above U/R MSCs ranging from a concentration of 14.7 $\mu\text{g/L}$ (MW-1R) to 46.5 $\mu\text{g/L}$ (MW-14). The approximate extent of 1,3,5-trimethylbenzene in perched groundwater is illustrated on **Figure 20** (1,3,5-TMB Groundwater Isoconcentration Map, February 3-4, 2015). 1,3,5-trimethylbenzene is observed in groundwater at concentrations exceeding U/R MSCs west and north (downgradient) of the release area.

Dissolved phase groundwater impacts are delineated in the perched groundwater zone, with exception to the western-most extent of the facility. Based on limitations due to facility features (i.e., UST field,



station building and retaining wall), further delineation of perched groundwater impacts on-site near the western property boundary was not possible. However, based on the average depth to groundwater on-site of 7.53-feet bgs and the nature of off-site groundwater impacts, the retaining wall (see **Section 2.2**) likely serves as a barrier between the properties, and dissolved phase impacts in on-site perched groundwater appear to be confined horizontally to the UPA property.

Since UPA was denied access to the adjacent property to the south, soil borings SB-8 and SB-11 were converted to 1-inch diameter groundwater monitoring points to determine if on-site DPH impacts were migrating off-site beneath the retaining wall. Unleaded gasoline constituent concentrations were not detected above laboratory reporting limits further suggesting the retaining wall is serving as a barrier between perched groundwater impacts and the off-site properties.

6.3.2 Overburden Aquifer

Groundwater analytical data from five sampling events completed between November 2013 and February 2015 identified unleaded gasoline constituents in on- and off-site groundwater at concentrations above U/R MSCs. Analytical data from the February 3 and 4, 2015 groundwater sampling event indicate that dissolved phase MTBE is present within the overburden aquifer at concentrations above U/R MSCs. A groundwater isoconcentration map was generated from data collected during the event to illustrate the current horizontal extent of dissolved MTBE in facility groundwater.

Dissolved phase MTBE was identified in groundwater at concentrations above U/R MSCs ranging from a concentration of 20.5 µg/L (MW-21) to 1,410 µg/L (MW-13). The approximate extent of MTBE in groundwater is illustrated on **Figure 21** (MTBE Groundwater Isoconcentration Map, February 3-4, 2015). MTBE is observed in groundwater at concentrations above U/R MSCs west and north (downgradient) of the release area. Dissolved MTBE is not currently fully delineated to the north (beyond Mill Street) or south beyond the Carlough property.


GES has been granted access on multiple downgradient off-site properties where ten groundwater monitoring wells have been installed to delineate dissolved phase MTBE as illustrated on **Figure 3**. Based on a meeting with PADEP personnel, additional off-site groundwater monitoring wells are not warranted at this time for horizontal delineation to the north, beyond Mill Street, and to the south beyond the Carlough property. GES will continue to monitor the MTBE plume; however, remedial actions will be required for groundwater impacts remaining on- and off-site. A RAP will be submitted discussing a plan for future remedial action and demonstration of attainment of a selected standard.

6.4 **Soil Gas**

6.4.1 On-Site

Soil gas sampling was completed during two sampling events in November 2013 and January 2014. Results confirmed unleaded gasoline constituent concentrations in facility soil gas samples were above current U/R-NR MSC_{SG} screening criteria. Analytical data from the November 6, 2013 soil vapor intrusion sampling event indicate that vapor phase benzene, naphthalene, 1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene are present within soil at concentrations above current U/R-NR MSC_{SG} screening

because of
detection limits





criteria. Soil gas monitoring point VP-2 was unable to be sampled during the January 2014 sampling event due to a faulty valve on the laboratory-supplied SUMA canister.

Vapor phase benzene, naphthalene, 1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene were identified in soil gas at concentrations above U/R-NR MSC_{SG} screening criteria, primarily near the northern side of the UST field (source area). Based on additional soil gas sample data being either not detected or detected at concentrations below current U/R-NR MSC_{SG} screening criteria, vapor phase hydrocarbon (VPH) impacts have not migrated off-site or into the station building, confirming the soil vapor intrusion pathway is incomplete. Proposed remedial alternatives for soil and groundwater impacts which are likely acting as VPH sources will be discussed in the RAP.

6.4.2 Off-Site

Currently, no soil gas monitoring points are installed on the adjacent (Carlough) property to the west of the facility (downgradient of the release area). Because no known preferential pathways (i.e., utility trenching) were identified between groundwater monitoring well MW-10 where shallow APH impacts were identified, and the off-site receptor (Carlough residence) and greater than five feet of soil-like material exists between DPH impacts in the overburden aquifer (average depth of 18.29 feet bgs), the off-site vapor intrusion pathway is incomplete and not considered a concern at this time.

6.5 **Fate and Transport Assessment**

6.5.1 Perched Groundwater Zone

Based on the CSM (with the retaining wall [see **Section 2.2**] serving as a barrier confining DPH impacts on-site along the western property boundary) and modeling input/assumptions that will likely change as a result of remedial action activities, no additional quantitative fate and transport modeling is warranted at this time for the perched groundwater zone. However, further fate and transport evaluation for all constituents of concern will be completed, as necessary, during and/or upon completion of remedial action activities.

6.5.2 Overburden Aquifer

Fate and transport modeling was conducted using site-specific data and literature-based values to evaluate the potential future migration of current DPH impacts off-site. The migration assessment was based on the distribution of MTBE as detected during the February 3 and 4, 2015 sampling event.

MTBE migration is assessed quantitatively in the following sections as a representative potential “worst case” scenario assuming the site remains under static conditions. Additional activities are planned to fill data gaps (i.e., storm sewer) will submit a *Site Characterization Report Addendum* (SCRA) and RAP to evaluate further migration of DPH impacts.

Off-site Conceptualization

Based on data collected between November 2013 and February 2015, groundwater in the overburden aquifer occurs at an average depth of 17.10 feet bgs. Groundwater exhibits a general flow to the northwest towards York Street with an average gradient of 0.18 feet per foot (ft/ft), the average hydraulic



gradient estimated based on the four quarters of groundwater monitoring data. **Figure 8** illustrates the current groundwater flow direction observed in February 2015.

Modeling Approach

Potential groundwater impacts to downgradient properties (beyond York Street), the nearest inferred groundwater receptor (groundwater monitoring well MW-20), were modeled using the PADEP-approved New Quick Domenico (QD) groundwater modeling program. The QD model provides a steady-state analytical solution based on first order decay of constituent concentrations, retardation and three-dimensional dispersion. Site-specific parameters, (such as concentration, f_{OC} , bulk density, porosity, source width and source thickness) and various aquifer parameters (such as hydraulic conductivity and gradient) are input into the model along with the constituent-specific values for K_{OC} and decay rate (λ) obtained from PA Code § 250 (refer to **Table 5** [Physical and Chemical Properties of COCs]). A site-specific λ calculation was not attempted based on the age of the release.

Two modeling scenarios were completed for MTBE in the overburden aquifer. The first scenario estimates the MTBE concentration in 30 years at the nearest downgradient groundwater receptor (groundwater monitoring well MW-20) and the second scenario estimates the downgradient distance at which MTBE concentrations will reach the current U/R MSC.

Modeling Input Parameters

In the modeling effort, input parameter values were defined from off-site data whenever possible. When off-site specific data were not available, literature based values were utilized. The model assumed equilibrium between the groundwater and the aquifer matrix. A summary of input values including rationale for input values are summarized on **Table I-1** in **Appendix I** (Fate and Transport Modeling).

Dissolved Species: The modeling analysis simulated the transport of MTBE in the aquifer as the only unleaded gasoline constituent with reported concentrations above current U/R MSCs during the most recent February 2015 sampling event. The physical/chemical properties for MTBE applied in the model are presented in **Table 5**.

Constituent Concentrations: The source area (MW-9) MTBE concentration as detected during the February 2015 sampling event was 1,230 $\mu\text{g/L}$. This represents the maximum off-site MTBE concentration observed during the event.

Aquifer and Source Conditions: Groundwater flow representative of measured facility conditions was simulated in the modeling effort. A steady state, uniform flow field was generated based on facility hydrologic conditions. In the analysis, the MTBE plume width and thickness were assumed to be 203 feet and 15 feet, respectively, based on the current width of the dissolved MTBE plume and thickness of the water column measured during the February 2015 groundwater sampling event. For model calibration, the amount of time the source has been active was assumed to be 9,013 days based on the inferred date of the release (June 1990) and the February 2015 sampling event. Values of 0.18, 1.8 grams per cubic centimeter (g/cm^3) and 0.005 were utilized for porosity, soil bulk density and f_{oc} , respectively, based on the result of site-specific geotechnical sample analysis. The hydraulic gradient was calculated as



0.15 feet/foot during the February 2015 sampling event. A range of K values were evaluated in the model based on lithology (Freeze and Cherry, 1979).

Transport Conditions: Hydrodynamic dispersion is the term applied to the combined effects of mechanical dispersion and molecular diffusion in causing a plume to spread within a groundwater system. For this modeling effort, the original longitudinal, lateral and vertical dispersivities were established through calibration of the model to site-specific field data and were estimated along the centerline of the plume in the source area.

The QD models were calibrated for the source area using current MTBE data. Model calibration was completed where upgradient dissolved phase concentrations were greater than downgradient dissolved phase concentrations in the general direction of groundwater flow (northwest), when possible. Calibration input values for the MTBE models from off-site groundwater monitoring wells MW-9, MW-11 and MW-19 are as follows:

Constituent	Starting Concentration (µg/L)	Middle Concentration (µg/L)	Ending Concentration (µg/L)	Distance (feet)	Sample Date	Release Date	Time (days)
MTBE	1,230 (MW-9)	854 (MW-11)	377 (MW-19)	203	2/3-4/2015	6/1/1990	9,013

µg/L = micrograms per Liter

MTBE = methyl tert butyl ether

QD model calibrations are included in **Appendix I**.

Model Results

After calibration, the QD model was used to predict the MTBE concentrations at the closest downgradient receptor (assumed to be groundwater monitoring well MW-20, 191 feet northwest, based on groundwater flow direction) and the maximum distance the MTBE plume would travel in 30 years (10,950 days) using the current U/R MSC as the limit. Based on variability in the aquifer lithology (clay with lenses of silt and sand with varying amounts of clay and gravel), a range of hydraulic conductivity (K values) were input into the models for clay, silt, and sand, respectively (Freeze and Cherry, 1979). The following results were obtained:

Constituent	Initial Concentration (µg/L)	Hydraulic Conductivity (feet/day)	Distance to Receptor (feet)	Concentration at Receptor (µg/L)	Distance to Groundwater U/R MSC (feet)
MTBE	377 (MW-19)	28.08 (high K value)	191	121	1,320
MTBE	377 (MW-19)	0.2808 (mid K value)	191	121	795
MTBE	377 (MW-19)	0.002808 (low K value)	191	124	488

U/R MSC = used aquifer, residential medium-specific concentrations

µg/L = micrograms per Liter

MTBE = methyl tertiary butyl ether



Utilizing maximum dissolved phase MTBE concentrations, the fate and transport model indicates there is a potential for MTBE to migrate to the off-site receptor (monitoring well MW-20) at concentrations above current U/R MSCs. Fate and transport modeling results indicate that it is possible that residual dissolved phase MTBE will migrate to the downgradient off-site receptor (monitoring well MW-20) in 30 years. QD models for MTBE are provided in **Appendix I**.

Based on the current CSM and QD model predictions for dissolved phase MTBE potentially migrating beyond the off-site receptor (monitoring well MW-20) (i.e., into Tunungwant Creek) within 30 years, an evaluation of surface water (SW) load is required. However, a quantitative evaluation of SW Load has not been completed at this time because dissolved phase MTBE has been below laboratory detection limits in groundwater monitoring well MW-20 following two groundwater sampling events, there is no surface water standard for MTBE as described in Title 25 PA Code § 93.8(c) and active remediation will be implemented on- and off-site to mitigate further migration of DPH impacts. Following remedial activities, GES will update the CSM including fate and transport modeling in a *Remedial Action Completion Report* (RACR), as necessary.



7.0 POTENTIAL EXPOSURE PATHWAYS AND SENSITIVE RECEPTORS

An initial qualitative analysis of potential current and future exposure pathways and sensitive receptors was completed consistent with the procedures contained in the *Standard Guide for Risk-Based Corrective Action Applied at Petroleum Release Sites* (ASTM E1739-95). The following potential exposure pathways were evaluated:

- Ingestion of surface soils, inhalation of outdoor vapors and particulates from surface soils, and dermal absorption from surface soils in contact with skin;
- Ingestion and dermal absorption of subsurface soils;
- Inhalation of vapors generated from existing subsurface soil impacts;
- Inhalation of vapors generated from existing groundwater impacts; and
- Migration of groundwater impacts to surface water.

The study evaluated potential residential and non-residential construction/utility worker sensitive receptor exposure.

7.1 Soil Exposure Pathways

The ingestion of surface soils, inhalation of outdoor vapors and particulates from surface soils, and dermal absorption from surface soils in contact with skin were evaluated. Field readings collected during soil sample collection as well as soil analytical data indicate APH impacts are not present within surface soils (0-2 feet bgs) at the facility. Therefore, ingestion, dermal absorption and inhalation of petroleum hydrocarbon impacts from surface soils are not considered potential exposure pathways.

On-Site

Ingestion, inhalation of particulates and dermal contact with petroleum hydrocarbons in subsurface soils were evaluated for potential on-site non-residential receptors. Site characterization data identified benzene, toluene, ethylbenzene, naphthalene, 1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene in unsaturated/periodically saturated and saturated soil between 5 and 11 feet bgs at concentrations above current U/NR MSCs. However, no non-residential direct contact MSCs were exceeded for subsurface (2-15 feet bgs) soil; therefore, no complete direct contact pathways exist for potential on-site non-residential receptors. Potential exposure to indoor and outdoor vapors associated with on-site subsurface petroleum impacts in soil is discussed further in **Section 7.3**.

Off-Site

Ingestion, inhalation of particulates and dermal contact with unleaded gasoline constituents in subsurface soils were evaluated for potential off-site residential and non-residential receptors. Site characterization data identified 1,3,5-trimethylbenzene in subsurface soils between 2 and 3 feet bgs at concentrations above current U/R MSCs, however no residential or non-residential direct contact MSCs were exceeded. Based on the nature (i.e., depth, location and concentration) of off-site subsurface soil impacts, ingestion and/or dermal absorption are not considered potential exposure pathways of concern. Potential exposure



to indoor and outdoor vapors associated with off-site subsurface petroleum impacts in soil is discussed further in **Section 7.3**.

Although no complete direct contact exposure pathways are identified for on- or off-site soil impacts, remediation will be required for attainment of applicable U/R MSCs.

7.2 Groundwater Exposure Pathways

Dissolved phase benzene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene impacts were identified in the perched groundwater zone at concentrations above U/R MSCs. Dissolved phase MTBE was identified in the overburden aquifer at concentrations above U/R MSCs. Groundwater in the perched zone ranges in depth from 4.15 feet bgs (MW-5, June 2015) to 8.95 feet bgs (MW-7, February 2015) and groundwater in the overburden aquifer ranges from 8.87 feet bgs (MW-17, June 2014) to 33.00 feet bgs (MW-13, January 2014). Based on the depth of the perched groundwater zone, direct contact with groundwater during intrusive activities is a potential complete exposure pathway. Further evaluation of this potential exposure pathway will be completed following proposed remedial activities.

A PaGWIS database search identified three private potable wells and four industrial wells within 2,500 feet of the facility (**Section 2.3.1**). An expanded PaGWIS search revealed thirteen wells within a one-mile radius of the facility, including potable wells, domestic wells and public supply wells. The potable and industrial withdrawal wells identified in the area are upgradient or sidegradient of the facility (relative to the inferred direction of groundwater flow). Potable water is supplied to properties to the northwest (downgradient) of the facility by the BCWA. City of Bradford personnel confirmed an ordinance does exist which requires the owner of any improved property to connect to the municipal water supply for both potable and non-potable use. However, the ordinance does not specifically prohibit the installation of a groundwater well (**Appendix B**).

Although the on-site groundwater ingestion pathway is not likely to be complete based on site use and local ordinance, no site-specific institutional controls (e.g., environmental covenant with groundwater use limitations) currently exist. In addition, based on the current extent and possible further migration of the off-site dissolved phase MTBE plume, there is a potential for off-site exposure pathways. Groundwater remediation will be required for attainment of current U/R MSCs.

7.3 Vapor Exposure Pathways

7.3.1 Soil Vapor Inhalation

On-Site

Based on the current CSM and initial soil gas sampling results for location VP-2, potentially complete on-site inhalation exposure pathways may exist for future construction/utility workers. Future indoor air exposure pathways may require further consideration, although initial soil gas sampling results indicate this pathway is incomplete. Remedial alternatives to address on-site APH impacts in soil will be discussed in the RAP. A post-remediation vapor intrusion assessment will also be completed.

*Off-site*

The inhalation of vapors potentially generated from existing APH impacts (monitoring well MW-10, 2 to 3 feet bgs) at the adjacent off-site property to the west was evaluated. According to PADEP guidance (PADEP, 2004), benzene, toluene, ethylbenzene, and xylenes are considered COPIACs under a residential setting. Ethylbenzene and xylenes are considered COPIACs under a non-residential setting. Maximum detected soil concentrations identified at groundwater monitoring well MW-10 (during site characterization activities) are compared to the Johnson & Ettinger (J&E) default screening values in the following table.

Constituent	Maximum Soil Concentration in MW-10 (µg/kg)	Residential J&E Default Indoor Air Screening Value (µg/kg)	Non-Residential J&E Default Indoor Air Screening Value (µg/kg)	PADEP Act 2 U/R MSC (unsaturated) (µg/kg)
Benzene	Not Detected	370	630	500
Toluene	Not Detected	76,000	110,000	100,000
<i>Ethylbenzene</i>	Not Detected	5,700	9,500	70,000
<i>Total Xylenes</i>	Not Detected	55,000	77,000	1,000,000
MTBE	Not Detected	51,000	86,000	2,000
Naphthalene	150 (MW-10)	64,000	Not of Concern	25,000
Isopropyl benzene	179 (MW-10)	360,000+	360,000+	600,000
1,2,4-Trimethylbenzene	4,930 (MW-10)	20,000	310,000+	84,00
1,3,5-Trimethylbenzene	3,870 (MW-10)	4,600	1,500,000+	2,300

Bold constituents indicate residential COPIACs

Bold & Italicized constituents indicate residential and non-residential COPIACs

U/R MSC = used aquifer, residential medium-specific concentration

µg/kg = micrograms per kilogram

J&E = Johnson and Ettinger

PADEP = Pennsylvania Department of Environmental Protection

MTBE = methyl tert-butyl ether

No APH concentrations in soil exceed respective J&E default screening values for residential and non-residential settings.

Based on the current CSM and soil gas sampling data, migration of soil gas from on-site APH impacts to potential off-site receptors is not a concern. Residual off-site APH impacts are not a current concern with respect to vapor exposure based the assessment provided above. Remediation of these localized APH impacts will be required for attainment of applicable U/R MSCs.

7.3.2 Groundwater Vapor Inhalation

On-site

Site characterization activities identified unleaded gasoline constituents in facility groundwater in the vicinity of the UST field and station building near potential preferential pathways (i.e., utility trenching). Data collected from the November 2013 soil gas sampling event indicate constituent concentrations at soil



gas monitoring point VP-2 are currently above current MSC_{SG} screening criteria within the source area. Data collected from soil gas monitoring point VP-1 located between the source area and the station building were below current MSC_{SG} screening criteria. Maximum reported concentrations in groundwater do not exceed residential default screening criteria. Therefore, this is not considered a complete exposure pathway. DPH impacts in on-site groundwater will continue to decrease due to required remediation for attainment of applicable U/R MSCs.

Off-site

Site characterization activities identified unleaded gasoline constituents in the overburden aquifer off-site and downgradient of the facility at concentrations above U/R MSCs. Therefore, the inhalation of indoor vapors from impacts in off-site groundwater was evaluated for downgradient properties. Maximum off-site groundwater concentrations reported since November 2013 were compared to conservative residential and non-residential default screening values calculated using Pennsylvania-specific parameters and the J&E vapor intrusion model in the following table:

Constituent	Maximum Off-site Groundwater Concentration (µg/L)	Residential J&E Default Indoor Air Screening Value (µg/L)	Non-Residential J&E Default Indoor Air Screening Value (µg/L)	PADEP Act 2 MSC (µg/L)
Benzene	8.6 (MW-11)	3,500	5,900	5
Toluene	Not Detected	490,000	Not of Concern	1,000
<i>Ethylbenzene</i>	5.3 (MW-11)	27,000	45,000	700
Xylenes	Not Detected	130,000	Not of Concern	10,000
MTBE	3,330 (MW-9)	380,000	640,000	20
Naphthalene	Not Detected	25,000	Not of Concern	100
Isopropyl Benzene	Not Detected	Not of Concern	Not of Concern	840
1,2,4-Trimethylbenzene	Not Detected	8,600	12,000	15
1,3,5-Trimethylbenzene	5.0 (MW-11)	7,200	10,000	13

Bold constituents indicate residential COPIACs

Bold & Italicized constituents indicate residential and non-residential COPIACs

µg/L = micrograms per liter

J&E = Johnson and Ettinger

PADEP = Pennsylvania Department of Environmental Protection

MSC = medium-specific concentration

MTBE = methyl tert-butyl ether

No maximum dissolved phase concentrations in off-site groundwater exceed respective J&E default screening values for residential and non-residential settings.

Site characterization activities identified unleaded gasoline constituents in off-site groundwater in groundwater monitoring wells MW-8 through MW-11 and MW-21 on the adjacent downgradient (Carlough) property to the west of the facility. Only one known potential preferential pathway (underground storm sewer) exists on the Carlough property in the vicinity of groundwater monitoring well MW-21. Based on the current CSM, because more than five feet of soil-like material exists between



ground surface the static water table off-site in the overburden aquifer (18.29 feet), and no maximum DPH concentrations exceed respective J&E screening values for residential and non-residential settings, migration of soil gas from dissolved phase impacts is not a concern. However, based on dissolved phase MTBE concentrations above current U/R MSCs at groundwater monitoring wells MW-8 through MW-11, MW-19 and MW-21, remediation of off-site groundwater is necessary. A post-remediation vapor intrusion assessment will be completed to confirm potential groundwater vapor inhalation pathways have been mitigated.

7.4 Surface Water Exposure Pathways

Unleaded gasoline constituents were detected in facility groundwater at the POC at concentrations above current U/R MSCs. The nearest downgradient surface body of water is Tunungwant Creek, located approximately 475 feet northwest of the facility at an elevation of 1,421 feet above MSL, approximately 45 feet below the facility elevation. Based on the distance to Tunungwant Creek in the downgradient direction of groundwater flow and the results of QD modeling presented in **Section 6.5.2**, migration and discharge of impacted groundwater to surface water is currently considered a potential future exposure pathway of concern. Further evaluation of this potential pathway of concern will be completed, as needed, following remedial actions. In addition, the outfall location of the on-site underground storm sewer connected to the off-site underground storm sewer parallel with Mill Street will be investigated to assess the potential for a preferential pathway for migration of site groundwater to Tunungwant Creek. Results of this investigation will be included in a SCRA/RAP submitted to PADEP.



8.0 SELECTION OF CLEANUP STANDARDS AND RATIONALE

Cleanup standards are established by PADEP in the Land Recycling Act (Act 2), which is codified in 25 PA Code Chapter §250. The Act 2 regulations establish the following three potential standards for remediating a site from which an owner/operator can select one or a combination of standards to successfully remediate a site and obtain liability relief.

The three cleanup standards are identified as the:

- Background Standard;
- Statewide Health Standard (SHS); and,
- Site-Specific Standard (SSS).

Each standard is associated with a unique set of compliance criteria that establish acceptable procedures for determining the concentrations of regulated substances allowed in various media, identify points of compliance, define attainment criteria, and specify reporting and public involvement requirements. There is no current evidence that the site is being impacted by an off-site source, therefore the Background Standard will be eliminated from further consideration at this time. The remaining standards to be considered are the SHS and the SSS.

8.1 Statewide Health Standard

8.1.1 Soil MSCs

The SHS for soils are intended to protect: (1) direct contact with the regulated substances in soils; and, (2) groundwater in the underlying aquifer. In order to accomplish this goal, Act 2 establishes two sets of MSCs for soils. The first group of MSCs for soils is the direct contact (DC) numeric values. In this set of values, PADEP formalized MSCs for two potential risk-based scenarios: residential (R) and non-residential (NR) direct contact. For the residential scenario, only one direct contact MSC is specified, which is applicable to the soil column from the surface to a depth of 15 feet bgs. For the non-residential scenario, two MSCs are established: a direct contact MSC for surface soils (0 to 2 feet bgs); and a direct contact MSC for subsurface soils (2 to 15 feet bgs). The site is currently non-residential and will remain that way for the foreseeable future; therefore, the NR-DC soil MSCs are applicable to the site. However, to remain conservative and protective of potential residential receptors, the R-DC soil MSCs can also be utilized. Off-site is currently residential and will remain that way for the foreseeable future; therefore, the R-DC soil MSCs are applicable for the off-site adjacent downgradient property to the west of the facility.

To protect groundwater in the underlying aquifer, Act 2 specifies a soil-to-groundwater (S/GW) pathway numeric value. This value is the concentration of a regulated substance that may remain in soil without adversely affecting groundwater quality. Soil-to-groundwater pathway numeric values are based upon a determination of an aquifer's current and projected use. Aquifers that are currently used (U) are further subdivided based upon the current and future land use and the concentration of total dissolved solids (TDS) in the groundwater. Non-use (NU) aquifers are also subdivided by current and future land use.

There are five options for selecting the appropriate S/GW pathway numeric value:



- One hundred times the appropriate groundwater MSC expressed as milligram per kilogram (mg/kg) of soil (published value);
- A generic published value determined not to produce a concentration in groundwater in excess of the appropriate MSC as calculated using equilibrium partitioning methods (the generic value is replaced by 1/10th of the published value for soils collected in the saturated zone);
- Using the Synthetic Precipitation Leaching Procedure (SPLP) to calculate a concentration in soil that does not produce a concentration in groundwater at the site in excess of the MSC for groundwater;
- Document the presence of a S/GW buffer zone as specified in 25 PA Code § 250.308(c); or,
- Meet the requirements for a S/GW equivalency demonstration as specified in 25 PA Code § 250.308(d).

The S/GW buffer option cannot be selected here since there is no buffer distances specified for several compounds including benzene. The S/GW equivalency demonstration is also not applicable to this site since it requires that site groundwater be below respective MSCs or the background standard prior to remediation. Also, soil samples were not analyzed by SPLP, eliminating the third option from current consideration. The S/GW pathway numeric value, therefore, was selected as the higher of 100 times the groundwater MSC or the generic value (which was reduced to 1/10th of its published value where samples were collected in the saturated zone).

In order to evaluate site soil relative to the SHS MSCs contained in Act 2, 25 PA Code § 250.305 states that the MSCs for regulated substances contained in surface or subsurface soils at a depth of 0 to 15 feet bgs is the lowest of the following:

- The direct contact MSC; or
- The S/GW pathway numeric value

Alternatively, the direct contact MSC may be selected as the appropriate MSC provided either the S/GW buffer zone or the S/GW equivalency demonstration could be made. Since neither of these was applicable, the appropriate soil MSC is the lowest of the direct contact value or the S/GW pathway numeric value.

Adsorbed phase benzene, toluene, ethylbenzene, naphthalene, 1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene have been identified in on-site facility soil at concentrations above U/NR MSCs. Therefore, soil is a medium of concern at the facility. Using the SHS, soil attainment will be pursued relative to the MSCs summarized below for site COCs.



Constituent of Concern	Soil U/NR MSC (µg/kg) (unsaturated)	Soil U/NR MSC (µg/kg) (saturated)	Soil U/NR MSC (µg/kg) (unsaturated)
	0-2 feet bgs	2-15 feet bgs	
Benzene	500	500	500
Toluene	100,000	100,000	100,000
Ethylbenzene	70,000	70,000	70,000
Total Xylenes	1,000,000	1,000,000	1,000,000
MTBE	2,000	2,000	2,000
Isopropyl benzene	2,500,000	350,000	2,500,000
Naphthalene	25,000	10,000	25,000
1,2,4-Trimethylbenzene	35,000	6,200	35,000
1,3,5-Trimethylbenzene	9,3000	5,300	9,300

U/NR MSC = used aquifer, non-residential medium-specific concentrations

µg/kg = micrograms per kilogram

MTBE = methyl tert butyl ether

Adsorbed phase 1,3,5-trimethylbenzene has been identified in off-site soil at concentrations above U/R MSCs. Therefore, soil is a medium of concern off-site. Using the SHS, soil attainment will be pursued relative to the MSCs summarized below for site COCs.

Constituent of Concern	Soil U/R MSC (µg/kg) (saturated)	Soil U/R MSC (µg/kg) (unsaturated)
Benzene	500	500
Toluene	100,000	100,000
Ethylbenzene	70,000	70,000
Total Xylenes	1,000,000	1,000,000
MTBE	2,000	2,000
Isopropyl benzene	84,000	600,000
Naphthalene	10,000	25,000
1,2,4-Trimethylbenzene	1,500	8,400
1,3,5-Trimethylbenzene	1,300	2,300

U/NR MSC = used aquifer, residential medium-specific concentrations

µg/kg = micrograms per kilogram

MTBE = Methyl tertiary butyl ether

8.1.2 Groundwater MSCs

The SHS MSCs have been established for groundwater under Act 2 for U or NU aquifers. In this set of values, PADEP formalized MSCs for both R and NR scenarios. The used aquifer MSCs are further divided into two categories based upon TDS within the aquifer. A NU aquifer determination may be applied if NU aquifer determination requirements are met and approved by PADEP.



Dissolved phase benzene, MTBE, 1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene have been identified in on- and off-site groundwater at concentrations above U/R MSCs. Therefore, groundwater is a medium of concern at the facility. At this time there is an ordinance which requires property owners to connect to the municipal water supply. Based upon site conditions, the used aquifer (<2,500 TDS), residential MSC was selected as the appropriate SHS criterion for the facility. Using the SHS, groundwater attainment will be pursued relative to the MSCs summarized below for site COCs.

Constituent of Concern (COC)	Groundwater U/R MSC (µg/L)
Benzene	5
Toluene	1,000
Ethylbenzene	700
Total Xylenes	10,000
MTBE	20
Isopropyl Benzene	840
Naphthalene	100
1,2,4-Trimethylbenzene	15
1,3,5-Trimethylbenzene	13

U/NR MSC = used aquifer, non-residential medium specific concentrations

µg/kg = micrograms per kilogram

MTBE = Methyl tertiary butyl ether

8.2 Site-Specific Standard

Remediating the site to the SSS will require a detailed evaluation of potential source, receptor and exposure pathway scenarios. If complete exposure pathways exist after considering engineering and institutional controls, then a risk assessment and an ecological assessment would need to be conducted to quantify environmental impacts to sensitive receptors and to develop site-specific cleanup levels that are protective of human health and the environment. Based on site characterization data collected to date, a site-specific standard does not appear appropriate at this site at this time. An evaluation of the site-specific standard will be completed in the future, if necessary.

8.3 Standard Selection

Based on the preceding discussion and the current knowledge of the site, the following options are available in selecting appropriate cleanup standards for the site:

- *Statewide Health Standards, Used Aquifer:* Attaining SHS MSCs will require:
 - Remediating on-site soil to meet applicable saturated/unsaturated U/NR MSCs for benzene, toluene, ethylbenzene, naphthalene, 1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene.
 - Remediating off-site soil to meet applicable unsaturated U/R MSCs for 1,3,5-trimethylbenzene.
 - Remediating on- and off-site groundwater to meet applicable U/R MSCs for benzene, MTBE, 1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene



- *Site-Specific Standard:* Remediating to the SSS will require additional evaluation of potential receptors and exposure pathways. If a complete exposure pathway exists even after engineering and institutional controls are considered, then a formal risk assessment would need to be completed and site-specific cleanup levels determined.

Due to the proximity of potential sensitive receptors (e.g., station building, utility trenches, residential properties, etc.) the selected approach to obtaining Act 2 liability relief for on- and off-site groundwater is the statewide health standard for a used aquifer, residential scenario. The selected approach to obtaining Act 2 liability relief for on- and off-site soil are the statewide health standards for a used aquifer, non-residential and residential scenario, respectively.



9.0 REMEDIAL OPTIONS EVALUATION

Remedial technologies considered as potentially viable in addressing current petroleum hydrocarbon impacts in on- and off-site soil and groundwater are discussed in the following sections:

9.1 Soil

Following replacement of the fitting connecting a metallic hose to the steel product piping associated with the regular-grade unleaded gasoline UST system which failed in February 2013, any continuing source of unleaded gasoline impacts to site soil should have been removed. Site characterization activities identified APH impacts in on-site facility soils including benzene, toluene, ethylbenzene, naphthalene, 1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene at concentrations exceeding U/NR MSCs at soil sample locations MW-4, MW-6, MW-12 and SB-10 at depths ranging from 5 to 11 feet bgs. Additionally, site characterization activities identified adsorbed phase 1,3,5-trimethylbenzene in off-site soil at monitoring well MW-10 at a depth ranging from 2 to 3 feet bgs. The following alternatives were considered for remediation of soil impacts identified during these site characterization activities:

- **No Action:** Fifty-four soil samples were analyzed for unleaded gasoline constituents during various characterization activities conducted on- and off-site from June 2013 to February 2014. Exceedances of current soil MSCs were identified on-site at MW-4, MW-6, MW-12 and SB-10 at depths ranging from 5 to 11 feet bgs. Exceedances of current soil MSCs were identified off-site at MW-10 at depths ranging from 2 to 3 feet bgs. Based on the average depth to water off-site of 18.29 feet, there is no potential for APH impacts to act as a source for DPH in groundwater. However, because soil concentrations are above current U/NR MSCs, active remediation appears necessary for off-site soil. In the perched groundwater zone the average depth to water is 6.19 feet bgs and APH could act as a source of DPH; therefore, active remediation appears necessary for on-site soil.
- **Soil Excavation (Ex Situ Treatment):** This option requires the excavation and removal of impacted soil for off-site treatment/disposal. Excavation can be effective to complete APH source removal in a relatively short time frame. The shallow off-site impacts (2 to 3 feet bgs) could be easily excavated based on their location; however, the on-site impacts (5 to 11 feet bgs) would be more difficult to excavate due to the proximity to the UST field, product piping, and utility locations. Shallow excavation is considered a viable remedial option for off-site soil impacts, but in-situ remediation options will be considered for on-site soil impacts.
- **Soil Vapor Extraction (SVE):** SVE is an in-situ remedial technology that is effective in removing volatile constituents from the vadose or unsaturated zone. SVE utilizes a blower (regenerative, positive displacement, or liquid ring pump) to extract soil vapors from the pore space of the soil matrix. The effectiveness of an SVE system is determined by two major factors: permeability of the soil and volatility of the constituent to be extracted. Permeability of the soil determines the rate at which soil vapors can be removed. Soils that tend to be fine-grained (i.e., clays and silts) are less likely to allow sufficient vapor flow than coarse-grained soils (i.e., sands and gravels). The composition of the impacted soil is unconsolidated fill material underlain by clay.



The volatility of the constituent to be removed determines the rate or degree at which the constituent will vaporize from the adsorbed phase to the vapor phase. Vapor pressure is a key factor to determining the volatility of a constituent. In general, vapor pressures greater than 0.5 millimeters of mercury (mm Hg) are generally considered amenable for soil vapor extraction. The vapor pressure for gasoline range organic compounds varies from 75 mm Hg for benzene to 7.1 mm Hg for ethylbenzene. Because the impacts are gasoline-range organic compounds, SVE could be effective at achieving VPH and APH mass reduction in on-site unsaturated soil; however, SVE alone would not address saturated APH impacts or DPH impacts. SVE in combination with groundwater extraction may be a viable option.

- **Natural Attenuation:** Natural attenuation relies upon natural subsurface processes to reduce constituent concentrations to below current Act 2 MSCs. This option typically requires long-term sampling and data evaluation to establish constituent reduction and degradation by-product trends. Natural attenuation is eliminated from current consideration due to the elevated APH impacts and potential on-site and downgradient receptors.

9.2 Groundwater

9.2.1 Perched Groundwater Zone

Current DPH impacts in the perched groundwater zone include benzene, 1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene at concentrations above current U/R MSCs at groundwater monitoring wells MW-1R, MW-4, MW-6, MW-7 and MW-14. The DPH plume appears to be limited to the area downgradient and sidegradient of the UST field. The following alternatives were considered for remediation of these impacts in perched groundwater:

- **Groundwater Extraction:** Groundwater extraction is a practical remedial technology to gain hydraulic control and to retard downgradient migration of DPH. However, groundwater pump-and-treat remediation technology may lead to many years of system operation and maintenance before MSCs are achieved. Groundwater extraction may be enhanced through the application of a vacuum to the wellheads.
- **Dual Phase Extraction:** Dual phase extraction or vacuum enhanced groundwater extraction (VEGE) combines both SVE and pump-and-treat remedial technologies. The application of a vacuum to an extraction well creates pressure gradients that enhance total fluid flow towards the extraction well. Conventional dual-phase/VEGE extraction systems use a submersible pump to extract liquids from the well and a surface blower to extract vapors. A dual-phase/VEGE remedial system removes vapor and groundwater independently using one of several methodologies.

The first option involves the use of low vacuums (<50 inches of water column [in. w.c]) and submersible pumps (pneumatic or electric). Low vacuum dual-phase/VEGE systems are most effective in high yielding, high transmissivity formations. The second dual-phase/VEGE option involves the use of mid-range vacuums (50–100 in. w.c.) and submersible pumps. Mid-range vacuum dual-phase/VEGE systems are most effective in medium yielding, medium transmissivity formations. The third type of dual-



phase/VEGE system involves the use of a high vacuum (>100 in. w.c.) positive displacement (PD) blower and submersible pumps. PD blowers are capable of vacuum levels approaching 18 in. Hg. High vacuum dual-phase/VEGE systems are most effective in low yielding, low transmissivity formations, such as that beneath this site.

Based on data from the April 2014 feasibility testing, dual phase extraction may be a viable option to remediate DPH impacts in the perched groundwater zone. Further evaluation of this technology will be presented in the RAP.

- **Total Phase Extraction (TPE):** TPE typically utilizes a single blower to extract groundwater and soil vapor simultaneously through the same extraction pipe. Liquid ring pumps (LRPs) and PD blowers are capable of high vacuum levels (approaching 30 in. Hg for LRPs, and 18 in. Hg for PD blowers) and are most effective in low yield (<1.0 gallons per minute [gpm]/well) formations. A TPE system utilizes a drop tube inside the well to extract total fluids. A pitless adapter attached to the extraction well connects the drop tube to a piping network. During conveyance of the extracted fluids through the piping network, turbulence causes dissolved phase VOCs to partition to the vapor-phase. The total fluids enter the equipment compound and are separated inside a vapor/liquid separator.

A typical TPE system is designed to handle groundwater recovery rates less than one gpm per extraction well and vapor flow rates less than 20 standard cubic feet per minute (scfm) per extraction well. Dual phase/VEGE systems which utilize submersible pumps and surface blowers are more appropriately designed to handle groundwater recovery rates greater than one gpm per well.

Based on data from the April 2014 feasibility testing, TPE may be a viable option to remediate DPH impacts in the perched groundwater zone. Further evaluation of this technology will be presented in the RAP.

- **Air Sparge/Soil Vapor Extraction (AS/SVE):** Air sparging involves the delivery of air into the saturated zone to volatilize DPH and APH constituents. Typically, the volatilized constituents are removed from the vadose zone by an SVE system. The effectiveness of air sparging primarily depends on two key factors, vapor/dissolved phase partitioning and permeability of the soil.

AS/SVE may be a viable option to remediate DPH impacts in the perched groundwater zone; however, further feasibility testing will be required to determine the applicability to this site.

- **Oxidation:** Oxidants, such as ozone, peroxides and oxygen may be added to the groundwater to promote both biological activity and chemical oxidation. The oxidation process breaks the chemical bonds of organic compounds and renders innocuous by-products, depending on the strength of the oxidant. Introduction of oxidants into the perched groundwater zone would be difficult due to proximity of impacts to the existing UST field. Oxidation is not considered a viable remedial option for the site at this time.



- ***In-Situ Bioremediation:*** Bioremediation involves the introduction of nutrients, such as nitrogen and phosphorus, and oxygen to the groundwater to enhance microbial growth. In-site bioremediation may be a viable option to remediate DPH impacts in the perched groundwater zone; however, feasibility testing will be required to determine the applicability to this site.

- ***Monitored Natural Attenuation (MNA):*** Natural attenuation relies upon natural subsurface microbiological and chemical processes to reduce constituent concentrations to below MSCs. This option typically requires long-term sampling and data evaluation to establish constituent reduction and degradation by-product trends. Benzene is currently one of the primary COCs in site groundwater and is widely considered to be susceptible to natural bio-chemical degradation in subsurface environments. Based on the susceptibility of benzene to natural attenuation processes MNA appears to be a potentially viable remedial alternative for site groundwater following reduction of DPH concentrations on-site by a more aggressive/active remedial approach.

9.2.2 Overburden Aquifer

Current DPH impacts in the overburden aquifer include MTBE at concentrations above U/R MSCs at groundwater monitoring wells MW-8 through MW-11, MW-13, MW-19, MW-21 and MW-23. The DPH plume appears extend from the UST field sidegradient towards Mill Street and downgradient to beyond off-site groundwater monitoring well MW-19. The following alternatives (as described above) were considered for remediation of these impacts in the overburden aquifer:

- Groundwater extraction;
- Dual phase extraction;
- Total phase extraction;
- Air sparge/soil vapor extraction;
- Oxidation;
- In-situ bioremediation; and
- Monitored natural attenuation.

Of these potential alternatives for remediation of the overburden aquifer DPH impacts, AS/SVE, oxidation and in-situ bioremediation may be viable options, but would require additional feasibility testing to determine their potential applicability to the site.

MTBE can be degraded in-situ under aerobic conditions. With respect to the applicability of in-situ bioremediation, passive oxygen injection was considered for the dissolved phase MTBE impacts in the overburden aquifer. Passive oxygen injection involves the injection of oxygen gas at low pressure and flow rates into the subsurface. The increased oxygen levels promote aerobic biodegradation activity in the saturated zone, which may be effective in accelerating the reduction of MTBE in the overburden aquifer. Additional feasibility testing is required to determine the potential effectiveness of passive oxygen injection; however, it does currently appear to be a viable option.



10.0 PLANNED ACTIVITIES

In order to obtain information to fill data gaps, the following activities will be completed:

- Perform additional field reconnaissance to determine eventual outfall of surface water runoff on-site via the underground storm sewer (located in the northern portion of the facility) running downgradient beneath the adjacent (Carlough) property connecting to the underground storm sewer line parallel with Mill Street.
- Complete professional survey both on- and off-site for the following: all top of casing and surface elevations for all groundwater monitoring wells and soil gas monitoring points; site features (i.e., station building, UST field, property boundary, retaining wall [base and top-where applicable], canopy, dispenser islands, etc.); collect random spot elevations to provide topography from on-site to Tunungwant Creek; surface elevation and depth to on- and off-site manholes connected to underground storm sewer line including depth to underground storm sewer line; Tunungwant Creek elevation (surface water and top of retaining wall).
- On- and off-site remedial feasibility testing in the overburden aquifer. (Note feasibility testing of the perched groundwater zone was completed in April 2014).
- Preparation and submittal of an SCR Addendum and/or RAP including results of additional characterization activities, feasibility study results and selection/description of the appropriate remedial technology for on- and off-site soil and groundwater.

10.1 Schedule

Results of the planned activities will be summarized in an SCRA/RAP. Determination of storm sewer outfall and completion of the professional survey is anticipated to be completed in April 2014. Overburden aquifer remedial feasibility testing will be completed following off-site access negotiations and installation of feasibility test injection wells. The RAP is currently due in May 2015, however to allow for completion of proposed on- and off-site activities, an extension request for submittal of the RAP may be required.



11.0 SUMMARY

United Refining Company currently operates a retail unleaded gasoline station at 227 East Main Street in Bradford, Pennsylvania. A NORR was submitted for the facility in February 2013 and petroleum impacts were identified in soil and groundwater during site characterization activities in June 2013. Additional site characterization activities were performed from October 2013 through February 2015 in order to further evaluate the nature and extent of the release. The following summarizes key findings discussed in this SCR.

- A NORR was never reported by UPA personnel to the PADEP from a line leak discovered at the facility in June 1990. However, site characterization and remediation activities were initiated and confirmed DPH impacts in site groundwater.
- Based on the suspected release of unleaded gasoline constituents following detections of unusual vapors in the regular unleaded gasoline submersible pit in February 2013, a NORR was submitted to the PADEP.
- Subsurface soil on-site is composed of unconsolidated fill material with varying amounts of gravel, sand silt and clay underlain by clay with lenses of silt and sand with varying amounts of clay and gravel. Subsurface soil off-site on the adjacent (Carlough) property to the west of the facility downgradient toward Tunungwant Creek is comprised of fill material underlain by clay with lenses of silt and sand with varying amounts of clay and gravel.
- Soil samples collected from groundwater monitoring wells MW-4, MW-6, MW-12 and soil boring SB-10 identified unleaded gasoline constituents in facility saturated and unsaturated soil at concentrations above current U/NR MSCs from approximately 5 to 11 feet bgs.
- Soil samples collected from off-site groundwater monitoring well MW-10 identified unleaded gasoline constituents at concentrations above current U/R MSCs in unsaturated soil from approximately 2 to 3 feet bgs.
- Observations during site characterization activities identified two separate water-bearing zones. A perched groundwater zone (on-site) and an overburden aquifer (on- and off-site).
- Groundwater gauging during site characterization activities identified a consistent flow direction to the northwest for both the perched groundwater zone and the overburden aquifer. During the most recent gauging event conducted in February 2015, groundwater depths in the perched groundwater zone ranged from 6.21 feet bgs (MW-3R) to 8.95 feet bgs (MW-7) with an average depth of 7.53 feet bgs, and in the overburden aquifer ranged from 10.12 feet bgs (MW-17) to 30.95 feet bgs (MW-23) with an average of 17.32 feet bgs.
- Based on minimum and maximum depths to groundwater from on-site gauging data, unsaturated/periodically saturated soil is considered to range from 0 to 7 feet bgs and saturated soil is from 7 to 12 feet bgs the inferred depth of the perched zone based on evaluation of on-site lithology.
- Groundwater samples collected from groundwater monitoring wells MW-1R, MW-4, MW-6, MW-7 and MW-14 monitoring the perched groundwater zone confirmed the presence of unleaded gasoline constituents in facility groundwater from the UST field to the station building. Based on the February 2015 sampling data, dissolved phase benzene, 1,2,4-



trimethylbenzene and 1,3,5-trimethylbenzene are currently the only constituents of concern identified at concentrations above current U/R MSCs.

- Groundwater samples collected from groundwater monitoring wells MW-8 through MW-10, MW-13, MW-17 through MW-24 monitoring the overburden aquifer confirmed the presence of unleaded gasoline constituents in on- and off-site groundwater from the UST field (source area) downgradient to York Street. Based on the February 2015 sampling data, dissolved phase MTBE is currently the only constituent of concern identified at concentrations above current U/R MSCs.
- Soil gas samples collected from VP-2 confirmed the presence of unleaded gasoline constituents in facility soil near the UST field. However, based on data collected from soil gas monitoring points VP-1, VP-3 and VP-4, migration of soil gas to on-site receptors (i.e. station building) and off-site via potential preferential pathways (i.e. utility trenching) is not a concern.
- Fate and transport modeling was performed from groundwater monitoring well MW-19 (in York Street) to the off-site POC well MW-20 located approximately 191-feet prior to Tunungwant Creek. Based on conservative book values for hydraulic conductivity, modeling indicates there is a potential for dissolved phase MTBE will reach Tunungwant Creek at concentrations above U/R MSCs. However, active remediation will be implemented on- and off-site to mitigate further migration of DPH impacts.
- Due to the presence of potential sensitive receptors (i.e., residential and commercial properties), the selected approach to obtaining a release of liability for on-and off-site soil and groundwater is the used aquifer Statewide Heath Standard.

Pending completion of the proposed on- and off-site professional survey and evaluation of the underground storm sewer utility line, additional site characterization information will be provided to the PADEP in an SCRA. Existing April 2014 feasibility study data will be combined with proposed off-site feasibility study data and an overall site remedial action approach will be presented in a RAP.



12.0 REFERENCES

ASTM International (ASTM E1739-95) *Standard Guide for Risk-Based Corrective Action Applied at Petroleum Release Site*. 2002.

Environmental Protection Agency My Water Mapper. <<http://www.epa.gov/waters/enviromapper/>>. Accessed January 2013.

Berg, T.M., Geyer, A.R., Edmunds, W.E., and other, compilers. 1980. *Geologic Map of Pennsylvania*. Pennsylvania Geological Survey.

Pennsylvania Code Online Website (Chapter 93): <<http://www.pacode.com/secure/data/025/chapter93/chap93toc.html>>. Accessed February 2015.

Pennsylvania Code Online Website (Chapter 250): <http://www.pacode.com/secure/data/025/chapter250/chap250toc.html>>. Accessed February 2015.

Pennsylvania Department of Conservation and Natural Resources (PADCNR) Website: <<http://www.dcnr.state.pa.us/topogeo/>>. Accessed February 2015.

Pennsylvania Department of Conservation and Natural Resources (PADCNR) and the Department of Interior – Office of Surface Mining (OSM) Website: <<http://ismhdqa02.osmre.gov/scripts/OsmWeb.dll>>. Accessed February 2015.

Pennsylvania Department of Environmental Protection emappa Website: <<http://www.emappa.dep.state.pa.us/emappa/viewer.htm>>. Accessed February 2015.

Pennsylvania Department of Environmental Protection Regulated Tank List Website: <http://www.portal.state.pa.us/portal/server.pt/community/hide_registration/20606/regulated_tank_list/1054359>. Accessed February 2015.

Pennsylvania Department of Environmental Protection Storage Tank Cleanup Locations Website: <<http://www.depweb.state.pa.us/landrecwaste/cwp/view.asp?a=1241&Q=461926&landrecwasteNav=30816>>. Accessed May 201 February 2015.

Pennsylvania Department of Environmental Protection. 2004. *Vapor Intrusion into Buildings from Groundwater and Soil under the Act 2 Statewide Health Standards*. Land Recycling Technical Guidance Manual-Section IV.A.4. Technical Document: 253-4500-601.

Pennsylvania Groundwater Well Inventory System (PaGWIS) Website: <<http://www.dcnr.state.pa.us/topogeo/groundwater/pagwis/records/index.htm>>. Accessed February 2015.

Shultz, Charles H., editor. 1999. *The Geology of Pennsylvania*. Pennsylvania Geological Survey.



Socolow, et. al, 1980. Geologic Map of Pennsylvania. Commonwealth of Pennsylvania, Bureau of Topographic and Geologic Survey, Map 1.

United States Department of Agriculture Web Soil Survey. < <http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>>. Accessed February 2015.

United Refining Company of Pennsylvania. March 2013. *Notification of Reportable Release*.

Wagner, et al., 1985. *Greater Pittsburgh Region Geologic Map and Cross Sections*. Commonwealth of Pennsylvania, Bureau of Topographic and Geologic Survey, Map 42.

Wagner, et al., 1985. *Greater Pittsburgh Region Structure Contour Map*. Commonwealth of Pennsylvania, Bureau of Topographic and Geologic Survey, Map 43.



FIGURES

Figure 1 - Site Location Map

Figure 2 - Local Area Map

Figure 3 - Site Map

Figure 4 - Soil Map

Figure 5 - Geologic Map

Figure 6A - Cross-Section Location Map

Figure 6B - Cross-Sections A-A', B-B' and C-C'

Figure 7 - Groundwater Contour Map (Perched Groundwater Zone), February 3-4, 2015

Figure 8 - Groundwater Contour Map (Overburden Aquifer), February 3-4, 2015

Figure 9 - Soil Sample Location Map

Figure 10 - Benzene Soil Isoconcentration Map (June 2013 - December 2014 [2-7 Feet bgs])

Figure 11 - Benzene Soil Isoconcentration Map (June 2013 - December 2014 [7-12 Feet bgs])

Figure 12 - Toluene Soil Isoconcentration Map (June 2013 - December 2014 [7-12 Feet bgs])

Figure 13 - Ethylbenzene Soil Isoconcentration Map (June 2013 - December 2014 [7-12 Feet bgs])

Figure 14 - Naphthalene Soil Isoconcentration Map (June 2013 - December 2014 [7-12 Feet bgs])

Figure 15-1,2,4-TMB Soil Isoconcentration Map (June 2013 - December 2014 [7-12 Feet bgs])

Figure 16-1,3,5,-TMB Soil Isoconcentration Map (June 2013 - December 2014 [7-12 Feet bgs])

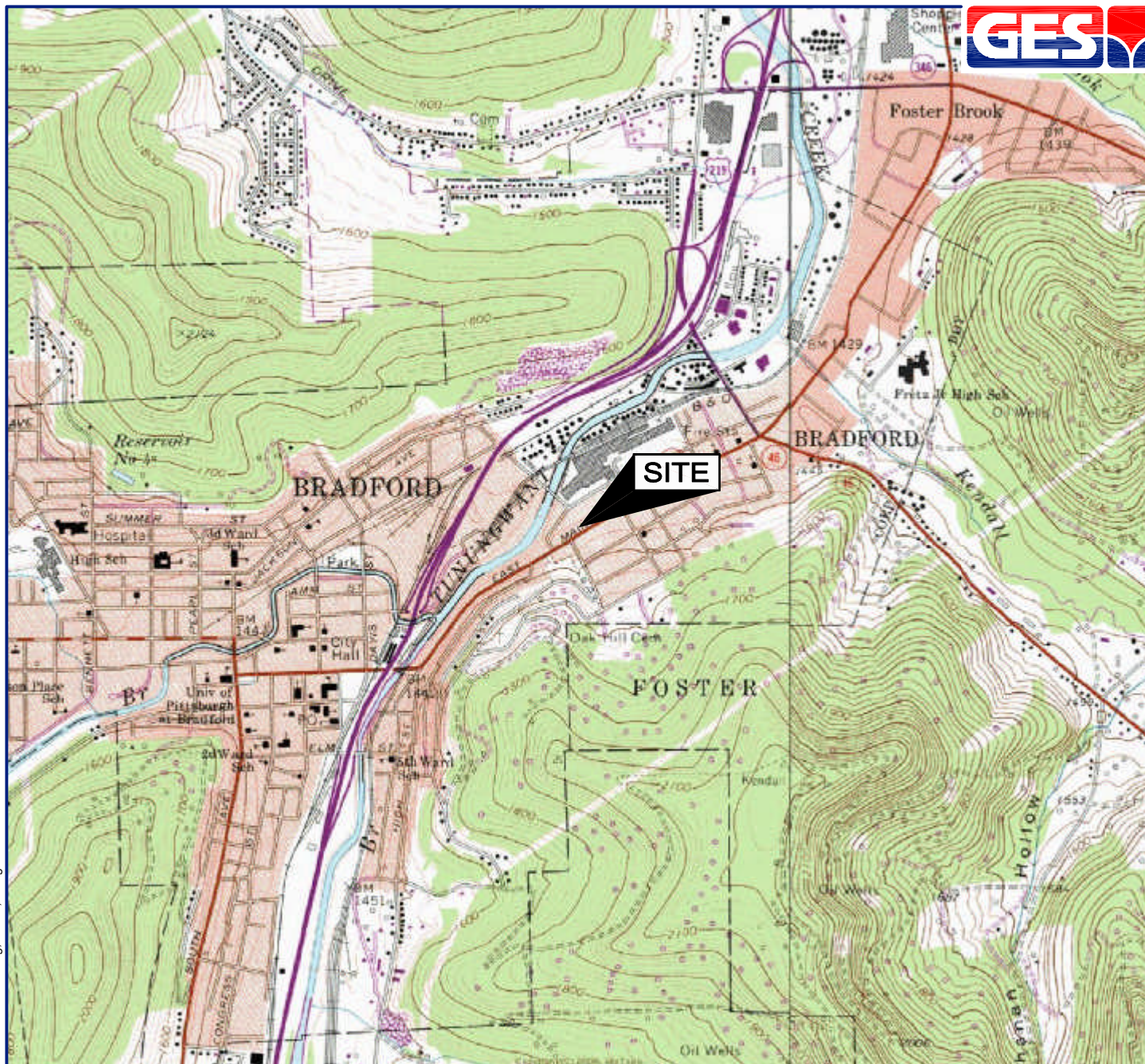
Figure 17-1,3,5,-TMB Soil Isoconcentration Map (October 2013 - December 2014 [2-4 Feet bgs])

Figure 18 - Benzene Groundwater Isoconcentration Map (Perched Groundwater Zone), February 3-4, 2015

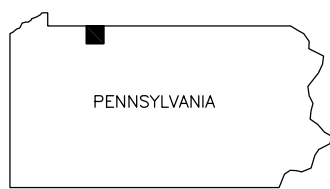
Figure 19 - 1,2,4-TMB Groundwater Isoconcentration Map (Perched Groundwater Zone), February 3-4, 2015

Figure 20 - 1,3,5-TMB Groundwater Isoconcentration Map (Perched Groundwater Zone), February 3-4, 2015



Figure 21-MTBE Groundwater Isoconcentration Map (Overburden Aquifer), February 3-4, 2015



SOURCE: USGS 7.5 MINUTE SERIES
TOPOGRAPHIC QUADRANGLE 1983
BRADFORD, PENNSYLVANIA-NEW YORK
CONTOUR INTERVAL = 20'



QUADRANGLE LOCATION

DRAFTED BY: E.V. (N.J.)	SITE LOCATION MAP		
CHECKED BY: JH	KWIK FILL STATION #M-061 227 EAST MAIN STREET BRADFORD, PENNSYLVANIA		
REVIEWED BY: EL			
NORTH 	Groundwater & Environmental Services, Inc. 301 COMMERCE PARK DRIVE, CRANBERRY TOWNSHIP, PA 16066		
	SCALE IN FEET  0 2000	DATE 3-25-13	FIGURE 1


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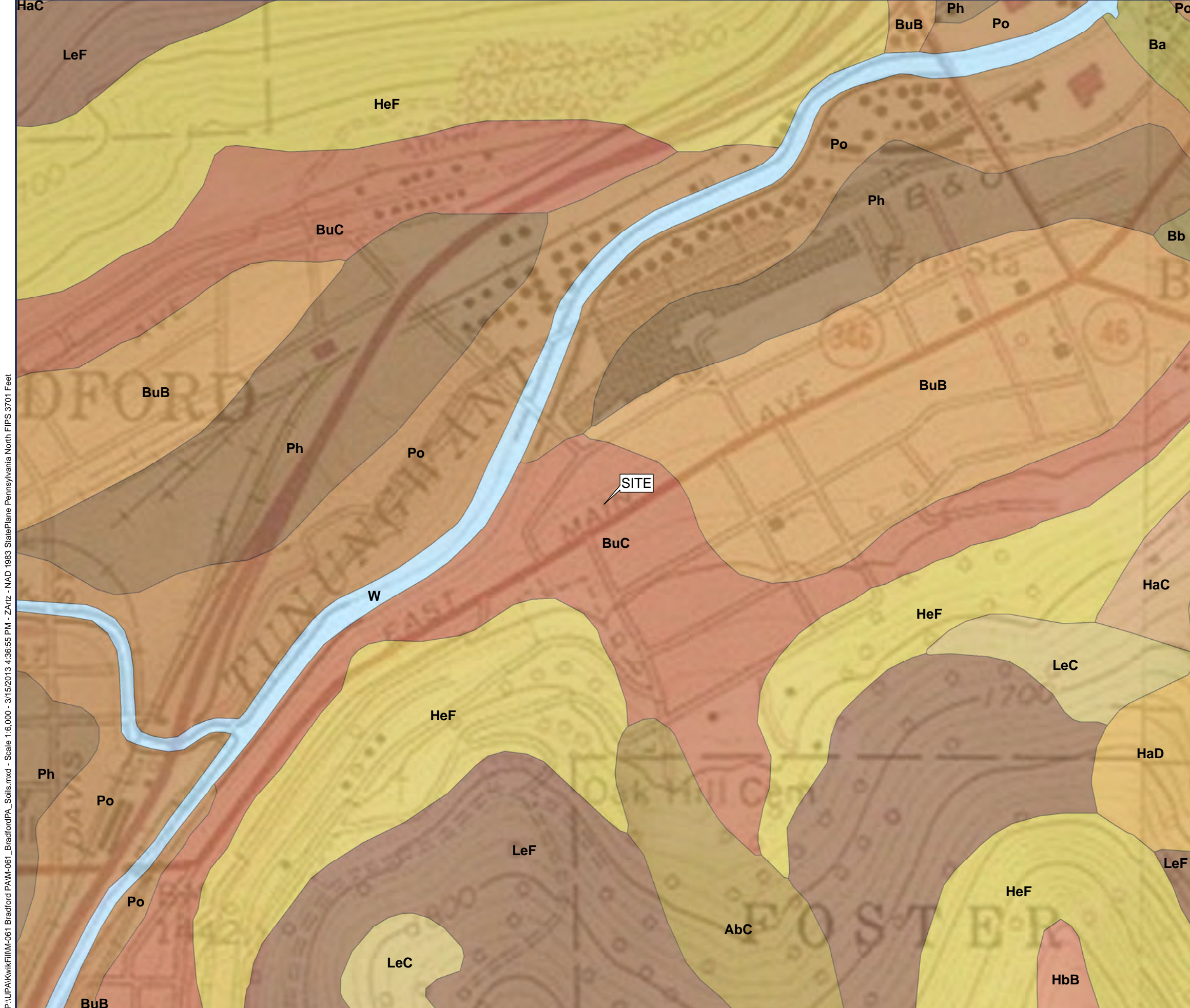
LEGEND

----- PROPERTY BOUNDARY

DRAFTED BY: E.V. (N.J.)	LOCAL AREA MAP		
CHECKED BY: JH	KWIK FILL STATION #M-061 227 EAST MAIN STREET BRADFORD, PENNSYLVANIA		
REVIEWED BY: EL	Groundwater & Environmental Services, Inc. 301 COMMERCE PARK DRIVE, CRANBERRY TOWNSHIP, PA 16066		
<div>NORTH</div> <div></div>	SCALE IN FEET (APPROXIMATE)	DATE	FIGURE
	<div><div></div><div>0250</div></div>	3-25-13	2

- GRAPHIC SCALE (feet)
- 
- (Scale configured for D-Size 24" x 36" Plot)
1 inch = 30 ft.
(APPROXIMATE)

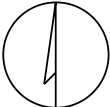

DATE	FIGURE
03-19-15	3



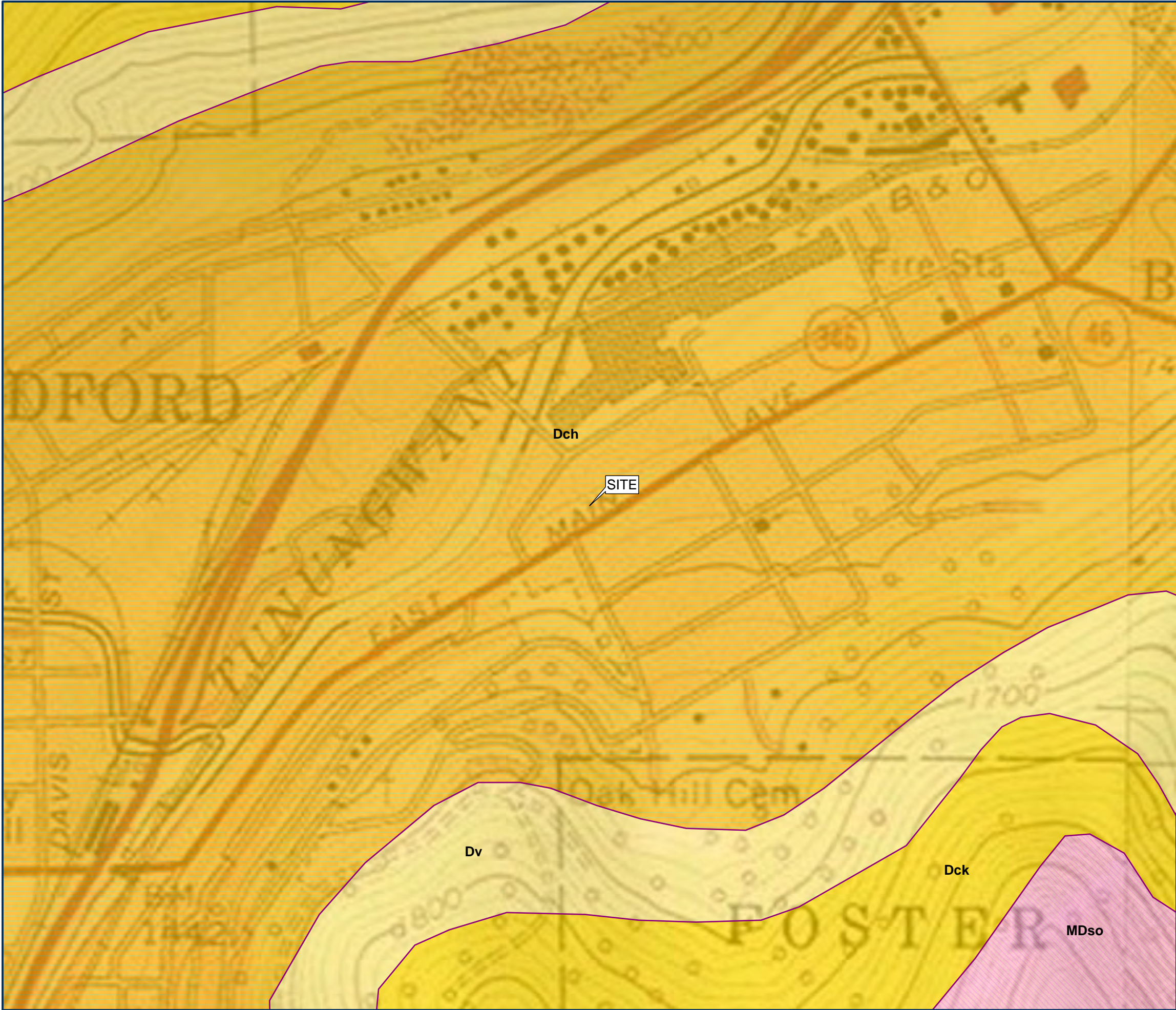
Legend

- AbC** Albrights silt loam, 8 to 15 percent slopes
- Ba** Barbour loam
- Bb** Basher silt loam
- BuB** Buchanan silt loam, 3 to 8 percent slopes
- BuC** Buchanan silt loam, 8 to 15 percent slopes
- HaC** Hartleton channery silt loam, 8 to 15 percent slopes
- HaD** Hartleton channery silt loam, 15 to 25 percent slopes
- HbB** Hazleton channery loam, 0 to 8 percent slopes, very stony
- HeF** Hartleton and Buchanan soils, 25 to 60 percent slopes
- LeC** Leck Kill channery silt loam, 8 to 15 percent slopes
- LeF** Leck Kill channery silt loam, 25 to 50 percent slopes
- Ph** Philo silt loam
- Po** Pope loam
- W** Water

Sources:
Soil Survey Geographic (SSURGO) database for McKean County, Pennsylvania, USDA, 2008, scale 1:24,000
USGS 7.5 minute topographic quadrangles, scale 1:24,000
Shown greatly enlarged, locations considered approximate.

DRAFTED BY: RAB	SOIL MAP		
CHECKED BY: JH	KWIK FILL STATION #M-061 227 EAST MAIN STREET BRADFORD, PENNSYLVANIA		
REVIEWED BY: EL			
NORTH 	Groundwater & Environmental Services, Inc. 301 COMMERCE PARK DR, CRANBERRY TOWNSHIP, PA 16066		
	APPROX. SCALE IN FEET  0 500	DATE 3-15-13	FIGURE 4

P:\UPA\KwikFill\M-061 Bradford PA\GIS\M-061_BradfordPA_Geol.mxd - Scale 1:6,000 - 3/15/2013 5:12:29 PM - Zart - NAD 1983 StatePlane Pennsylvania North FIPS 3701 Feet



Legend

Mississippian and Devonian

MDso Shenango Formation through Oswayo Formation, undivided

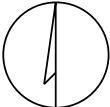

Devonian

Dch Chadakoin Formation

Dv Venango Formation

Dck Catskill Formation

Sources:
Berg, T. M., Geyer, A. R., Edmunds, W. E., and others, compilers, 1980, Geologic map of Pennsylvania, Pennsylvania Geological Survey, 4th ser., Map 1. Scale 1:250,000.
USGS 7.5 minute topographic quadrangles, scale 1:24,000
Shown greatly enlarged, locations considered approximate.

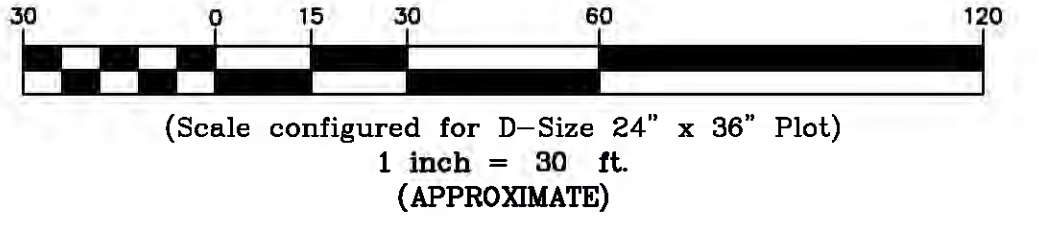
DRAFTED BY: RAB	BEDROCK GEOLOGIC MAP		
CHECKED BY: JH	KWIK FILL STATION #M-061 227 EAST MAIN STREET BRADFORD, PENNSYLVANIA		
REVIEWED BY: EL			
NORTH 	Groundwater & Environmental Services, Inc. 301 COMMERCE PARK DR, CRANBERRY TOWNSHIP, PA 16066		
	APPROX. SCALE IN FEET  0 500	DATE 3-15-13	FIGURE 5



LEGEND

- PROPERTY BOUNDARY (APPROXIMATE)
- FENCE
- CATCH BASIN
- UTILITY MANHOLE
- UTILITY POLE
- LIGHT POLE
- WATER VALVE
- DISPENSER ISLAND
- GROUNDWATER MONITORING WELL
- ABANDONED GROUNDWATER MONITORING WELL
- HISTORICAL SOIL VAPOR EXTRACTION WELL
- SOIL GAS MONITORING POINT
- PRODUCT LINE
- VENT LINE
- OVERHEAD ELECTRIC LINE
- UNDERGROUND ELECTRIC LINE
- UNDERGROUND CATHODIC PROTECTION LINE
- UNDERGROUND SANITARY SEWER LINE
- UNDERGROUND STORM SEWER LINE
- UNDERGROUND FIBER OPTIC LINE
- UNDERGROUND WATER LINE
- UNDERGROUND NATURAL GAS LINE
- UNKNOWN UTILITY LINE

GRAPHIC SCALE (feet)

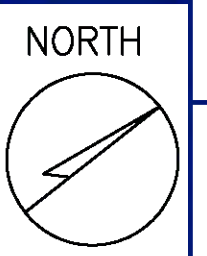


DRAFTED BY:
TP
(EXTON)
CHECKED BY:

REVIEWED BY:

CROSS-SECTION LOCATION MAP

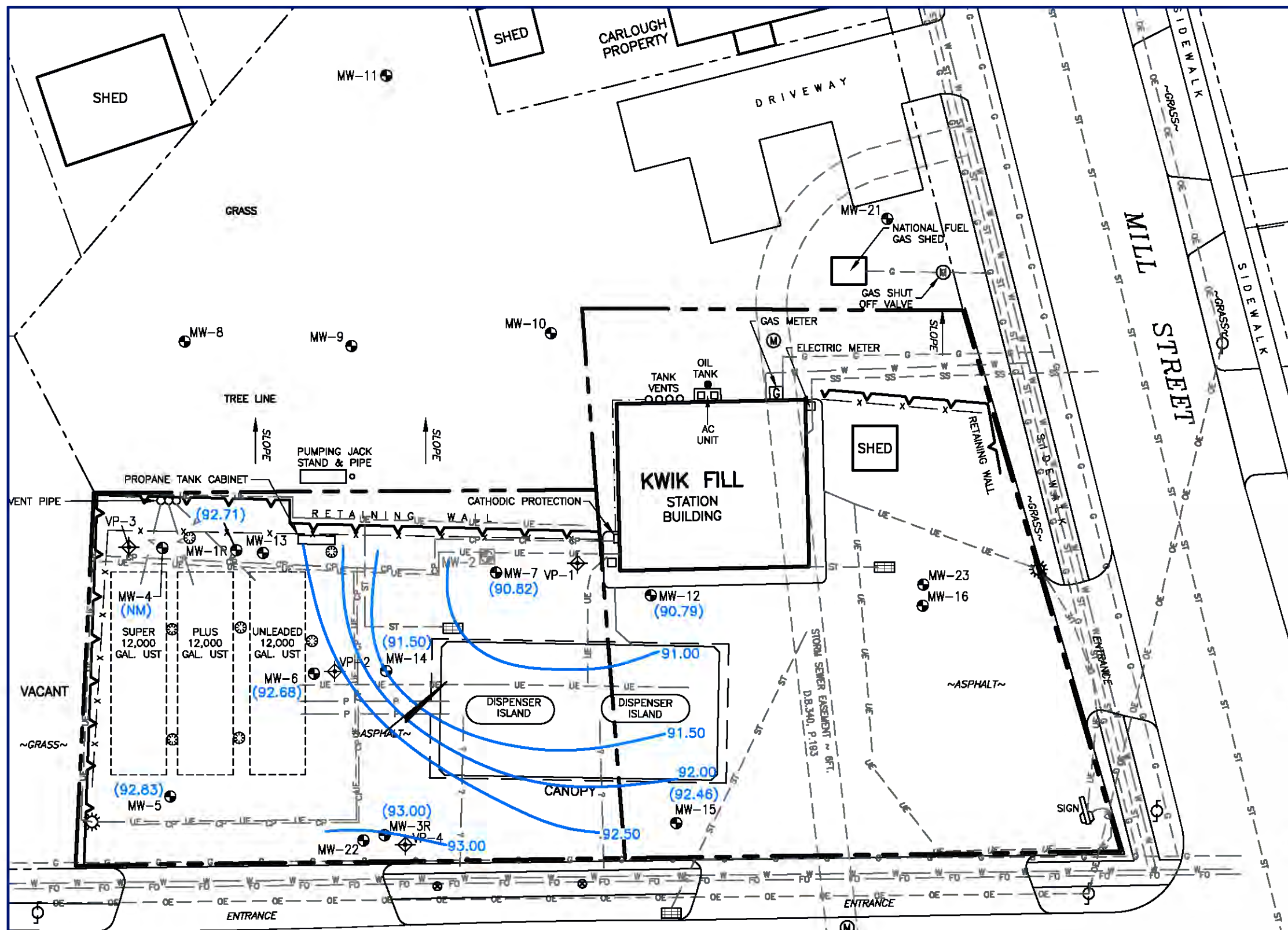
KWIK FILL STATION #M-061
227 EAST MAIN STREET
BRADFORD, PENNSYLVANIA



Groundwater & Environmental Services, Inc.
301 COMMERCE PARK DRIVE, CRANBERRY TOWNSHIP, PA 16066

DATE	FIGURE
03-19-15	





LEGEND

















- PROPERTY BOUNDARY (APPROXIMATE)
- x- FENCE
- [] CATCH BASIN
- (M) UTILITY MANHOLE
- (P) UTILITY POLE
- (S) LIGHT POLE
- (V) WATER VALVE
- [] DISPENSER ISLAND
- (●) GROUNDWATER MONITORING WELL
- (○) ABANDONED GROUNDWATER MONITORING WELL
- (*) HISTORICAL SOIL VAPOR EXTRACTION WELL
- (◇) SOIL GAS MONITORING POINT

- P- PRODUCT LINE
- V- VENT LINE
- OE- OVERHEAD ELECTRIC LINE
- UE- UNDERGROUND ELECTRIC LINE
- SS- UNDERGROUND CATHODIC PROTECTION LINE
- ST- UNDERGROUND SANITARY SEWER LINE
- FO- UNDERGROUND STORM SEWER LINE
- W- UNDERGROUND FIBER OPTIC LINE
- G- UNDERGROUND WATER LINE
- N- UNDERGROUND NATURAL GAS LINE
- ?- UNKNOWN UTILITY LINE
- (90.82) GROUNDWATER ELEVATION (feet)
- 91.00 GROUNDWATER CONTOUR (feet)
- (NM) NOT MEASURED
- APPARENT GROUNDWATER FLOW DIRECTION
- CONTOUR INTERVAL 0.50 (feet)

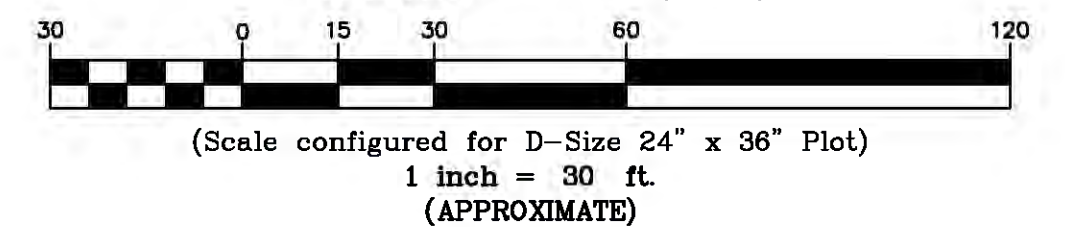
NOTES:

- 1) MONITORING WELLS MW-8 THROUGH MW-11, MW-13, AND MW-21 THROUGH MW-23 MONITOR THE OVERBURDEN AQUIFER AND WERE NOT USED TO GENERATE GROUNDWATER CONTOURS.
- 2) THE STORM SEWER CREATES AN APPARENT GROUNDWATER BARRIER CREATING A SIGNIFICANT DIFFERENCE IN GROUNDWATER ELEVATIONS ON THE NORTH SIDE OF THE SITE. THEREFORE, ELEVATION DATA FROM MONITORING WELL MW-16 WAS NOT USED TO CREATE GROUNDWATER CONTOURS.

DRAFTED BY: TP (EXTON)	GROUNDWATER CONTOUR MAP (PERCHED GROUNDWATER ZONE) FEBRUARY 3-4, 2015		
CHECKED BY: JH	KWIK FILL STATION #M-061 227 EAST MAIN STREET BRADFORD, PENNSYLVANIA		
REVIEWED BY: EL	Groundwater & Environmental Services, Inc. 301 COMMERCE PARK DRIVE, CRANBERRY TOWNSHIP, PA 16066		
NORTH 	SCALE IN FEET 	DATE 03-19-15	FIGURE 7
	0 APPROXIMATE 20		

- | | |
|---|--------------------------------------|
|  | PRODUCT LINE |
|  | VENT LINE |
|  | OVERHEAD ELECTRIC LINE |
|  | UNDERGROUND ELECTRIC LINE |
|  | UNDERGROUND CATHODIC PROTECTION LINE |
|  | UNDERGROUND SANITARY SEWER LINE |
|  | UNDERGROUND STORM SEWER LINE |
|  | UNDERGROUND FIBER OPTIC LINE |
|  | UNDERGROUND WATER LINE |
|  | UNDERGROUND NATURAL GAS LINE |
|  | UNKNOWN UTILITY LINE |
|  | GROUNDWATER ELEVATION (feet) |
|  | GROUNDWATER CONTOUR (feet) |
|  | CONTOURS DASHED WHERE INFERRED |
|  | APPARENT GROUNDWATER FLOW DIRECTION |
|  | CONTOUR INTERVAL 4.0 (feet) |

GRAPHIC SCALE (feet)



DRAFTED BY:
TP
(EXTON)

CHECKED BY:
E.L.

REVIEWED BY:
J.H.

NORTH

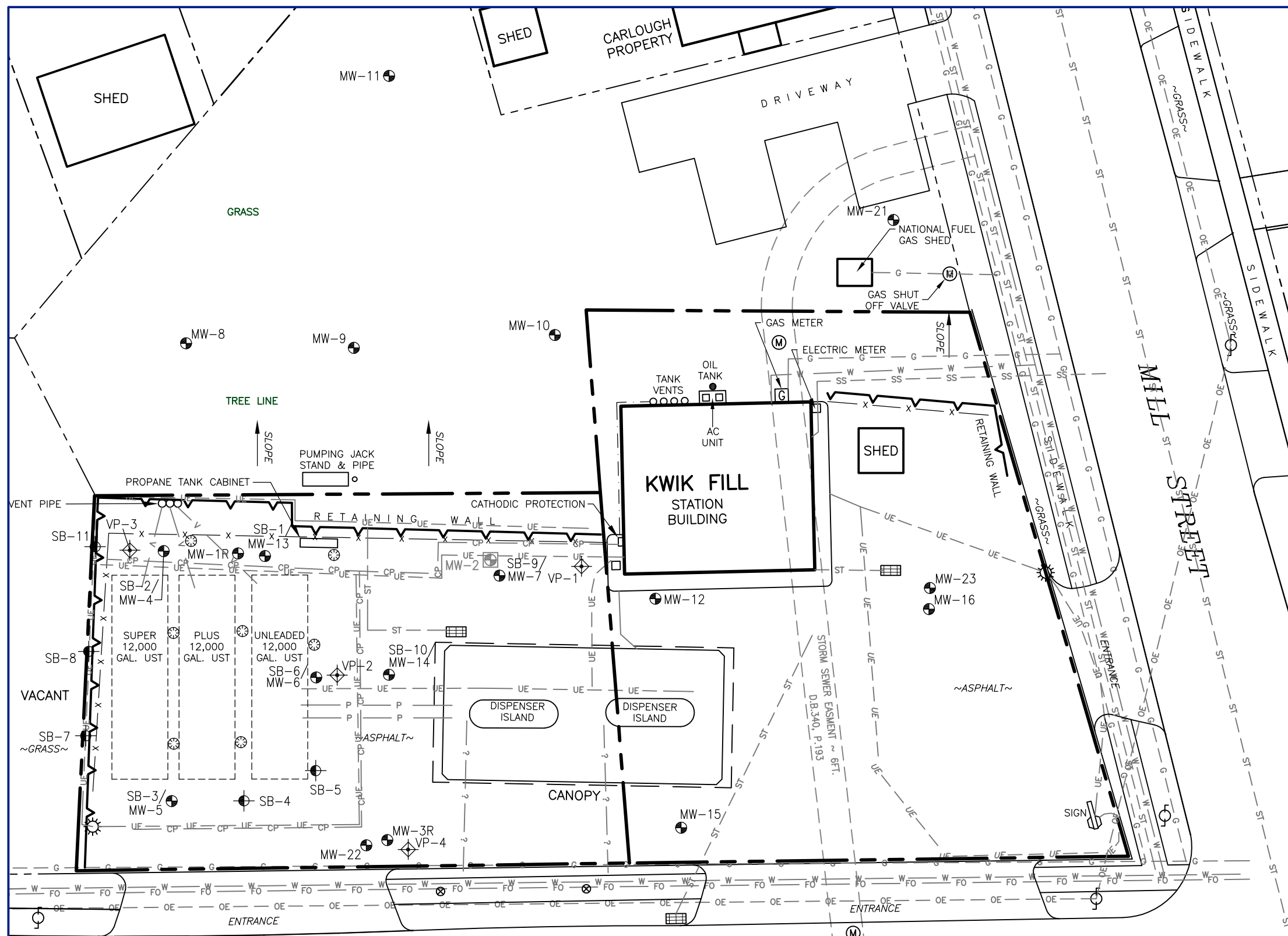
GROUNDWATER CONTOUR MAP (OVERBURDEN AQUIFER) FEBRUARY 3-4, 2015

KWIK FILL STATION #M-061
227 EAST MAIN STREET
BRADFORD, PENNSYLVANIA

Groundwater & Environmental Services, Inc.
301 COMMERCE PARK DRIVE, CRANBERRY TOWNSHIP, PA 16066

DATE
03-19-15

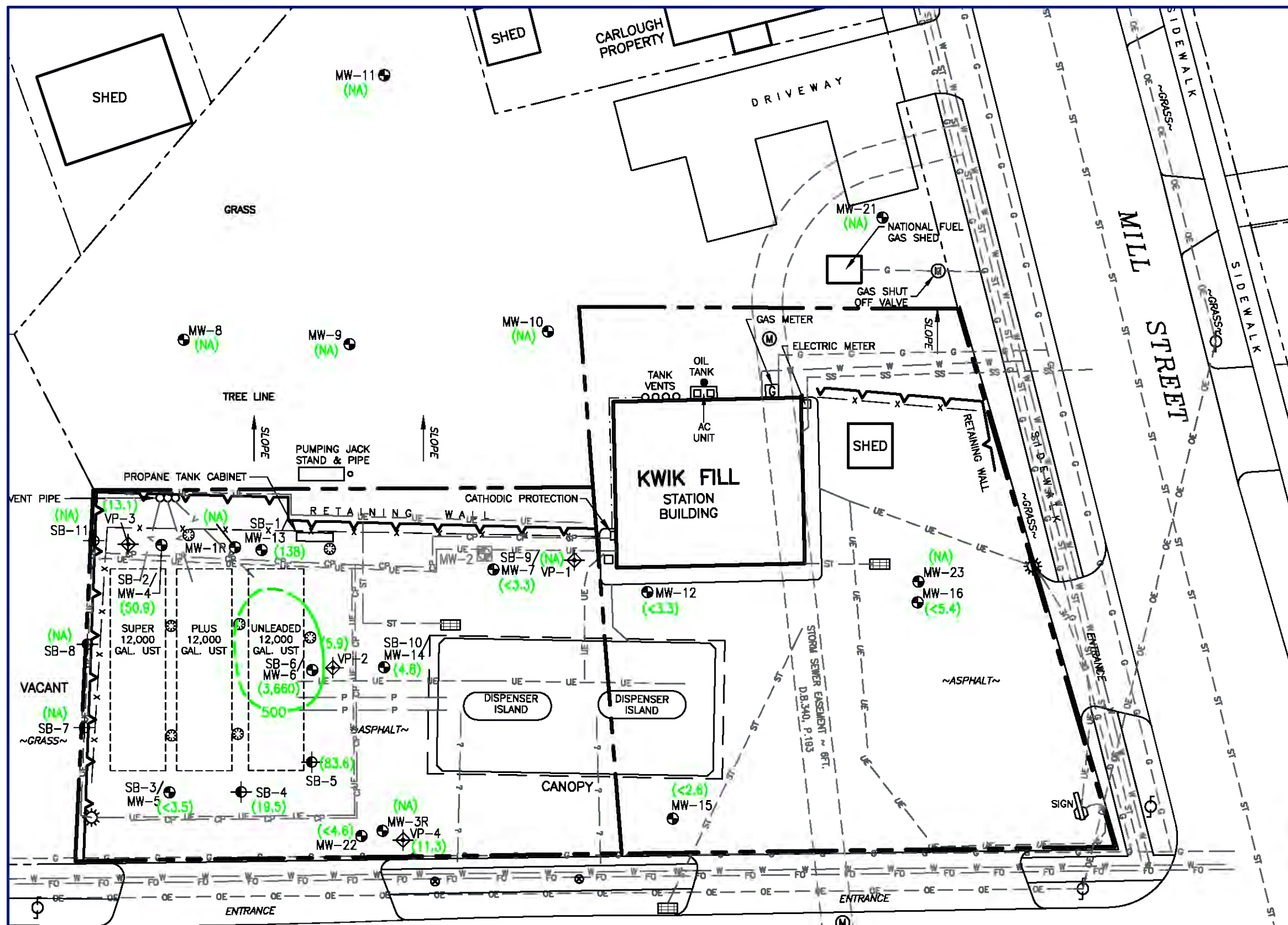
FIGURE
8



LEGEND

- PROPERTY BOUNDARY (APPROXIMATE)
- x - FENCE
- [Grid Symbol] CATCH BASIN
- (M) UTILITY MANHOLE
- (Pole Symbol) UTILITY POLE
- (Sun Symbol) LIGHT POLE
- (X) WATER VALVE
- [Island Symbol] DISPENSER ISLAND
- (Dot) GROUNDWATER MONITORING WELL
- (Square with X) ABANDONED GROUNDWATER MONITORING WELL
- (Star) HISTORICAL SOIL VAPOR EXTRACTION WELL
- (Diamond) SOIL GAS MONITORING POINT
- (Circle with X) SOIL BORING LOCATION
- P - P - PRODUCT LINE
- V - V - VENT LINE
- OE - OE - OVERHEAD ELECTRIC LINE
- UE - UE - UNDERGROUND ELECTRIC LINE
- CP - CP - UNDERGROUND CATHODIC PROTECTION LINE
- SS - SS - UNDERGROUND SANITARY SEWER LINE
- ST - ST - UNDERGROUND STORM SEWER LINE
- FO - FO - UNDERGROUND FIBER OPTIC LINE
- W - W - UNDERGROUND WATER LINE
- G - G - UNDERGROUND NATURAL GAS LINE
- ? - ? - UNKNOWN UTILITY LINE

DRAFTED BY: TP (EXTON)	SOIL BORING LOCATION MAP		
CHECKED BY: JH	KWIK FILL STATION #M-061 227 EAST MAIN STREET BRADFORD, PENNSYLVANIA		
REVIEWED BY: EL	Groundwater & Environmental Services, Inc. 301 COMMERCE PARK DRIVE, CRANBERRY TOWNSHIP, PA 16066		
NORTH 	SCALE IN FEET 0 APPROXIMATE 20	DATE 02-24-15	FIGURE 9



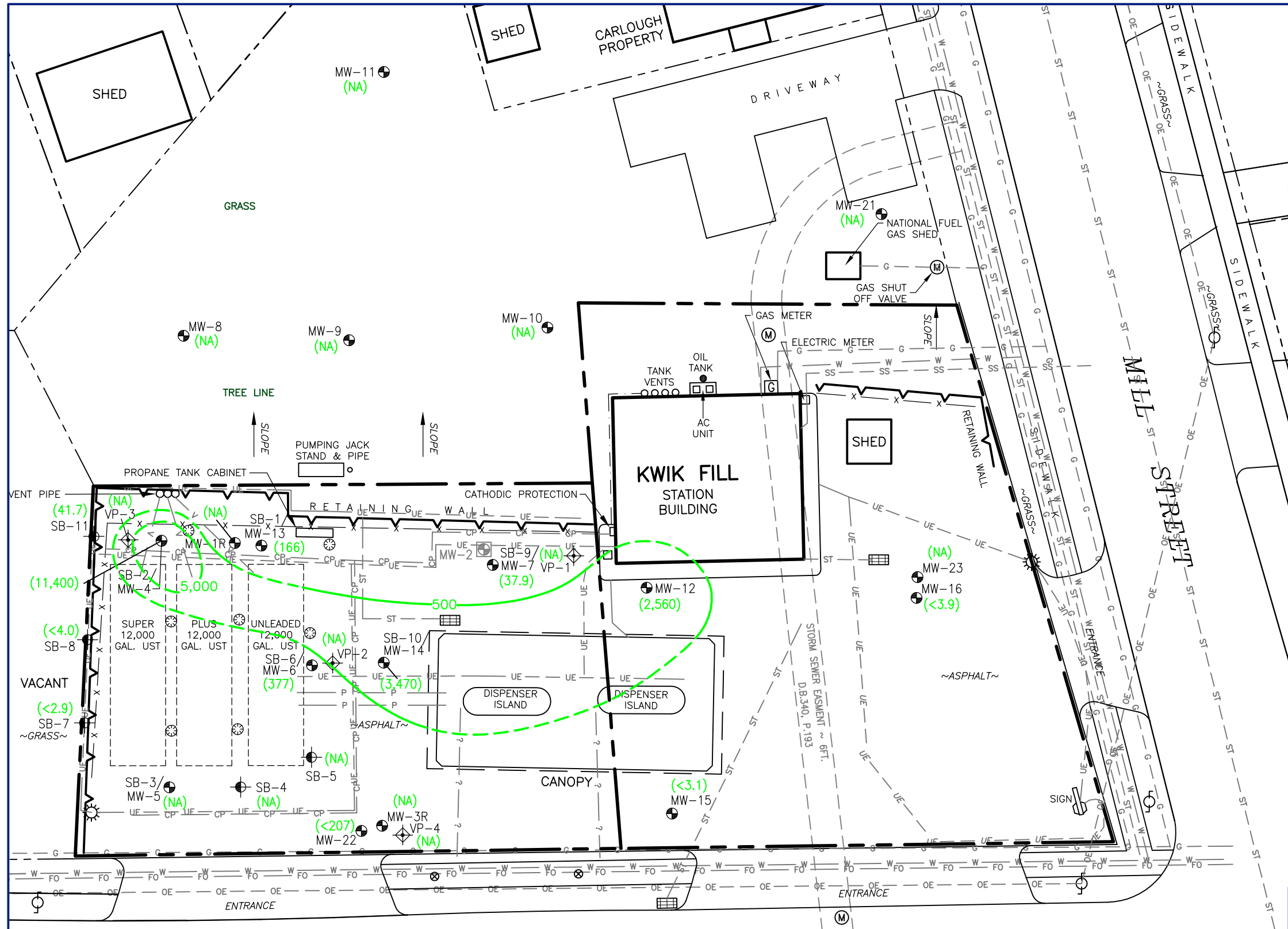
LEGEND

- PROPERTY BOUNDARY (APPROXIMATE)
- FENCE
- CATCH BASIN
- UTILITY MANHOLE
- UTILITY POLE
- LIGHT POLE
- WATER VALVE
- DISPENSER ISLAND
- GROUNDWATER MONITORING WELL
- ABANDONED GROUNDWATER MONITORING WELL
- HISTORICAL SOIL VAPOR EXTRACTION WELL
- SOIL GAS MONITORING POINT
- SOIL BORING LOCATION
- PRODUCT LINE
- VENT LINE
- OVERHEAD ELECTRIC LINE
- UNDERGROUND ELECTRIC LINE
- UNDERGROUND CATHODIC PROTECTION LINE
- UNDERGROUND SANITARY SEWER LINE
- UNDERGROUND STORM SEWER LINE
- UNDERGROUND FIBER OPTIC LINE
- UNDERGROUND WATER LINE
- UNDERGROUND NATURAL GAS LINE
- UNKNOWN UTILITY LINE
- (3,660) BENZENE CONCENTRATION (µg/kg)
- 500 BENZENE ISOCONCENTRATION CONTOUR (µg/kg)
- CONTOURS DASHED WHERE INFERRED
- µg/kg MICROGRAMS PER KILOGRAM
- <# WHEN AN ANALYTE IS NOT DETECTED THE LABORATORY REPORTING LIMIT IS GIVEN
- NA NOT ANALYZED

NOTES:

THE ACT 2 USED AQUIFER NON-RESIDENTIAL MEDIUM-SPECIFIC CONCENTRATION FOR BENZENE IN UNSATURATED/PERIODICALLY SATURATED SOIL IS 500 µg/kg.

DRAFTED BY: TP (EXTON)	BENZENE SOIL ISOCONCENTRATION MAP JUNE 2013-DECEMBER 2014 (2-7 FEET bgs)		
CHECKED BY: JH	KWIK FILL STATION #M-061 227 EAST MAIN STREET BRADFORD, PENNSYLVANIA		
REVIEWED BY: EL	Groundwater & Environmental Services, Inc. 301 COMMERCE PARK DRIVE, CRANBERRY TOWNSHIP, PA 16066		
NORTH 	SCALE IN FEET 0 APPROXIMATE 20	DATE 03-19-15	FIGURE 10



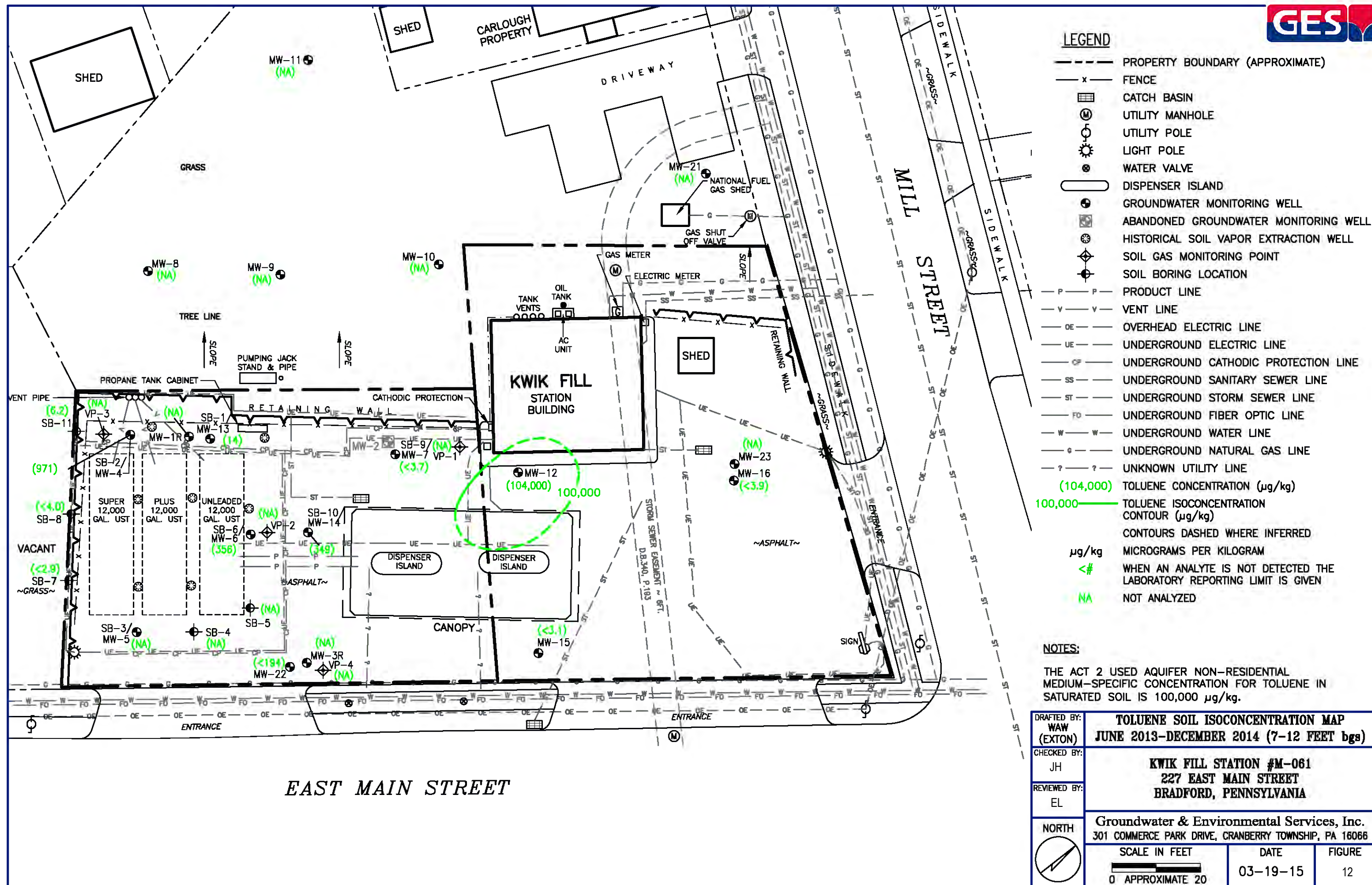
LEGEND

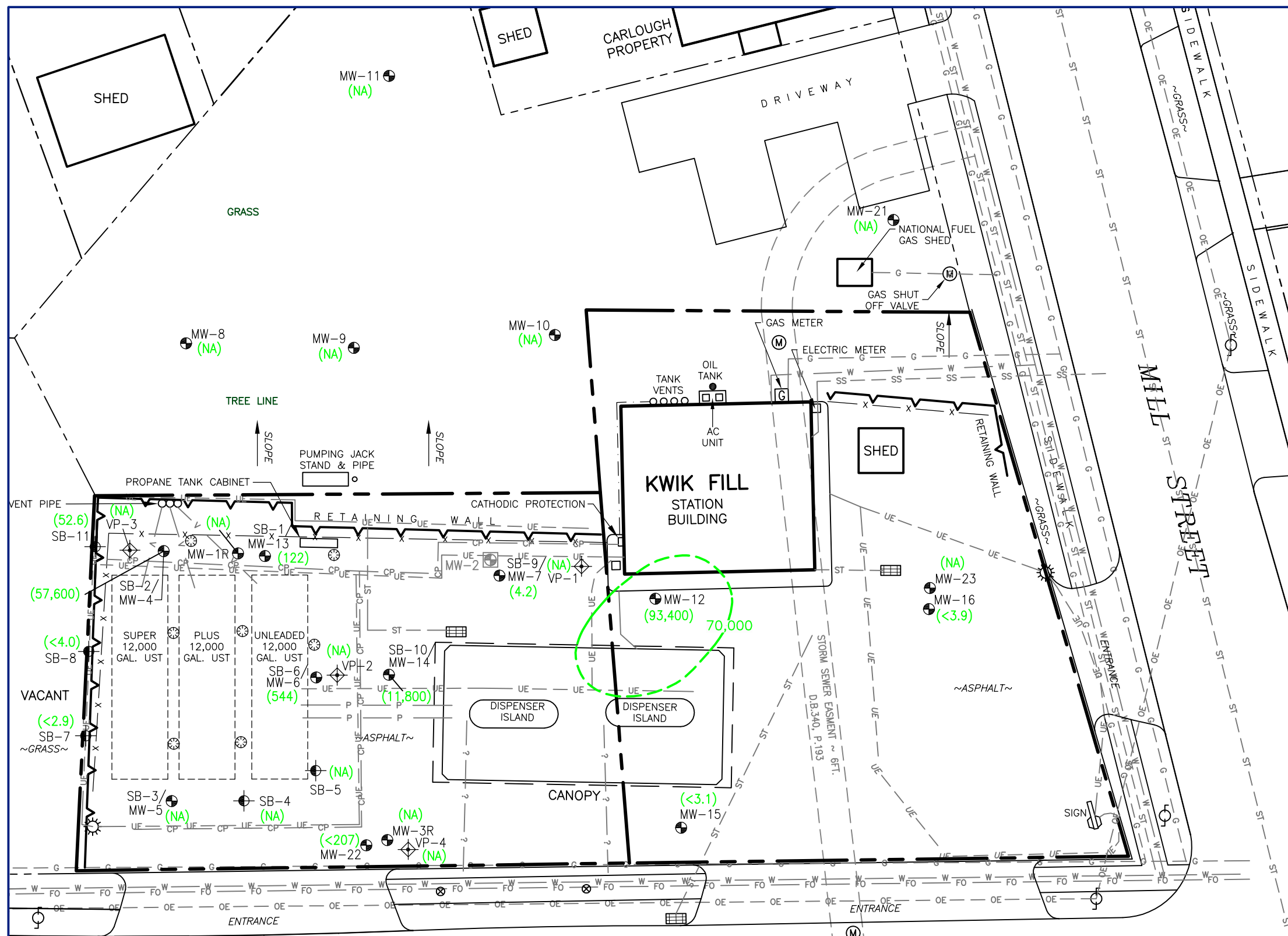
- PROPERTY BOUNDARY (APPROXIMATE)
- FENCE
- CATCH BASIN
- UTILITY MANHOLE
- UTILITY POLE
- LIGHT POLE
- WATER VALVE
- DISPENSER ISLAND
- GROUNDWATER MONITORING WELL
- ABANDONED GROUNDWATER MONITORING WELL
- HISTORICAL SOIL VAPOR EXTRACTION WELL
- SOIL GAS MONITORING POINT
- SOIL BORING LOCATION
- PRODUCT LINE
- VENT LINE
- OVERHEAD ELECTRIC LINE
- UNDERGROUND ELECTRIC LINE
- UNDERGROUND CATHODIC PROTECTION LINE
- UNDERGROUND SANITARY SEWER LINE
- UNDERGROUND STORM SEWER LINE
- UNDERGROUND FIBER OPTIC LINE
- UNDERGROUND WATER LINE
- UNDERGROUND NATURAL GAS LINE
- UNKNOWN UTILITY LINE
- BENZENE CONCENTRATION (µg/kg)
- BENZENE ISOCONCENTRATION CONTOUR (µg/kg) CONTOURS DASHED WHERE INFERRED
- µg/kg
- WHEN AN ANALYTE IS NOT DETECTED THE LABORATORY REPORTING LIMIT IS GIVEN
- NOT ANALYZED

NOTES:

THE ACT 2 USED AQUIFER NON-RESIDENTIAL MEDIUM-SPECIFIC CONCENTRATION FOR BENZENE IN SATURATED SOIL IS 500 µg/kg.

DRAFTED BY: TP (EXTON)	BENZENE SOIL ISOCONCENTRATION MAP JUNE 2013-DECEMBER 2014 (7-12 FEET bgs)		
CHECKED BY: JH	KWIK FILL STATION #M-061 227 EAST MAIN STREET BRADFORD, PENNSYLVANIA		
REVIEWED BY: EL	Groundwater & Environmental Services, Inc. 301 COMMERCE PARK DRIVE, CRANBERRY TOWNSHIP, PA 16066		
NORTH	SCALE IN FEET 0 APPROXIMATE 20	DATE 02-25-15	FIGURE 11





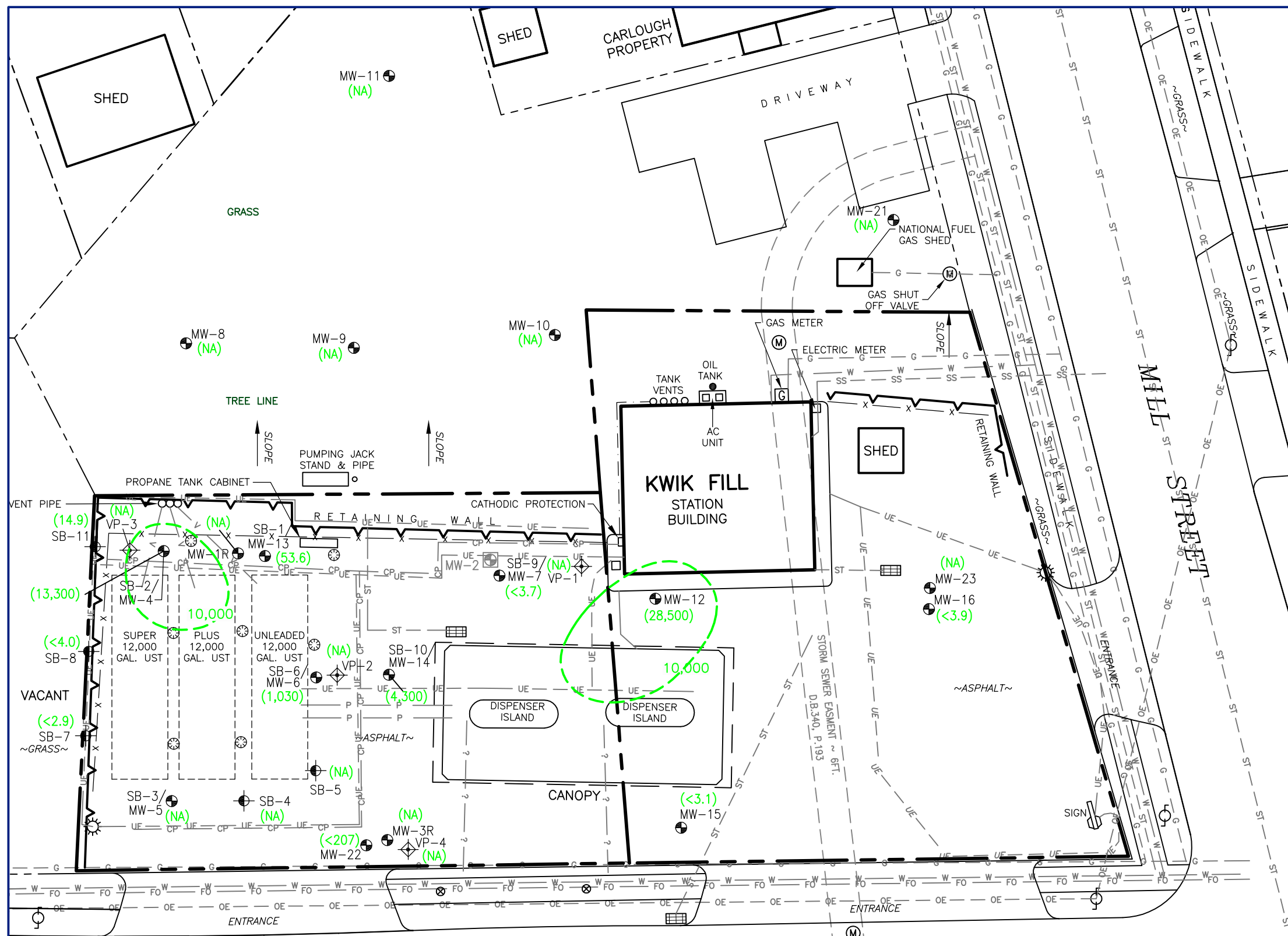
LEGEND

- PROPERTY BOUNDARY (APPROXIMATE)
- x - FENCE
- CATCH BASIN
- UTILITY MANHOLE
- UTILITY POLE
- LIGHT POLE
- WATER VALVE
- DISPENSER ISLAND
- GROUNDWATER MONITORING WELL
- ABANDONED GROUNDWATER MONITORING WELL
- HISTORICAL SOIL VAPOR EXTRACTION WELL
- SOIL GAS MONITORING POINT
- SOIL BORING LOCATION
- P - P - PRODUCT LINE
- V - V - VENT LINE
- OE - OE - OVERHEAD ELECTRIC LINE
- UE - UE - UNDERGROUND ELECTRIC LINE
- CP - CP - UNDERGROUND CATHODIC PROTECTION LINE
- SS - SS - UNDERGROUND SANITARY SEWER LINE
- ST - ST - UNDERGROUND STORM SEWER LINE
- FO - FO - UNDERGROUND FIBER OPTIC LINE
- W - W - UNDERGROUND WATER LINE
- G - G - UNDERGROUND NATURAL GAS LINE
- ? - ? - UNKNOWN UTILITY LINE
- (93,400) ETHYLBENZENE CONCENTRATION ($\mu\text{g}/\text{kg}$)
- 70,000 ETHYLBENZENE ISOCONCENTRATION CONTOUR ($\mu\text{g}/\text{kg}$)
- CONTOURS DASHED WHERE INFERRED
- $\mu\text{g}/\text{kg}$ MICROGRAMS PER KILOGRAM
- <# WHEN AN ANALYTE IS NOT DETECTED THE LABORATORY REPORTING LIMIT IS GIVEN
- NA NOT ANALYZED

NOTES:

THE ACT 2 USED AQUIFER NON-RESIDENTIAL MEDIUM-SPECIFIC CONCENTRATION FOR ETHYLBENZENE IN SATURATED SOIL IS 70,000 $\mu\text{g}/\text{kg}$.

DRAFTED BY: TP (EXTON)	ETHYLBENZENE SOIL ISOCONCENTRATION MAP JUNE 2013-DECEMBER 2014 (7-12 FEET bgs)		
CHECKED BY: JH	KWIK FILL STATION #M-061 227 EAST MAIN STREET BRADFORD, PENNSYLVANIA		
REVIEWED BY: EL	Groundwater & Environmental Services, Inc. 301 COMMERCE PARK DRIVE, CRANBERRY TOWNSHIP, PA 16066		
NORTH 	SCALE IN FEET 0 APPROXIMATE 20	DATE 02-25-15	FIGURE 13



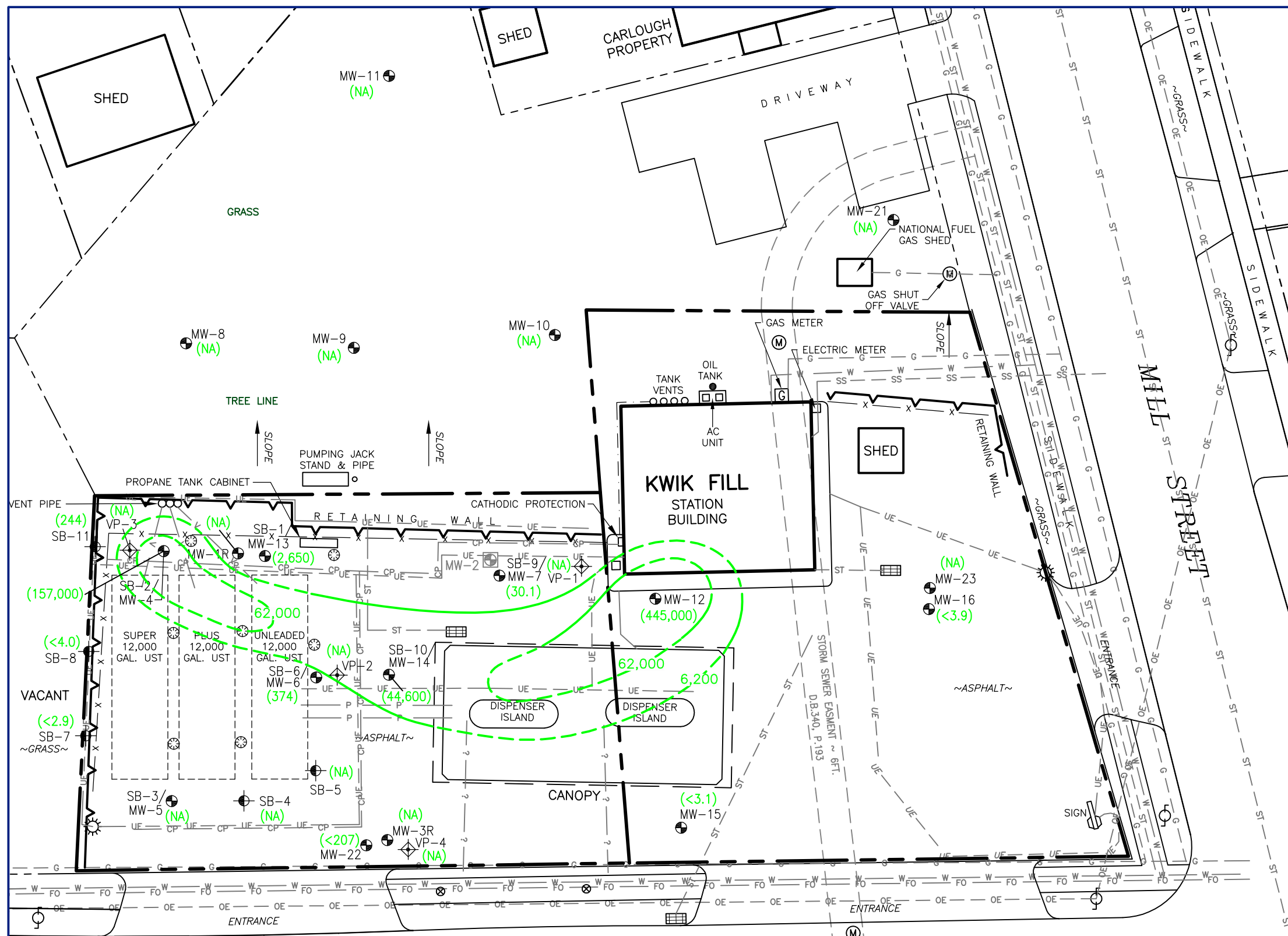
LEGEND

- PROPERTY BOUNDARY (APPROXIMATE)
- x - FENCE
- CATCH BASIN
- UTILITY MANHOLE
- UTILITY POLE
- LIGHT POLE
- WATER VALVE
- DISPENSER ISLAND
- GROUNDWATER MONITORING WELL
- ABANDONED GROUNDWATER MONITORING WELL
- HISTORICAL SOIL VAPOR EXTRACTION WELL
- SOIL GAS MONITORING POINT
- SOIL BORING LOCATION
- P - P - PRODUCT LINE
- V - V - VENT LINE
- OE - OE - OVERHEAD ELECTRIC LINE
- UE - UE - UNDERGROUND ELECTRIC LINE
- CP - CP - UNDERGROUND CATHODIC PROTECTION LINE
- SS - SS - UNDERGROUND SANITARY SEWER LINE
- ST - ST - UNDERGROUND STORM SEWER LINE
- FO - FO - UNDERGROUND FIBER OPTIC LINE
- W - W - UNDERGROUND WATER LINE
- G - G - UNDERGROUND NATURAL GAS LINE
- ? - ? - UNKNOWN UTILITY LINE
- (28,500) NAPHTHALENE CONCENTRATION (µg/kg)
- 10,000 NAPHTHALENE ISOCONCENTRATION CONTOUR (µg/kg)
- CONTOURS DASHED WHERE INFERRED
- µg/kg MICROGRAMS PER KILOGRAM
- <# WHEN AN ANALYTE IS NOT DETECTED THE LABORATORY REPORTING LIMIT IS GIVEN
- NA NOT ANALYZED

NOTES:

THE ACT 2 USED AQUIFER NON-RESIDENTIAL MEDIUM-SPECIFIC CONCENTRATION FOR NAPHTHALENE IN SATURATED SOIL IS 10,000 µg/kg.

DRAFTED BY: TP (EXTON)	NAPHTHALENE SOIL ISOCONCENTRATION MAP JUNE 2013-DECEMBER 2014 (7-12 FEET bgs)		
CHECKED BY: JH	KWIK FILL STATION #M-061 227 EAST MAIN STREET BRADFORD, PENNSYLVANIA		
REVIEWED BY: EL	Groundwater & Environmental Services, Inc. 301 COMMERCE PARK DRIVE, CRANBERRY TOWNSHIP, PA 16066		
NORTH 	SCALE IN FEET 0 APPROXIMATE 20	DATE 02-25-15	FIGURE 14



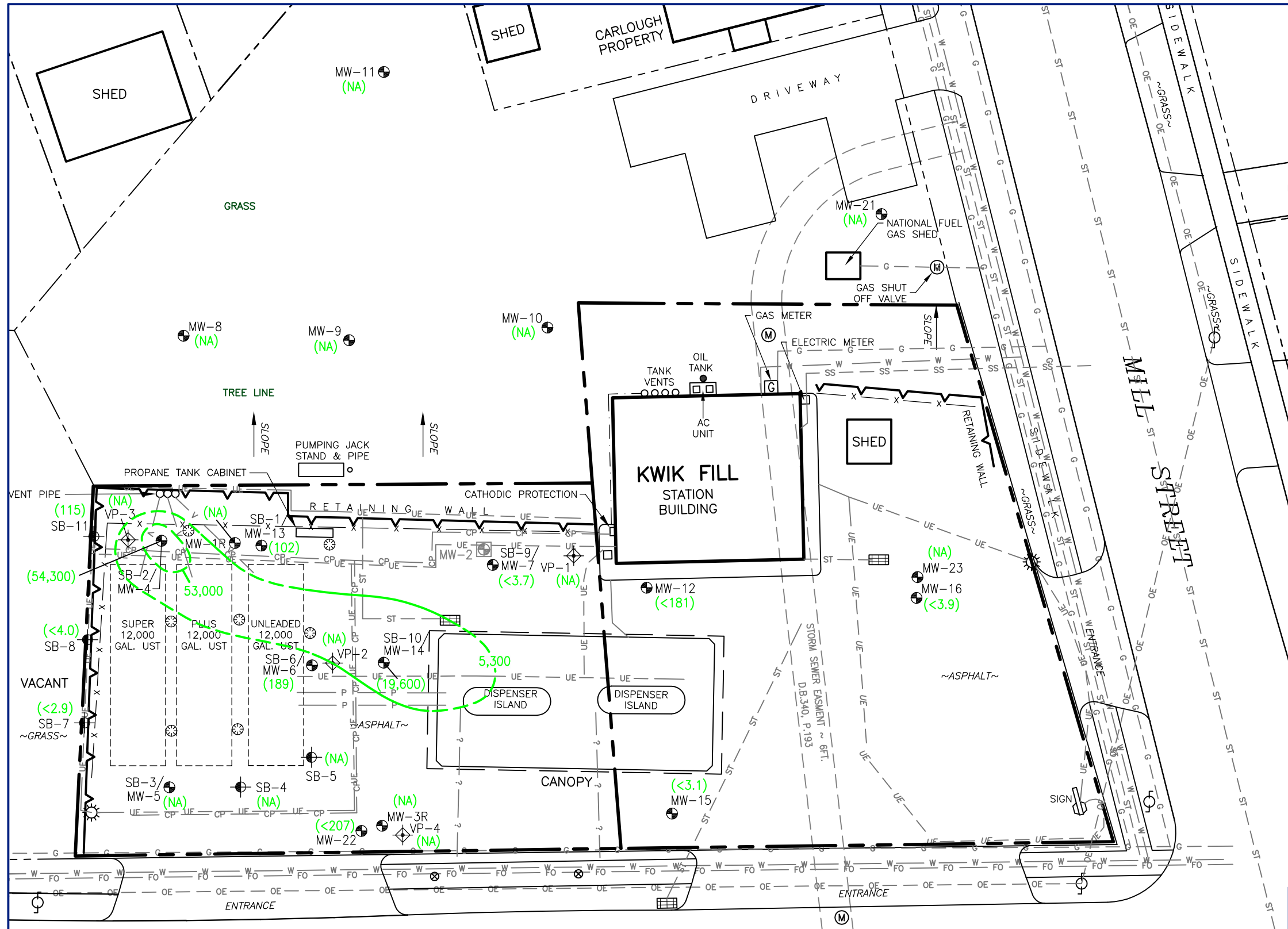
LEGEND

- PROPERTY BOUNDARY (APPROXIMATE)
- x - FENCE
- CATCH BASIN
- UTILITY MANHOLE
- UTILITY POLE
- LIGHT POLE
- WATER VALVE
- DISPENSER ISLAND
- GROUNDWATER MONITORING WELL
- ABANDONED GROUNDWATER MONITORING WELL
- HISTORICAL SOIL VAPOR EXTRACTION WELL
- SOIL GAS MONITORING POINT
- SOIL BORING LOCATION
- P - P - PRODUCT LINE
- V - V - VENT LINE
- OE - OE - OVERHEAD ELECTRIC LINE
- UE - UE - UNDERGROUND ELECTRIC LINE
- CP - CP - UNDERGROUND CATHODIC PROTECTION LINE
- SS - SS - UNDERGROUND SANITARY SEWER LINE
- ST - ST - UNDERGROUND STORM SEWER LINE
- FO - FO - UNDERGROUND FIBER OPTIC LINE
- W - W - UNDERGROUND WATER LINE
- G - G - UNDERGROUND NATURAL GAS LINE
- ? - ? - UNKNOWN UTILITY LINE
- (157,000) 1,2,4-TMB CONCENTRATION (µg/kg)
- 6,200 1,2,4-TMB ISOCONCENTRATION CONTOUR (µg/kg)
- CONTOURS DASHED WHERE INFERRED
- µg/kg MICROGRAMS PER KILOGRAM
- <# WHEN AN ANALYTE IS NOT DETECTED THE LABORATORY REPORTING LIMIT IS GIVEN
- TMB TRIMETHYLBENZENE
- NA NOT ANALYZED

NOTES:

THE ACT 2 USED AQUIFER NON-RESIDENTIAL MEDIUM-SPECIFIC CONCENTRATION FOR 1,2,4-TMB IN SATURATED SOIL IS 6,200 µg/kg.

DRAFTED BY: TP (EXTON)	1,2,4-TMB SOIL ISOCONCENTRATION MAP JUNE 2013-DECEMBER 2014 (7-12 FEET bgs)		
CHECKED BY: JH	KWIK FILL STATION #M-061 227 EAST MAIN STREET BRADFORD, PENNSYLVANIA		
REVIEWED BY: EL	Groundwater & Environmental Services, Inc. 301 COMMERCE PARK DRIVE, CRANBERRY TOWNSHIP, PA 16066		
NORTH 	SCALE IN FEET 0 APPROXIMATE 20	DATE 02-25-15	FIGURE 15



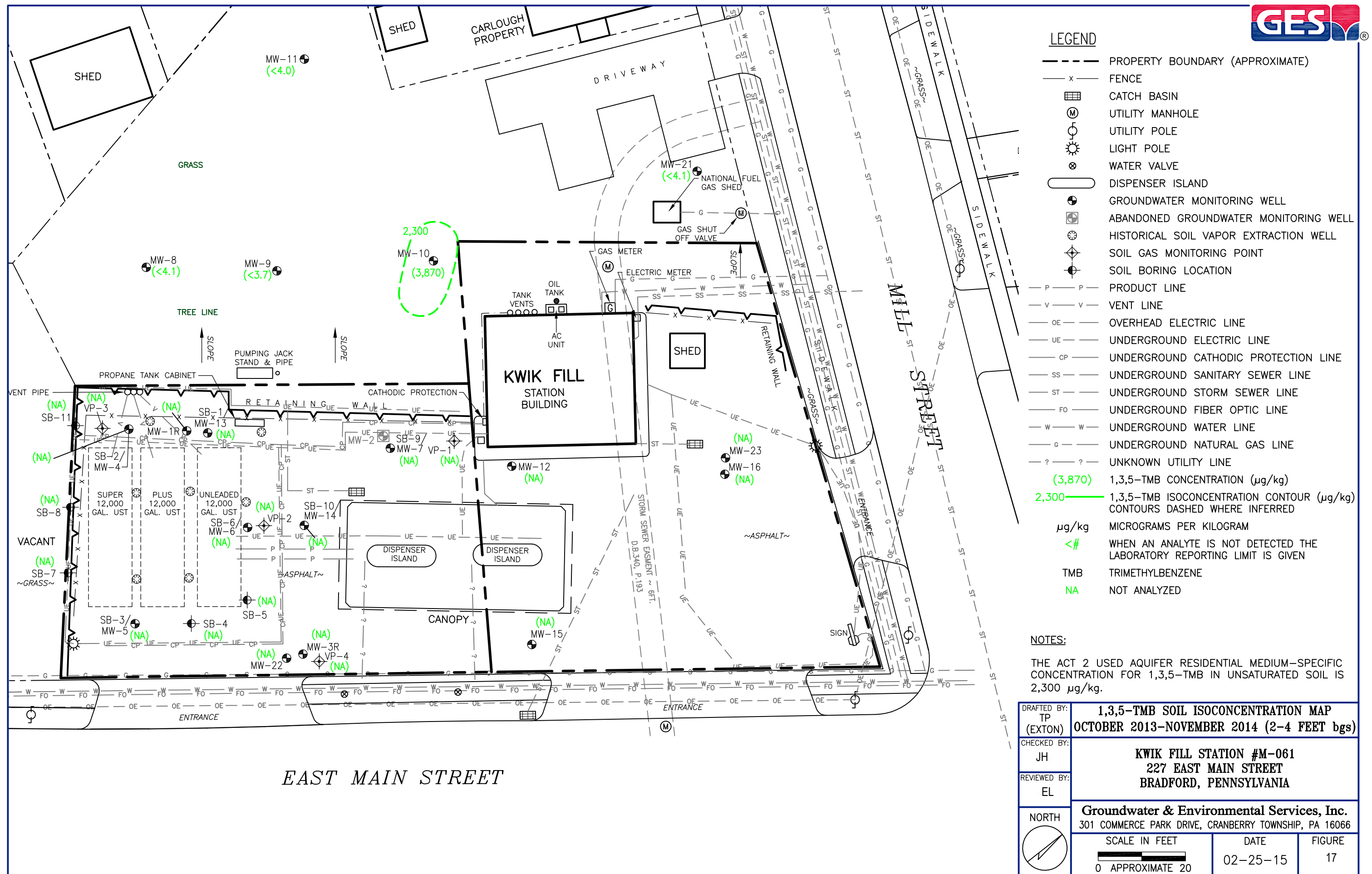
LEGEND

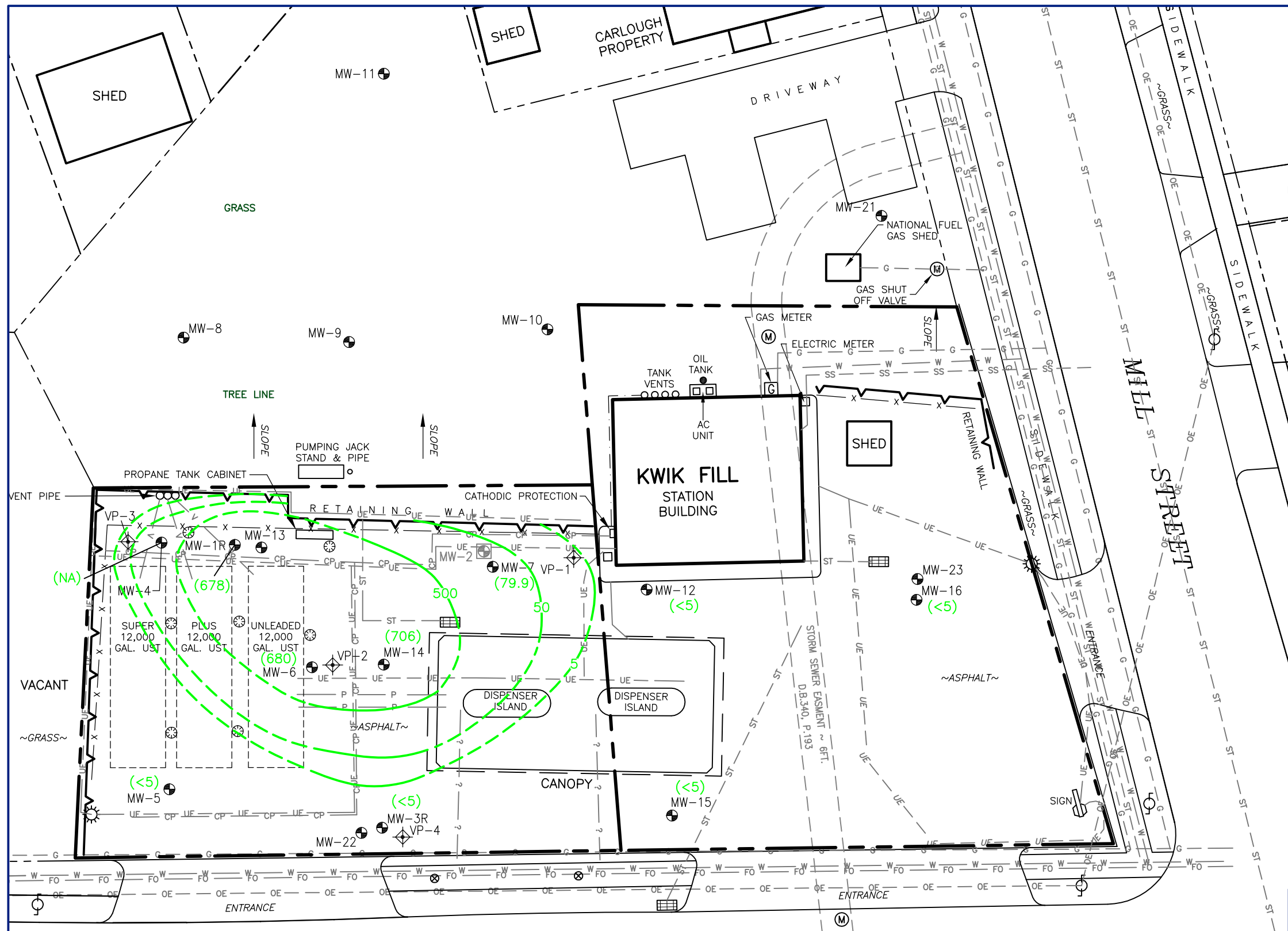
- PROPERTY BOUNDARY (APPROXIMATE)
- FENCE
- CATCH BASIN
- UTILITY MANHOLE
- UTILITY POLE
- LIGHT POLE
- WATER VALVE
- DISPENSER ISLAND
- GROUNDWATER MONITORING WELL
- ABANDONED GROUNDWATER MONITORING WELL
- HISTORICAL SOIL VAPOR EXTRACTION WELL
- SOIL GAS MONITORING POINT
- SOIL BORING LOCATION
- PRODUCT LINE
- VENT LINE
- OVERHEAD ELECTRIC LINE
- UNDERGROUND ELECTRIC LINE
- UNDERGROUND CATHODIC PROTECTION LINE
- UNDERGROUND SANITARY SEWER LINE
- UNDERGROUND STORM SEWER LINE
- UNDERGROUND FIBER OPTIC LINE
- UNDERGROUND WATER LINE
- UNDERGROUND NATURAL GAS LINE
- UNKNOWN UTILITY LINE
- 1,3,5-TMB CONCENTRATION (µg/kg)
- 1,3,5-TMB ISOCONCENTRATION CONTOUR (µg/kg)
- CONTOURS DASHED WHERE INFERRED
- µg/kg
- WHEN AN ANALYTE IS NOT DETECTED THE LABORATORY REPORTING LIMIT IS GIVEN
- TRIMETHYLBENZENE
- NOT ANALYZED

NOTES:

THE ACT 2 USED AQUIFER NON-RESIDENTIAL MEDIUM-SPECIFIC CONCENTRATION FOR 1,3,5-TMB IN SATURATED SOIL IS 5,300 µg/kg.

DRAFTED BY: TP (EXTON)	1,3,5-TMB SOIL ISOCONCENTRATION MAP JUNE 2013-DECEMBER 2014 (7-12 FEET bgs)		
CHECKED BY: JH	KWIK FILL STATION #M-061 227 EAST MAIN STREET BRADFORD, PENNSYLVANIA		
REVIEWED BY: EL	Groundwater & Environmental Services, Inc. 301 COMMERCE PARK DRIVE, CRANBERRY TOWNSHIP, PA 16066		
NORTH	SCALE IN FEET 0 APPROXIMATE 20	DATE 02-25-15	FIGURE 16





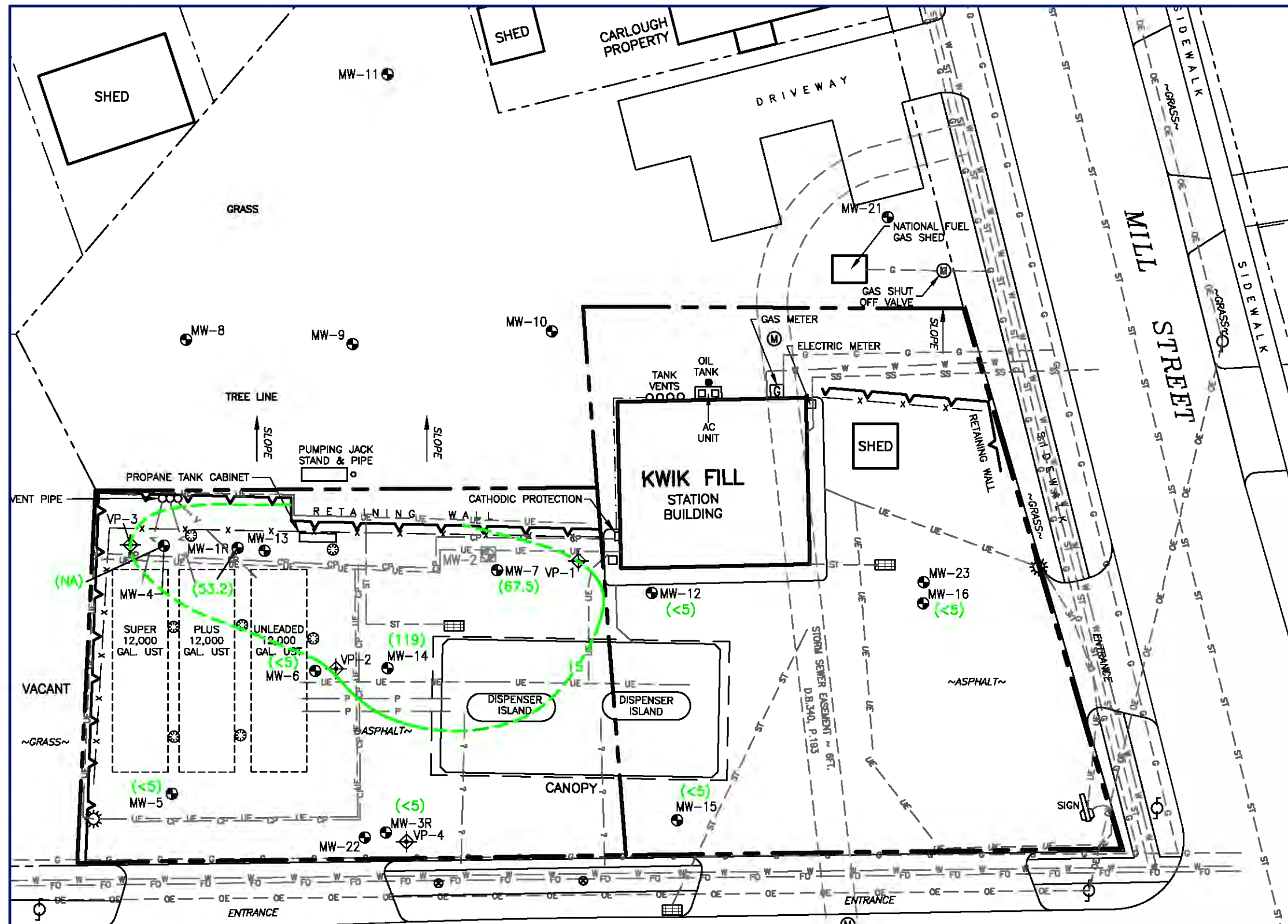
LEGEND

- PROPERTY BOUNDARY (APPROXIMATE)
- FENCE
- CATCH BASIN
- UTILITY MANHOLE
- UTILITY POLE
- LIGHT POLE
- WATER VALVE
- DISPENSER ISLAND
- GROUNDWATER MONITORING WELL
- ABANDONED GROUNDWATER MONITORING WELL
- HISTORICAL SOIL VAPOR EXTRACTION WELL
- SOIL GAS MONITORING POINT
- PRODUCT LINE
- VENT LINE
- OVERHEAD ELECTRIC LINE
- UNDERGROUND ELECTRIC LINE
- UNDERGROUND CATHODIC PROTECTION LINE
- UNDERGROUND SANITARY SEWER LINE
- UNDERGROUND STORM SEWER LINE
- UNDERGROUND FIBER OPTIC LINE
- UNDERGROUND WATER LINE
- UNDERGROUND NATURAL GAS LINE
- UNKNOWN UTILITY LINE
- BENZENE CONCENTRATION ($\mu\text{g/L}$)
- BENZENE ISOCONCENTRATION CONTOUR ($\mu\text{g/L}$)
- MICROGRAMS PER LITER
- WHEN AN ANALYTE IS NOT DETECTED THE LABORATORY REPORTING LIMIT IS GIVEN
- NOT ANALYZED

NOTES:

THE ACT 2 USED AQUIFER RESIDENTIAL MEDIUM-SPECIFIC CONCENTRATION FOR BENZENE IN GROUNDWATER IS 5 $\mu\text{g/L}$.

DRAFTED BY: TP (EXTON)	BENZENE GROUNDWATER ISOCONCENTRATION MAP (PERCHED GROUNDWATER ZONE) FEBRUARY 3-4, 2015		
CHECKED BY: JH	KWIK FILL STATION #M-061 227 EAST MAIN STREET BRADFORD, PENNSYLVANIA		
REVIEWED BY: EL	Groundwater & Environmental Services, Inc. 301 COMMERCE PARK DRIVE, CRANBERRY TOWNSHIP, PA 16066		
NORTH 	SCALE IN FEET 0 APPROXIMATE 20	DATE 02-25-15	FIGURE 18



LEGEND

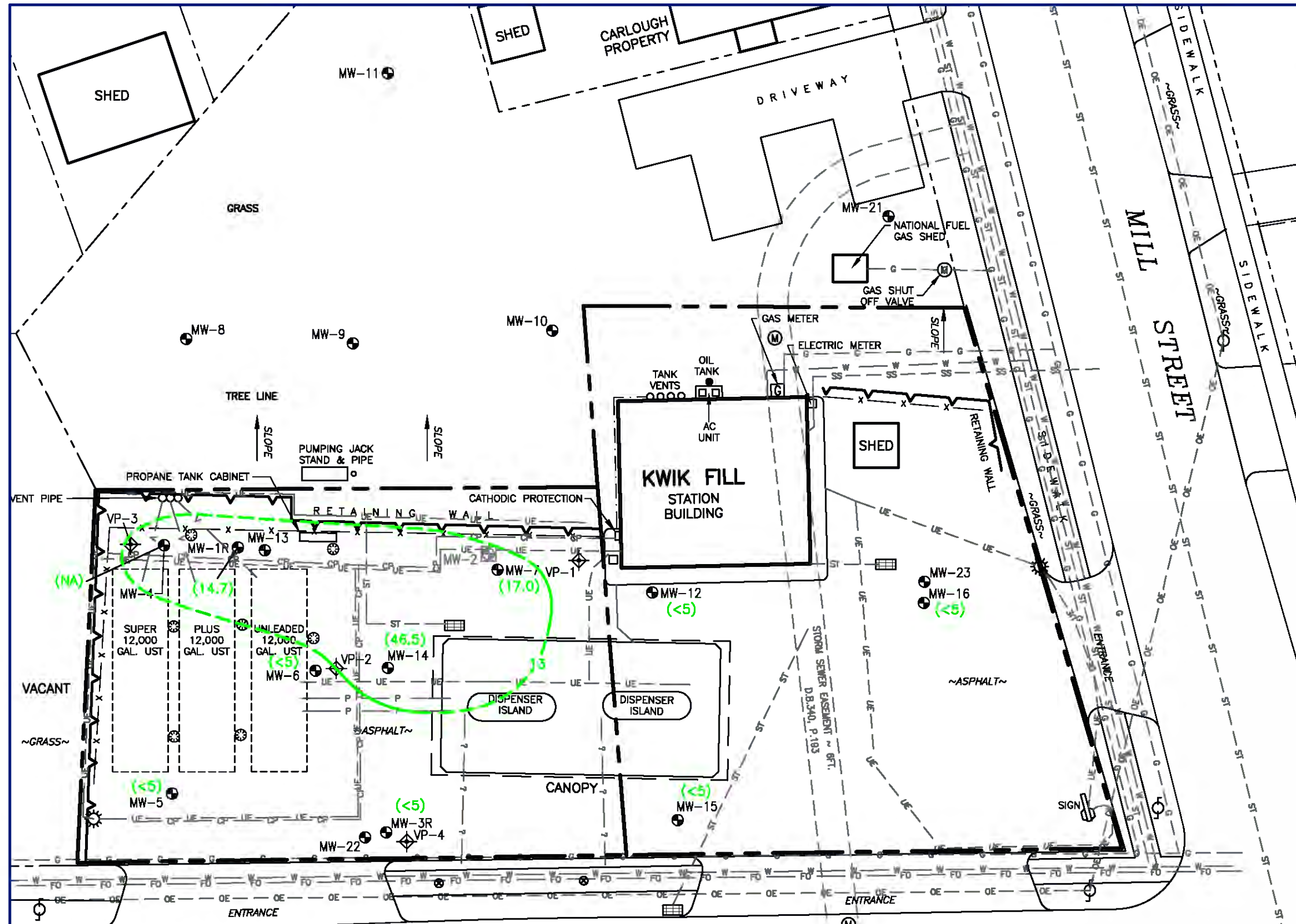
- PROPERTY BOUNDARY (APPROXIMATE)
- FENCE
- CATCH BASIN
- UTILITY MANHOLE
- UTILITY POLE
- LIGHT POLE
- WATER VALVE
- DISPENSER ISLAND
- GROUNDWATER MONITORING WELL
- ABANDONED GROUNDWATER MONITORING WELL
- HISTORICAL SOIL VAPOR EXTRACTION WELL
- SOIL GAS MONITORING POINT

- PRODUCT LINE
- VENT LINE
- OVERHEAD ELECTRIC LINE
- UNDERGROUND ELECTRIC LINE
- UNDERGROUND CATHODIC PROTECTION LINE
- UNDERGROUND SANITARY SEWER LINE
- UNDERGROUND STORM SEWER LINE
- UNDERGROUND FIBER OPTIC LINE
- UNDERGROUND WATER LINE
- UNDERGROUND NATURAL GAS LINE
- UNKNOWN UTILITY LINE
- (119) 1,2,4-TMB CONCENTRATION (µg/L)
- 15 1,2,4-TMB ISOCONCENTRATION CONTOUR (µg/L) CONTOURS DASHED WHERE INFERRED
- (µg/L) MICROGRAMS PER LITER
- <# WHEN AN ANALYTE IS NOT DETECTED THE LABORATORY REPORTING LIMIT IS GIVEN
- TMB TRIMETHYLBENZENE
- (NA) NOT ANALYZED

NOTES:

THE ACT 2 USED AQUIFER RESIDENTIAL MEDIUM-SPECIFIC CONCENTRATION FOR 1,2,4-TMB IN GROUNDWATER IS 15 µg/L.

DRAFTED BY: TP (EXTON)	1,2,4-TMB GROUNDWATER ISOCONCENTRATION MAP (PERCHED GROUNDWATER ZONE) FEBRUARY 3-4, 2015		
CHECKED BY: JH	KWIK FILL STATION #M-061 227 EAST MAIN STREET BRADFORD, PENNSYLVANIA		
REVIEWED BY: EL			
NORTH 	Groundwater & Environmental Services, Inc. 301 COMMERCE PARK DRIVE, CRANBERRY TOWNSHIP, PA 16066		
	SCALE IN FEET 0 APPROXIMATE 20	DATE 03-19-15	FIGURE 19



LEGEND

- PROPERTY BOUNDARY (APPROXIMATE)
- FENCE
- CATCH BASIN
- UTILITY MANHOLE
- UTILITY POLE
- LIGHT POLE
- WATER VALVE
- DISPENSER ISLAND
- GROUNDWATER MONITORING WELL
- ABANDONED GROUNDWATER MONITORING WELL
- HISTORICAL SOIL VAPOR EXTRACTION WELL
- SOIL GAS MONITORING POINT

- PRODUCT LINE
- VENT LINE
- OVERHEAD ELECTRIC LINE
- UNDERGROUND ELECTRIC LINE
- UNDERGROUND CATHODIC PROTECTION LINE
- UNDERGROUND SANITARY SEWER LINE
- UNDERGROUND STORM SEWER LINE
- UNDERGROUND FIBER OPTIC LINE
- UNDERGROUND WATER LINE
- UNDERGROUND NATURAL GAS LINE
- UNKNOWN UTILITY LINE
- 1,3,5-TMB CONCENTRATION (µg/L)
- 1,3,5-TMB ISOCONCENTRATION CONTOUR (µg/L)
CONTOURS DASHED WHERE INFERRED
- (µg/L)
- WHEN AN ANALYTE IS NOT DETECTED THE
LABORATORY REPORTING LIMIT IS GIVEN
- TMB TRIMETHYLBENZENE
- (NA) NOT ANALYZED

NOTES:

THE ACT 2 USED AQUIFER RESIDENTIAL
MEDIUM-SPECIFIC CONCENTRATION FOR 1,3,5-TMB
IN GROUNDWATER IS 13 µg/L.

DRAFTED BY: TP (EXTON)	1,3,5-TMB GROUNDWATER ISOCONCENTRATION MAP (PERCHED GROUNDWATER ZONE) FEBRUARY 3-4, 2015		
CHECKED BY: JH	KWIK FILL STATION #M-061 227 EAST MAIN STREET BRADFORD, PENNSYLVANIA		
REVIEWED BY: EL	Groundwater & Environmental Services, Inc. 301 COMMERCE PARK DRIVE, CRANBERRY TOWNSHIP, PA 16066		
NORTH 	SCALE IN FEET 	DATE 03-19-15	FIGURE 20
	0 APPROXIMATE 20		



TABLES

Table 1 - Groundwater Data Summary

Table 2A - On-Site Soil Data Summary

Table 2B - Off-Site Soil Data Summary

Table 3 - Soil Boring Water Sample Data Summary

Table 4 - Soil Gas Data Summary

Table 5 - Physical and Chemical Properties of COCs

Table 1

GROUNDWATER DATA SUMMARY

United Refining Company
Kwik Fill Station #M-061
227 East Main Street
Bradford, PA

Well	Date	Casing Elevation	Depth to Water	Water Elevation	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	Isopropyl-benzene	Naphthalene	1,2,4-TMB	1,3,5-TMB
PA Act 2 U/R MSCs					5	1,000	700	10,000	20	840	100	15	13
MW-1R	06/12/13	100.00	6.29	93.71	118	14.7	13.8	186	5.5	< 5.0	10	94.3	35.8
	11/01/13	100.00	5.16	94.84	820	7.7	21.2	81.8	5.4	12.2	6.7	40.1	17.9
	01/09/14	100.00	6.46	93.54	398	5.3	13.2	36.3	7.3	10.3	13.4	43.5	14.9
	06/17/14	100.00	6.48	93.52	261	14.8	19.9	37.6	< 5.0	18.4	17.9	130	24.8
	01/06/15	100.00	6.29	93.71	603	8.6	13.5	33.8	< 5.0	15.9	5.4	50.0	15.3
	02/04/15	100.00	7.29	92.71	678	7.7	20.3	25.6	7.5	21.9	7.4	53.2	14.7
MW-3R	11/01/13	99.21	4.25	94.96	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	01/09/14	99.21	5.06	94.15	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	06/17/14	99.21	4.34	94.87	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	7.3	< 5.0	< 5.0
	01/06/15	99.21	4.95	94.26	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	02/03/15	99.21	6.21	93.00	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
MW-4	06/12/13	99.70	6.97	92.73	190	14.5	162	459	10.5	28.4	43.0	203	128
	11/01/13	99.70	5.84	93.86	774	12.6	28.1	82.1	< 5.0	13.8	11.0	64.7	18.2
	01/09/14	99.70	6.22	93.48	422	7.9	57.1	128	< 5.0	17.5	17.4	179	34.6
	06/17/14	99.70	6.17	93.53	212	9.2	25.8	24.5	< 5.0	15.6	7.9	173	17.0
	01/06/15	99.70	5.99	93.71	542	14.5	21.3	32.2	< 5.0	14.7	< 5.0	127	18.7
	02/03/15	99.70	NM	NA	-	-	-	-	-	-	-	-	-
MW-5	06/12/13	99.42	4.15	95.27	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	11/01/13	99.42	4.79	94.63	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	01/09/14	99.42	5.71	93.71	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	06/17/14	99.42	5.53	93.89	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	01/06/15	99.42	5.34	94.08	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	02/03/15	99.42	6.59	92.83	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
MW-6	06/12/13	99.67	5.99	93.68	135	76.0	22.6	104	12.4	7.0	38.2	88.4	43.8
	11/01/13	99.67	5.87	93.80	561	9.8	22.8	28.3	9.1	15.0	33.9	25.6	< 5.0
	01/09/14	99.67	6.18	93.49	446	6.5	17.5	15.7	6.8	16.7	11.8	15.5	< 5.0
	06/17/14	99.67	6.19	93.48	201	8.7	24.5	15.8	7.8	15.0	11.7	22.8	< 5.0
	01/06/15	99.67	5.98	93.69	647	6.3	11.0	19.8	5.9	15.0	9.1	8.5	< 5.0
	02/03/15	99.67	6.99	92.68	680	8.1	11.2	18.0	5.7	15.8	< 5.0	< 5.0	< 5.0
MW-7	11/01/13	99.77	6.75	93.02	135	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	01/09/14	99.77	6.92	92.85	44.6	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	06/17/14	99.77	6.91	92.86	49.4	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	01/06/15	99.77	7.25	92.52	12.5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	02/03/15	99.77	8.95	90.82	79.9	< 5.0	68.2	254	< 5.0	5.1	9.2	67.5	17.0

Table 1

GROUNDWATER DATA SUMMARY

United Refining Company
Kwik Fill Station #M-061
227 East Main Street
Bradford, PA

Well	Date	Casing Elevation	Depth to Water	Water Elevation	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	Isopropyl-benzene	Naphthalene	1,2,4-TMB	1,3,5-TMB
PA Act 2 U/R MSCs					5	1,000	700	10,000	20	840	100	15	13
MW-8	11/01/13	89.76	13.95	75.81	< 5.0	< 5.0	< 5.0	< 5.0	626	< 5.0	< 5.0	< 5.0	< 5.0
	01/09/14	89.76	11.43	78.33	< 5.0	< 5.0	< 5.0	< 5.0	406	< 5.0	< 5.0	< 5.0	< 5.0
	06/17/14	89.76	11.17	78.59	< 5.0	< 5.0	< 5.0	< 5.0	289	< 5.0	< 5.0	< 5.0	< 5.0
	01/06/15	89.76	11.88	77.88	< 5.0	< 5.0	< 5.0	< 5.0	173	< 5.0	< 5.0	< 5.0	< 5.0
	02/04/15	89.76	11.71	78.05	< 5.0	< 5.0	< 5.0	< 5.0	155	< 5.0	< 5.0	< 5.0	< 5.0
MW-9	11/01/13	89.99	22.95	67.04	< 5.0	< 5.0	< 5.0	< 5.0	2,310	< 5.0	< 5.0	< 5.0	< 5.0
	01/09/14	89.99	21.27	68.72	< 5.0	< 5.0	< 5.0	< 5.0	3,330	< 5.0	< 5.0	< 5.0	< 5.0
	06/17/14	89.99	15.77	74.22	< 5.0	< 5.0	< 5.0	< 5.0	2,870	< 5.0	< 5.0	< 5.0	< 5.0
	01/06/15	89.99	13.38	76.61	< 5.0	< 5.0	< 5.0	< 5.0	2,330	< 5.0	< 5.0	< 5.0	< 5.0
	02/04/15	89.99	10.72	79.27	< 5.0	< 5.0	< 5.0	< 5.0	1,230	< 5.0	< 5.0	< 5.0	< 5.0
MW-10	01/09/14	88.76	22.91	65.85	< 5.0	< 5.0	< 5.0	< 5.0	27.0	< 5.0	< 5.0	< 5.0	< 5.0
	06/17/14	88.76	21.41	67.35	< 5.0	< 5.0	< 5.0	< 5.0	392	< 5.0	< 5.0	< 5.0	< 5.0
	01/06/15	88.76	21.83	66.93	< 5.0	< 5.0	< 5.0	< 5.0	396	< 5.0	< 5.0	< 5.0	< 5.0
	02/04/15	88.76	22.16	66.60	< 5.0	< 5.0	< 5.0	< 5.0	287	< 5.0	< 5.0	< 5.0	< 5.0
MW-11	01/09/14	87.28	19.27	68.01	< 5.0	< 5.0	< 5.0	< 5.0	914	< 5.0	< 5.0	< 5.0	< 5.0
	06/17/14	87.28	18.19	69.09	8.6	< 5.0	5.3	< 5.0	1,360	< 5.0	< 5.0	< 5.0	5.0
	01/06/15	87.28	16.88	70.40	8.1	< 5.0	< 5.0	< 5.0	1,030	< 5.0	< 5.0	< 5.0	< 5.0
	02/04/15	87.28	17.57	69.71	< 5.0	< 5.0	< 5.0	< 5.0	854	< 5.0	< 5.0	< 5.0	< 5.0
MW-12	01/09/14	99.30	5.46	93.84	< 5.0	48.8	18.3	126	< 5.0	< 5.0	< 5.0	36.6	< 5.0
	06/17/14	99.30	5.41	93.89	< 5.0	< 5.0	< 5.0	5.1	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	01/06/15	99.30	5.74	93.56	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	02/03/15	99.30	8.51	90.79	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
MW-13	01/09/14	99.83	33.00	66.83	< 5.0	< 5.0	< 5.0	< 5.0	115	< 5.0	< 5.0	< 5.0	< 5.0
	06/17/14	99.83	21.87	77.96	< 5.0	< 5.0	< 5.0	< 5.0	1,350	< 5.0	< 5.0	< 5.0	< 5.0
	01/06/15	99.83	21.25	78.58	< 5.0	< 5.0	< 5.0	< 5.0	1,610	< 5.0	< 5.0	< 5.0	< 5.0
	02/04/15	99.83	22.01	77.82	< 5.0	< 5.0	< 5.0	< 5.0	1,410	< 5.0	< 5.0	< 5.0	< 5.0
MW-14	01/09/14	100.12	7.01	93.11	511	15.7	77.2	712	11.7	23.1	33.3	233	94.5
	06/17/14	100.12	6.65	93.47	274	13.0	33.8	66.1	6.0	7.4	10.1	41.5	20.6
	01/06/15	100.12	6.63	93.49	543	8.5	29.9	72.9	5.2	12.8	6.3	32.4	15.5
	02/03/15	100.12	8.62	91.50	706	10.5	112	387	19.0	13.6	25.5	119	46.5
MW-15	06/17/14	99.57	7.15	92.42	12.5	6.8	< 5.0	7.4	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	01/06/15	99.57	6.85	92.72	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	02/03/15	99.57	7.11	92.46	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
MW-16	06/17/14	98.60	DRY	NM	-	-	-	-	-	-	-	-	-
	01/06/15	98.60	14.75	83.85	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	02/03/15	98.60	13.50	85.10	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0

Table 1

GROUNDWATER DATA SUMMARY

United Refining Company
Kwik Fill Station #M-061
227 East Main Street
Bradford, PA

Well	Date	Casing Elevation	Depth to Water	Water Elevation	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	Isopropyl-benzene	Naphthalene	1,2,4-TMB	1,3,5-TMB
PA Act 2 U/R MSCs					5	1,000	700	10,000	20	840	100	15	13
MW-17	06/17/14	77.95	8.87	69.08	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	01/06/15	77.95	9.37	68.58	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0M1	< 5.0	< 5.0
	02/03/15	77.95	10.12	67.83	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
MW-18	06/17/14	76.65	21.82	54.83	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	01/06/15	76.65	21.70	54.95	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	02/03/15	76.65	22.51	54.14	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
MW-19	06/17/14	75.36	20.49	54.87	< 5.0	< 5.0	< 5.0	< 5.0	525	< 5.0	< 5.0	< 5.0	< 5.0
	01/06/15	75.36	20.42	54.94	< 5.0	< 5.0	< 5.0	< 5.0	377	< 5.0	< 5.0	< 5.0	< 5.0
	02/03/15	75.36	21.19	54.17	< 5.0	< 5.0	< 5.0	< 5.0	377	< 5.0	< 5.0	< 5.0	< 5.0
MW-20	01/06/15	66.78	12.42	54.36	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	02/04/15	66.78	12.99	53.79	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
MW-21	01/06/15	86.70	10.97	75.73	< 5.0	< 5.0	< 5.0	< 5.0	27.0	< 5.0	< 5.0	< 5.0	< 5.0
	02/04/15	86.70	11.61	75.09	< 5.0	< 5.0	< 5.0	< 5.0	20.5	< 5.0	< 5.0	< 5.0	< 5.0
MW-22	01/06/15	99.22	33.21	66.01	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	02/03/15	99.22	19.41	79.81	< 5.0	< 5.0	< 5.0	< 5.0	12.9	< 5.0	< 5.0	< 5.0	< 5.0
MW-23	01/06/15	98.70	30.02	68.68	< 5.0	< 5.0	< 5.0	< 5.0	49.2	< 5.0	< 5.0	< 5.0	< 5.0
	02/03/15	98.70	30.95	67.75	< 5.0	< 5.0	< 5.0	< 5.0	46.7	< 5.0	< 5.0	< 5.0	< 5.0
MW-24	01/06/15	71.62	16.89	54.73	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	02/04/15	71.62	12.19	59.43	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0

NOTES

All laboratory data and U/R MSCs are reported in micrograms per liter.

Elevation and depth to water measurements are recorded in feet.

U/R MSC = Used Aquifer/Residential Medium-Specific Concentration

BOLD = Indicates exceedance of applicable Act 2 MSC

<# = Less than laboratory reporting limit of #

DRY = Insufficient water for sampling

M1 = Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery).

MTBE = Methyl tert-butyl ether

TMB = Trimethylbenzene

NA = Not available

NM = Not measured

- = Sample not collected

Table 2A

ON-SITE SOIL DATA SUMMARY

United Refining Company
Kwik Fill Station #M-061
227 East Main Street
Bradford, PA

Soil Sample ID	Date	Depth (ft)	PID (ppm)	Benzene (µg/kg)	Toluene (µg/kg)	Ethylbenzene (µg/kg)	Total Xylenes (µg/kg)	MTBE (µg/kg)	Isopropyl Benzene (µg/kg)	Naphthalene (µg/kg)	1,2,4-TMB (µg/kg)	1,3,5-TMB (µg/kg)
PA Act 2 U/NR MSC (Unsaturated) 0 - 2 feet				500	100,000	70,000	1,000,000	2,000	2,500,000	25,000	35,000	9,300
PA Act 2 U/NR MSC (Saturated/Unsaturated) 2 - 15 feet				500	100,000	70,000	1,000,000	2,000	350,000/ 2,500,000	10,000/ 25,000	6,200/ 35,000	5,300/ 9,300
SB-1	06/03/13	6-7	35.8	138	<3.6	<3.6	<10.8	27.2	<3.6	<3.6	<3.6	<3.6
SB-1	06/05/13	10-12	402.0	166	14.0	122	467	15.7	39.3	53.6	2,650	102
SB-1	06/05/13	13-15	14.2	<2.7	<2.7	<2.7	<8.1	<2.7	<2.7	<2.7	<2.7	<2.7
SB-1/MW-13	12/17/13	21-23	61.3	5.5	<3.7	15.8	76.0	165	<3.7	<3.7	27.3	10.3
SB-1/MW-13	12/17/13	27-29	66.8	<3.8	<3.8	<3.8	<11.3	45.2	<3.8	<3.8	<3.8	<3.8
SB-1/MW-13	12/18/13	33-35	18.9	<3.5	<3.5	<3.5	<10.4	<3.5	<3.5	<3.5	<3.5	<3.5
SB-2/MW-4	06/03/13	6-6.5	393.3	50.9	14.9	9.5	269	45.2	7.0	5.1	171	78.9
SB-2/MW-4	06/05/13	8-10	3,689	11,400	971	57,600	232,000	<268	5,980	13,300	157,000	54,300
SB-2/MW-4	06/05/13	13-15	50.9	3.8	<3.2	<3.2	<9.6	<3.2	<3.2	<3.2	<3.2	<3.2
SB-3/MW-5	06/03/13	2-3	40.6	<3.5	<3.5	<3.5	<10.4	<3.5	<3.5	<3.5	<3.5	<3.5
SB-3/MW-5	06/05/13	13-15	8.1	<2.9	<2.9	<2.9	<8.6	<2.9	<2.9	<2.9	<2.9	<2.9
SB-4	06/04/13	3-4	73.4	19.5	<4.4	<4.4	<13.3	<4.4	<4.4	<4.4	<4.4	<4.4
SB-5	06/04/13	6-7	215.9	83.6	5.1	8.4	18.9	4.3	15.3	5.5	38.5	17.1
SB-5	06/05/13	13-15	9.3	<3.2	<3.2	<3.2	<9.7	7.4	<3.2	<3.2	<3.2	<3.2
SB-6/MW-6	06/04/13	2-3	12.0	7.8	11.7	4.2	15.9	<3.8	<3.8	<3.8	<3.8	<3.8
SB-6/MW-6	06/05/13	5-7	1,166	3,660	356	1920	2,050	<197	4,760	8,690	3,930	638
SB-6/MW-6	06/05/13	8-10	1,602	377	<183	544	<550	<183	851	1,030	374	189
SB-6/MW-6	06/05/13	11.5-12.5	18.9	<4.1	<4.1	<4.1	<12.3	<4.1	<4.1	<4.1	<4.1	<4.1
SB-7	06/04/13	5-6	6.7	<2.9	<2.9	<2.9	<8.8	<2.9	<2.9	<2.9	<2.9	<2.9
SB-8	06/04/13	3-4	6.4	<4.0	<4.0	<4.0	<12.1	<4.0	<4.0	<4.0	<4.0	<4.0
SB-9/MW-7	10/07/13	3-4	11.5	<3.3	<3.3	<3.3	<9.9	<3.3	<3.3	<3.3	<3.3	<3.3
SB-9/MW-7	10/09/13	10-12	30.7	37.9	<3.7	4.2	<11.0	8.8	8.7	<3.7	30.1	<3.7
SB-9/MW-7	10/09/13	13-15	31.9	<3.1	<3.1	<3.1	<9.2	<3.1	<3.1	<3.1	<3.1	<3.1
SB-10/MW-14	10/07/13	6-7	13.4	4.8	4	<3.3	10.2	<3.3	<3.3	4.2	3.6	<3.3
SB-10/MW-14	10/09/13	8-10	3,723	3,470	349	11,800	87,100	<169	2,080	4,300	44,600	19,600
SB-10/MW-14	10/09/13	10-12	329	141	6.3	78.8	199	6.3	8.3	74.8	93.1	36.4
SB-11	10/09/13	3-4	7.4	41.7	6.2	52.6	173	<4.8	8.3	14.9	244	115
MW-12	12/05/13	4-5	8.3	<3.3	<3.3	<3.3	<9.8	<3.3	<3.3	<3.3	6.7	4.2
MW-12	12/12/13	9-11	2,547	2,560	104,000	93,400	585,000	<181	10,200	28,500	445,000	<181
MW-12	12/12/13	13-15	163.1	7.0	158	156	827	<4.4	22.0	17.3	343	141
MW-15	06/02/14	4-5	3.0	<2.6	<2.6	<2.6	<7.7	<2.6	<2.6	<2.6	<2.6	<2.6
MW-15	06/05/14	9-9.5	19.8	<3.1	<3.1	<3.1	<9.4	<3.1	<3.1	<3.1	<3.1	<3.1
MW-16	06/02/14	4-5	3.5	<5.4	<5.4	<5.4	<16.1	<5.4	<5.4	<5.4	<5.4	<5.4
MW-16	06/05/14	9-11	2.0	<3.9	<3.9	<3.9	<11.6	<3.9	<3.9	<3.9	<3.9	<3.9
MW-22	11/06/14	4-5	35.7	<4.6	5.9	<4.6	20.9	<4.6	7.0	91.1	19.6	22.4
MW-22	12/15/14	7-9	19.9	<194	<194	<194	<581	<194	<194	<194	222	<194
MW-22	12/15/14	9-11	24.4	<207	<207	<207	<622	<207	<207	<207	<207	<207
VP-1	10/08/13	1-2	17.7	<3.2	<3.2	<3.2	<9.7	<3.2	<3.2	<3.2	<3.2	<3.2
VP-2	10/08/13	2-3	7.7	5.9	6.3	<2.5	<7.5	<2.5	<2.5	<2.5	<2.5	<2.5
VP-3	10/08/13	4-5	14.0	13.1	<3.1	<3.1	<9.4	<3.1	<3.1	<3.1	<3.1	<3.1
VP-4	10/08/13	3-4	53.9	11.3	<4.2	<4.2	<12.5	<4.2	5.1	127	<4.2	<4.2

NOTES

BOLD

<# Less than laboratory reporting limit of #
µg/kg Micrograms per kilogram
ft feet below ground surface

MTBE Methyl tert-butyl ether
TMB Trimethylbenzene
PID Photoionization detector
ppm parts per million

Table 2B

OFF-SITE SOIL DATA SUMMARY

United Refining Company
 Kwik Fill Station #M-061
 227 East Main Street
 Bradford, PA

Soil Sample ID	Date	Depth (ft)	PID (ppm)	Benzene (µg/kg)	Toluene (µg/kg)	Ethyl-benzene (µg/kg)	Total Xylenes (µg/kg)	MTBE (µg/kg)	Isopropyl Benzene (µg/kg)	Naphthalene (µg/kg)	1,2,4-TMB (µg/kg)	1,3,5-TMB (µg/kg)
PA Act 2 U/R MSC (Saturated/Unsaturated)				500	100,000	70,000	1,000,000	2,000	84,000/600,000	10,000/25,000	1,500/8,400	1,300/2,300
MW-8	10/10/13	3-4	5.3	<4.1	<4.1	<4.1	<12.4	<4.1	<4.1	5.8	4.2	<4.1
MW-8	10/10/13	10-12	7.5	<3.2	<3.2	<3.2	<9.5	33.7	<3.2	<3.2	<3.2	<3.2
MW-8	10/10/13	17-19	4.9	<3.6	<3.6	<3.6	<10.7	6.1	<3.6	<3.6	<3.6	<3.6
MW-9	10/10/13	3-4	6.7	<3.7	<3.7	<3.7	<11.1	<3.7	<3.7	<3.7	<3.7	<3.7
MW-9	10/10/13	13-15	26.4	<3.5	<3.5	<3.5	<10.5	127	<3.5	<3.5	<3.5	<3.5
MW-9	10/10/13	28-30	10.0	<3.6	<3.6	<3.6	<10.8	<3.6	<3.6	<3.6	<3.6	<3.6
MW-10	12/04/13	2-3	1,092	<142	<142	<142	<425	<142	179	150	4,930	3,870
MW-10	12/17/13	7-9	25.2	<2.9	<2.9	<2.9	<8.6	<2.9	<2.9	<2.9	<2.9	<2.9
MW-10	12/17/13	30-32	26.8	<3.4	<3.4	<3.4	<10.3	<3.4	<3.4	<3.4	<3.4	<3.4
MW-11	12/05/13	3-4	9.3	<4.0	<4.0	<4.0	<12.0	<4.0	<4.0	<4.0	<4.0	<4.0
MW-11	12/12/13	30-32	26.2	<4.0	<4.0	<4.0	<12.0	<4.0	<4.0	<4.0	6.4	<4.0
MW-21	11/06/14	2-3	0.4	<4.1	<4.1	<4.1	<12.3	<4.1	<4.1	<4.1	<4.1	<4.1
MW-21	11/06/14	4-5	0.1	<4.3	<4.3	<4.3	<12.8	<4.3	<4.3	<4.3	<4.3	<4.3

NOTES

BOLD Indicates exceedance of Act 2 U/R MSCs
 <# Less than laboratory reporting limit of #
 µg/kg Micrograms per kilogram
 ft feet below ground surface

MTBE Methyl tert-butyl ether
 TMB Trimethylbenzene
 PID Photoionization detector
 ppm parts per million

Table 3

SOIL BORING WATER SAMPLE DATA SUMMARY

United Refining Company
 Kwik Fill Station #M-061
 227 East Main Street
 Bradford, PA

Well	Date	Casing Elevation	Depth to Water	Water Elevation	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	Isopropyl-benzene	Naphthalene	1,2,4-TMB	1,3,5-TMB
PA Act 2 U/R MSCs					5	1,000	700	10,000	20	840	100	15	13
SB-8	06/12/13	96.37	3.20	93.17	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
	11/01/13	96.37	3.01	93.36	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
	01/09/14	96.37	3.65	92.72	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
SB-11	11/01/13	94.48	DRY	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/09/14	94.48	4.00	90.48	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0

NOTES

All laboratory data and U/R MSCs are reported in micrograms per liter.

Elevation and depth to water measurements are recorded in feet.

U/R MSC = Used Aquifer/Residential Medium-Specific Concentration

<# = Less than laboratory reporting limit of #

MTBE = Methyl tert-butyl ether

TMB = Trimethylbenzene

NA = Not available

DRY = Insufficient water for sampling

Soil boring points were constructed of one-inch PVC entirely screened with varying lengths from 3.75 to 5-feet bgs.

Table 4

SOIL GAS DATA SUMMARY

United Refining Company
Kwik Fill Station #M-061
227 East Main Street
Bradford, PA

Location	Date	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	Isopropyl- benzene	Naphthalene	1,2,4-TMB	1,3,5-TMB
PADEP Residential MSC_{SG}		0.27	56	1.9	14	8.1	54	0.42	0.83	0.83
PADEP Non-Residential MSC_{SG}		1.1	120	7.3	30	31	110	0.88	1.7	1.7
VP-1	11/06/13	<0.0032	0.0264	<0.0044	<0.0132	<0.0037	<0.005	<0.0053	<0.005	<0.005
	01/09/14	<0.0029	<0.0226	<0.0039	<0.0118	<0.0032	<0.0044	<0.0047	<0.0044	<0.0044
VP-2	11/06/13	23.5	<1.2	<1.4	<4.1	<1.1	<1.5	<1.6	<1.5	<1.5
VP-3	11/06/13	<0.11 D3	<0.13	<0.15	<0.45	<0.12	<0.17	<0.18	<0.17	<0.17
	11/06/13 Dup	<0.11 D3	<0.13	<0.15	<0.45	<0.12	<0.17	<0.18	<0.17	<0.17
	01/09/14	<0.01	<0.012	<0.014	<0.041	<0.011	<0.015	<0.017	<0.015	<0.015
	01/09/14 Dup	<0.01	<0.012	<0.014	<0.041	<0.011	<0.015	<0.017	<0.015	<0.015
VP-4	11/06/13	<0.059 D3	<0.07	<0.081	<0.241	<0.067	<0.091	<0.097	<0.091	<0.091
	01/09/14	<0.22 D3	<0.26	<0.3	<0.91	<0.25	<0.34	<0.37 1M	<0.34	<0.34

NOTES

MSC _{SG}	Soil Gas Medium-Specific Concentration (Soil vapor transfer [attenuation] factor of 0.01 applied to MSC _{IAQ} screening criteria per PADEP 2004 soil vapor technical guidance to calculate the MSC _{SG}).
MTBE	methyl tert-butyl ether
TMB	trimethylbenzene
PADEP	Pennsylvania Department of Environmental Protection
VP	Soil gas sample location
Dup	Duplicate sample from specified location
D3	Sample diluted due to the presence of high levels of non-target analytes or other matrix interference.
1M	This analyte did not meet the secondary source verification criteria for the initial calibration, with 52% recovery for naphthalene (acceptance criteria is 60-140%).
<0.005	Reporting limit exceedance (reporting limit > PADEP MSC _{SG} screening criteria)
0.010	Detected concentration exceeds PADEP MSC _{SG} screening criteria

All values reported in milligrams per cubic meter (mg/m³).

Source for screening criteria is Commonwealth of Pennsylvania, Department of Environmental Protection, Land Recycling Program Technical Guidance Manual-Section IV.A.4, Vapor Intrusion into Buildings from Groundwater and Soil under the Act 2 Statewide Health Standard, 2004.

Table 5

PHYSICAL AND CHEMICAL PROPERTIES OF COCs

United Refining Company
 Kwik Fill Station #M-061
 227 East Main Street
 Bradford, PA

Compound	CAS Number	RfDo (mg/kg-d)	CSFo (mg/kg-d) ⁻¹	RfCi (mg/m ³)	IUR (μg/m ³) ⁻¹	Koc	Aqueous Solubility (mg/L)	TF Volume from Surface Soil	TF Volume from SubSurface Soil	Boiling Point °C	Degradation Coefficient (K)(yr ⁻¹)
Benzene	71-43-2	0.004	0.055	0.03	0.0000078	58	1,780.5	13,100	15,000	81	0.35
Toluene	108-88-3	0.08	NA	5	NA	130	532.4	13,100	15,000	111	9.01
Ethylbenzene	100-41-4	0.1	NA	1	NA	220	161.0	13,100	15,000	136	1.11
Xylenes (Total)	1330-20-7	0.2	NA	0.1	NA	350	175.0	13,100	15,000	140	0.69
MTBE	1634-04-4	NA	0.0018	3	0.00000026	12	45,000	13,100	15,100	55	0.69
Isopropyl Benzene	98-82-8	0.1	NA	0.4	NA	2,800	50.0	13,100	15,100	152	15.81
Naphthalene	91-20-3	0.02	NA	0.003	NA	950	30.0	NA	NA	218	0.98
1, 2, 4 - Trimethylbenzene	95-63-6	0.05	NA	0.007	NA	2,200	56.0	13,100	15,000	169	4.50
1, 3, 5 - Trimethylbenzene	108-67-8	0.05	NA	0.006	NA	660	48.9	13,100	15,100	165	NA

Source(s): Commonwealth of Pennsylvania, Pennsylvania Code, Title 25, Chapter 250, Administration of the Land Recycling Program, Table 5A



APPENDIX A

Facility Photographs

FACILITY PHOTOGRAPHS

United Refining Company
Kwik Fill # M-061
227 East Main Street
Bradford, Pennsylvania 16701

Direction of View:

West

Date Taken:

3-18-2013

Description:

View of station building,
and dispensers.



Direction of View:

Northeast

Date Taken:

3-18-2013

Description:

View of eastern property
boundary, along East
Main Street.



FACILITY PHOTOGRAPHS

United Refining Company
Kwik Fill # M-061
227 East Main Street
Bradford, Pennsylvania 16701

Direction of View:

East

Date Taken:

3-18-2013

Description:

View of residential properties beyond East Main Street.



Direction of View:

South

Date Taken:

3-18-2013

Description:

View of adjacent vacant property to the south.



FACILITY PHOTOGRAPHS

United Refining Company
Kwik Fill # M-061
227 East Main Street
Bradford, Pennsylvania 16701

Direction of View:

West

Date Taken:

3-18-2013

Description:

View of adjacent residential properties to the west of the facility (downgradient of the release).



Direction of View:

West

Date Taken:

3-18-2013

Description:

View of UST field located near southern property boundary.



FACILITY PHOTOGRAPHS

United Refining Company
Kwik Fill # M-061
227 East Main Street
Bradford, Pennsylvania 16701

Direction of View:

Northeast

Date Taken:

3-18-2013

Description:

View of commercial and residential properties beyond Mill Street.



Direction of View:

Northwest

Date Taken:

3-18-2013

Description:

View of the residential properties beyond Mill Street.



FACILITY PHOTOGRAPHS

United Refining Company
Kwik Fill # M-061
227 East Main Street
Bradford, Pennsylvania 16701

Direction of View:

North

Date Taken:

3-29-2013

Description:

View of retaining wall located along the southern property boundary.



Direction of View:

East

Date Taken:

3-29-2013

Description:

View of retaining wall located along the western property boundary.



FACILITY PHOTOGRAPHS

United Refining Company
Kwik Fill # M-061
227 East Main Street
Bradford, Pennsylvania 16701

Direction of View:

South

Date Taken:

9-11-2013

Description:

View of off-site
(Carlough) property
adjacent to the site.



Direction of View:

North

Date Taken:

6-5-2014

Description:

View of off-site
monitoring wells MW-17
through MW-19 in York
Street with residential
properties on either side.



FACILITY PHOTOGRAPHS

United Refining Company
Kwik Fill # M-061
227 East Main Street
Bradford, Pennsylvania 16701

Direction of View:

East

Date Taken:

12-18-2014

Description:

View of monitoring well MW-24 located on the off-site GE Dresser property along Mill Street.

**Direction of View:**

South

Date Taken:

10-24-2014

Description:

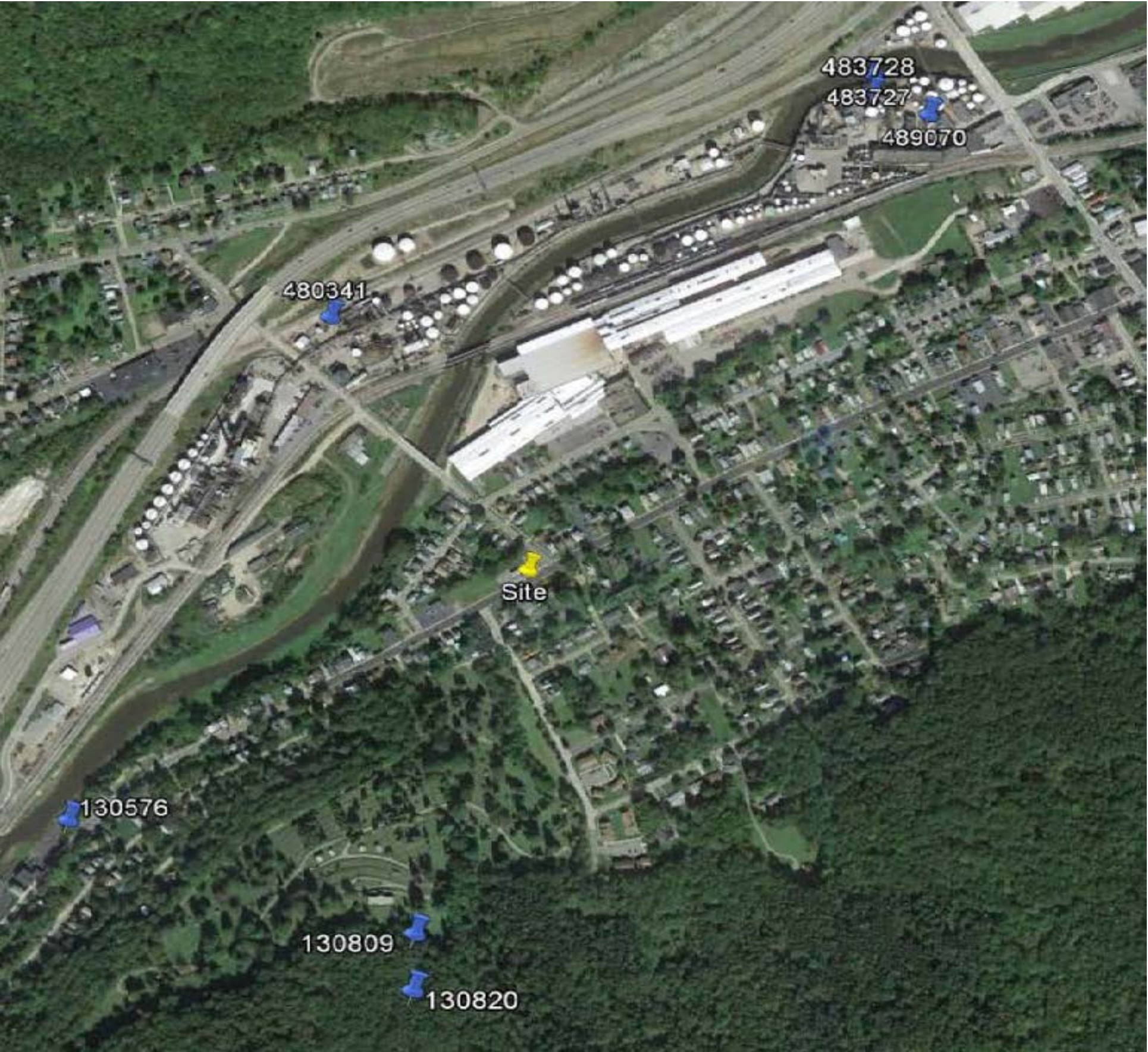
View of off-site Flood Plain Authority Property adjacent to Tunungwant Creek.







APPENDIX B

PaGWIS Water Well Inventory Report, Local Water Supply Well Documentation &
Ordinance Correspondence

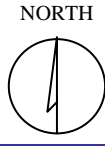


LEGEND

-  SITE LOCATION
-  PaGWIS WELL LOCATION
- 483728 PaGWIS WELL ID

NOTES

Aerial photo obtained from Google Earth.
Imagery Date: September 16, 2013
Eye Altitude: 8,845 feet

DRAFTED BY: JH	PaGWIS WELL LOCATION MAP		
CHECKED BY: EL	KWIK FILL STATION #M-061 227 EAST MAIN STREET BRADFORD, PENNSYLVANIA		
REVIEWED BY: JS			
	Groundwater & Environmental Services, Inc. 301 COMMERCE PARK DR., CRANBERRY TWP., PA 16066		
	SCALE IN FEET Not To Scale	DATE 03-17-15	FIGURE B-1

DEPARTMENT OF CONSERVATION & NATURAL RESOURCES
BUREAU OF TOPOGRAPHIC AND GEOLOGIC SURVEY
WATER WELL LICENSING/WATER WELL INVENTORY SECTION
3240 Schoolhouse Rd
Middletown, PA 17057
717-702-2017

WATER WELL DETAILS

Well Driller: **HOLZWARTH DRILLING**PA Well ID: **130576**Driller License: **1578**

Driller Well ID:

Type of Activity: **New Well**

Local Permit #:

Original Well By: **UNKNOWN**Date Drilled: **6/1/1983**

Drilling Method:

Owner: **RINK P**

Address of Well:

Zipcode:

County: **MCKEAN**Municipality: **BRADFORD TWP.**

Coordinate Method:

Quadrangle: **BRADFORD**Latitude: **41.95806**Longitude: **-78.64083**Well Depth (ft): **138**Well Finish: **OPEN HOLE**

Depth to Bedrock (ft):

Did Not Encounter Bedrock:

Well Yield (gpm): **30**Yield Measure Method: **ESTIMATED**Static Water Level: **11**
(ft below land surface)Water level after yield test: **13**
(ft below land surface)Length of Yield Test: **1**
(minutes)

Saltwater Zone (ft):

Use of Well: **WITHDRAWAL**Use of Water: **IRRIGATION**

DRILLER'S LOG

<u>UNIT TOP</u>	<u>UNIT BOTTOM</u>	<u>DESCRIPTION OF UNITS PENETRATED</u>
-----------------	--------------------	--

BOREHOLE

CASING

Casing 1:

Top: 0 Bottom: 59 Diameter: 8 Material:

Seal(Grout) 1:

Top: Bottom: Type:

SCREEN/SLOT**WELL LINER****PACKER****WATER BEARING ZONE**

Zone 1:	Top:	19	Bottom:	Yield:
Zone 2:	Top:	59	Bottom:	Yield:
Zone 3:	Top:	136	Bottom:	Yield:

DEPARTMENT OF CONSERVATION & NATURAL RESOURCES
BUREAU OF TOPOGRAPHIC AND GEOLOGIC SURVEY
WATER WELL LICENSING/WATER WELL INVENTORY SECTION
3240 Schoolhouse Rd
Middletown, PA 17057
717-702-2017

WATER WELL DETAILS

Well Driller: **W K ANSELL**PA Well ID: **130809**Driller License: **0705**

Driller Well ID:

Type of Activity: **New Well**

Local Permit #:

Original Well By: **UNKNOWN**Date Drilled: **1/1/1968**

Drilling Method:

Owner: **KONKUS JOSEPH**

Address of Well:

Zipcode:

County: **MCKEAN**Municipality: **FOSTER TWP.**

Coordinate Method:

Quadrangle: **BRADFORD**Latitude: **41.95694**Longitude: **-78.63611**Well Depth (ft): **106**Well Finish: **OPEN HOLE**Depth to Bedrock (ft): **92**

Did Not Encounter Bedrock:

Well Yield (gpm): **15**Yield Measure Method: **UNKNOWN**Static Water Level: **59**
(ft below land surface)Water level after yield test:
(ft below land surface)Length of Yield Test: **2**
(minutes)

Saltwater Zone (ft):

Use of Well: **WITHDRAWAL**Use of Water: **DOMESTIC**

DRILLER'S LOG

<u>UNIT TOP</u>	<u>UNIT BOTTOM</u>	<u>DESCRIPTION OF UNITS PENETRATED</u>
-----------------	--------------------	--

BOREHOLE

CASING

Casing 1:

Top: 0 Bottom: 95 Diameter: 6 Material:

Seal(Grout) 1:

Top: Bottom: Type:

SCREEN/SLOT**WELL LINER****PACKER****WATER BEARING ZONE**

Zone 1: Top: 30 Bottom: Yield:

Zone 2: Top: 98 Bottom: Yield:

DEPARTMENT OF CONSERVATION & NATURAL RESOURCES
BUREAU OF TOPOGRAPHIC AND GEOLOGIC SURVEY
WATER WELL LICENSING/WATER WELL INVENTORY SECTION
3240 Schoolhouse Rd
Middletown, PA 17057
717-702-2017

WATER WELL DETAILS

Well Driller: **W K ANSELL**PA Well ID: **130820**Driller License: **0705**

Driller Well ID:

Type of Activity: **New Well**

Local Permit #:

Original Well By: **UNKNOWN**Date Drilled: **1/1/1966**

Drilling Method:

Owner: **HANSON J**

Address of Well:

Zipcode:

County: **MCKEAN**Municipality: **FOSTER TWP.**

Coordinate Method:

Quadrangle: **BRADFORD**Latitude: **41.95639**Longitude: **-78.63611**Well Depth (ft): **91**Well Finish: **OPEN HOLE**Depth to Bedrock (ft): **50**

Did Not Encounter Bedrock:

Well Yield (gpm): **12**Yield Measure Method: **UNKNOWN**Static Water Level: **26**
(ft below land surface)Water level after yield test:
(ft below land surface)Length of Yield Test: **2**
(minutes)

Saltwater Zone (ft):

Use of Well: **WITHDRAWAL**Use of Water: **DOMESTIC**

DRILLER'S LOG

<u>UNIT TOP</u>	<u>UNIT BOTTOM</u>	<u>DESCRIPTION OF UNITS PENETRATED</u>
-----------------	--------------------	--

BOREHOLE

CASING

Casing 1:

Top: 0 Bottom: 52 Diameter: 6 Material:

Seal(Grout) 1:

Top: Bottom: Type:

SCREEN/SLOT**WELL LINER****PACKER****WATER BEARING ZONE**

Zone 1: Top: 60 Bottom: Yield:

Zone 2: Top: 82 Bottom: Yield:

DEPARTMENT OF CONSERVATION & NATURAL RESOURCES
BUREAU OF TOPOGRAPHIC AND GEOLOGIC SURVEY
WATER WELL LICENSING/WATER WELL INVENTORY SECTION
3240 Schoolhouse Rd
Middletown, PA 17057
717-702-2017

WATER WELL DETAILS

Well Driller: **TERRA TESTING, INC.**

PA Well ID: **480341**

Driller License: **2309**

Driller Well ID: **11724-RW-SPL-5A**

Type of Activity: **New Well**

Local Permit #:

Original Well By: **CURRENT DRILLER**

Date Drilled: **12/14/2011**

Drilling Method: **BORED OR AUGERED**

Owner: **ARG Bradford Facility**

Address of Well: **77 North Kendall Avenue**

Zipcode:

County: **MCKEAN**

Municipality: **BRADFORD TWP.**

Coordinate Method: **GPS - Global Positioning System**

Quadrangle:

Latitude: **41.96388**

Longitude: **-78.63757**

Well Depth (ft): **15**

Well Finish: **PERFORATED OR SLOTTED**

Depth to Bedrock (ft):

Did Not Encounter Bedrock:

Well Yield (gpm):

Yield Measure Method:

Static Water Level: **7**
(ft below land surface)

Water level after yield test:
(ft below land surface)

Length of Yield Test:
(minutes)

Saltwater Zone (ft):

Use of Well:

Use of Water:

DRILLER'S LOG

<u>UNIT TOP</u>	<u>UNIT BOTTOM</u>	<u>DESCRIPTION OF UNITS PENETRATED</u>
Unit Top 1: 0	Unit Bottom 1: 8	Unit 1: Air Excavated
Unit Top 2: 8	Unit Bottom 2: 9	Unit 2: Gray silty medium sand, wet

Unit Top 3: 9 Unit Bottom 3: 16 Unit 3: Gray silty course sand and gravel, saturated

BOREHOLE

Section 1: Top: 0 Bottom: 16 Diameter: 8

CASING**Casing 1:**

Top: 0 Bottom: 5 Diameter: 2 Material: PVC OR OTHER
PLASTIC

Seal(Grout) 1:

Top: 1 Bottom: 3 Type: BENTONITE CHIPS OR PELLETS

SCREEN/SLOT

Screen 1: Top: 5 Bottom: 15 Diameter: 2
Type: PERFORATED, POROUS, OR SLOTTED CASING
Material: PLASTIC Slot Size: 20
Packing: SAND - SCREENED

WELL LINER**PACKER****WATER BEARING ZONE**

DEPARTMENT OF CONSERVATION & NATURAL RESOURCES
BUREAU OF TOPOGRAPHIC AND GEOLOGIC SURVEY
WATER WELL LICENSING/WATER WELL INVENTORY SECTION
3240 Schoolhouse Rd
Middletown, PA 17057
717-702-2017

WATER WELL DETAILS

Well Driller: **TERRA TESTING, INC.**

PA Well ID: **483727**

Driller License: **2309**

Driller Well ID: **10529-RWSSPL11A**

Type of Activity: **New Well**

Local Permit #:

Original Well By: **CURRENT DRILLER**

Date Drilled: **3/22/2010**

Drilling Method: **BORED OR AUGERED**

Owner: **Bradford Refinery**

Address of Well: **77 N. Kendall Ave**

Zipcode:

County: **MCKEAN**

Municipality: **BRADFORD TWP.**

Coordinate Method: **GPS - Global Positioning System**

Quadrangle:

Latitude: **41.96692**

Longitude: **-78.63005**

Well Depth (ft): **19**

Well Finish: **PERFORATED OR SLOTTED**

Depth to Bedrock (ft):

Did Not Encounter Bedrock:

Well Yield (gpm):

Yield Measure Method:

Static Water Level: **7**
(ft below land surface)

Water level after yield test:
(ft below land surface)

Length of Yield Test:
(minutes)

Saltwater Zone (ft):

Use of Well:

Use of Water:

DRILLER'S LOG

<u>UNIT TOP</u>	<u>UNIT BOTTOM</u>	<u>DESCRIPTION OF UNITS PENETRATED</u>
Unit Top 1: 0	Unit Bottom 1: 2	Unit 1: Limestone and gravel
Unit Top	Unit Bottom	Unit 2: Dark gray silty clay, medium moist with trace fine

2: 2	2: 7	sand
Unit Top 3: 7	Unit Bottom 3: 13	Unit 3: Dark gray silty sand with trace clay, soft, wet
Unit Top 4: 13	Unit Bottom 4: 20	Unit 4: Gray sand with trace silt, saturated, very dense, large gravel
Unit Top 5: 20	Unit Bottom 5: 24	Unit 5: Medium to coarse, very dense sand and gravel, some cobbles, dark black, saturated

BOREHOLE

Section 1: Top: 0 Bottom: 24 Diameter: 12

CASING**Casing 1:**

Top: 0 Bottom: 4 Diameter: 6 Material: PVC OR OTHER PLASTIC

Seal(Grout) 1:

Top: 2 Bottom: 3 Type: BENTONITE CHIPS OR PELLETS

SCREEN/SLOT

Screen 1: Top: 4 Bottom: 19 Diameter: 6
Type: PERFORATED, POROUS, OR SLOTTED CASING
Material: STAINLESS STEEL Slot Size: 50
Packing: SAND - SCREENED

WELL LINER**PACKER****WATER BEARING ZONE**

DEPARTMENT OF CONSERVATION & NATURAL RESOURCES
BUREAU OF TOPOGRAPHIC AND GEOLOGIC SURVEY
WATER WELL LICENSING/WATER WELL INVENTORY SECTION
3240 Schoolhouse Rd
Middletown, PA 17057
717-702-2017

WATER WELL DETAILS

Well Driller: **TERRA TESTING, INC.**

PA Well ID: **483728**

Driller License: **2309**

Driller Well ID: **10529-RWSPL11B**

Type of Activity: **New Well**

Local Permit #:

Original Well By: **CURRENT DRILLER**

Date Drilled: **3/23/2010**

Drilling Method: **BORED OR AUGERED**

Owner: **Bradford Refinery**

Address of Well: **77 N. Kendall Ave**

Zipcode:

County: **MCKEAN**

Municipality: **BRADFORD TWP.**

Coordinate Method: **GPS - Global Positioning System**

Quadrangle:

Latitude: **41.96672**

Longitude: **-78.63005**

Well Depth (ft): **21**

Well Finish: **PERFORATED OR SLOTTED**

Depth to Bedrock (ft):

Did Not Encounter Bedrock:

Well Yield (gpm):

Yield Measure Method:

Static Water Level: **7**
(ft below land surface)

Water level after yield test:
(ft below land surface)

Length of Yield Test:
(minutes)

Saltwater Zone (ft):

Use of Well:

Use of Water:

DRILLER'S LOG

<u>UNIT TOP</u>	<u>UNIT BOTTOM</u>	<u>DESCRIPTION OF UNITS PENETRATED</u>
Unit Top 1: 0	Unit Bottom 1: 3	Unit 1: Large gravel, some medium gray sand, moist
Unit Top	Unit Bottom	Unit 2:

2: 3	2: 7	Dark gray black silty sand, medium, moist
Unit Top 3: 7	Unit Bottom 3: 15	Unit 3: Dark gray black silty sand, medium, wet
Unit Top 4: 15	Unit Bottom 4: 22	Unit 4: Dark gray black saturated, very dense course sand, some large cobbles, some find sand

BOREHOLE

Section 1: Top: 1 Bottom: 22 Diameter: 12

CASING**Casing 1:**

Top: 0 Bottom: 6 Diameter: 6 Material: **PVC OR OTHER
PLASTIC**

Seal(Grout) 1:

Top: 3 Bottom: 5 Type: **BENTONITE CHIPS OR PELLETS**

SCREEN/SLOT

Screen 1: Top: 6 Bottom: 21 Diameter: 6
Type: **PERFORATED, POROUS, OR SLOTTED CASING**
Material: **STAINLESS STEEL** Slot Size: **50**
Packing: **SAND - SCREENED**

WELL LINER**PACKER****WATER BEARING ZONE**

DEPARTMENT OF CONSERVATION & NATURAL RESOURCES
BUREAU OF TOPOGRAPHIC AND GEOLOGIC SURVEY
WATER WELL LICENSING/WATER WELL INVENTORY SECTION
3240 Schoolhouse Rd
Middletown, PA 17057
717-702-2017

WATER WELL DETAILS

Well Driller: **TERRA TESTING, INC.**

PA Well ID: **489070**

Driller License: **2309**

Driller Well ID: **10529-RWSPL12B**

Type of Activity: **New Well**

Local Permit #:

Original Well By: **CURRENT DRILLER**

Date Drilled: **3/23/2010**

Drilling Method: **BORED OR AUGERED**

Owner: **Bradford Refinery**

Address of Well: **77 N. Kendall Ave**

Zipcode:

County: **MCKEAN**

Municipality: **BRADFORD TWP.**

Coordinate Method: **GPS - Global Positioning System**

Quadrangle:

Latitude: **41.96643**

Longitude: **-78.62927**

Well Depth (ft): **21**

Well Finish: **PERFORATED OR SLOTTED**

Depth to Bedrock (ft):

Did Not Encounter Bedrock:

Well Yield (gpm):

Yield Measure Method:

Static Water Level: **10**
(ft below land surface)

Water level after yield test:
(ft below land surface)

Length of Yield Test:
(minutes)

Saltwater Zone (ft):

Use of Well:

Use of Water:

DRILLER'S LOG

<u>UNIT TOP</u>	<u>UNIT BOTTOM</u>	<u>DESCRIPTION OF UNITS PENETRATED</u>
Unit Top 1: 0	Unit Bottom 1: 1	Unit 1: Asphalt
Unit Top	Unit Bottom	Unit 2:

2: 1	2: 5	Gray black silty, sandy clay, medium, moist
Unit Top 3: 5	Unit Bottom 3: 10	Unit 3: Gray black medium gravel, some silt, stiff, moist
Unit Top 4: 10	Unit Bottom 4: 16	Unit 4: Gray black, medium to coarse gravel, trace silt, dense saturated
Unit Top 5: 16	Unit Bottom 5: 22	Unit 5: Dark gray coarse gravel, some fine sand and silt, very dense, saturated

BOREHOLE

Section 1: Top: 0 Bottom: 22 Diameter: 12

CASING**Casing 1:**

Top: 0 Bottom: 6 Diameter: 6 Material: **PVC OR OTHER PLASTIC**

Seal(Grout) 1:

Top: 3 Bottom: 5 Type: **BENTONITE CHIPS OR PELLETS**

SCREEN/SLOT

Screen 1: Top: 6 Bottom: 21 Diameter: 6
 Type: **PERFORATED, POROUS, OR SLOTTED CASING**
 Material: **STAINLESS STEEL** Slot Size: 50
 Packing: **SAND - SCREENED**

WELL LINER**PACKER****WATER BEARING ZONE**



RECORD OF CONVERSATION (Judd Piemme)

Other _____



RECORD OF CONVERSATION (Judd Piemme)

Other _____

Chapter 216. WATER

ARTICLE I. Water Service; Rules and Regulations

- § 216-1. Copies of schedule; rules and regulations.
- § 216-2. Application for service connection.
- § 216-3. Application for water service.
- § 216-4. Customer defined.
- § 216-5. Permit required to supply other persons or premises.
- § 216-6. Guaranty deposits.
- § 216-7. Service lines to curb.
- § 216-8. Service lines from curb to premises.
- § 216-9. Violation of rules where multiple customers are on the same service.
- § 216-10. Discontinuance of service.
- § 216-11. Opening and closing valves and curb stops.
- § 216-12. Supply of water.
- § 216-13. Temporary uses.
- § 216-14. Meters.
- § 216-15. Leaks or waste.
- § 216-16. Leaks and defective plumbing.
- § 216-17. Fire protection service.

§ 216-18. Responsibility for service.

§ 216-19. Bills and payment.

§ 216-20. Customer notification to shut off water; complaints; charge for restoration of service; use of water for steam generation; access to premises.

§ 216-21. Main extensions.

§ 216-22. Hose permits.

§ 216-23. Water supply.

§ 216-24. Water rate schedules.

§ 216-25. Authority to make changes.

ARTICLE II. Connections

§ 216-26. Definitions.

§ 216-27. Use of public water system required.

§ 216-28. Building mains and connections.

§ 216-29. Connection and customer facilities fees.

§ 216-30. Regulations governing building mains and connections to mains.

§ 216-31. Appeals; hardship.

§ 216-32. Violations and penalties.

[HISTORY: Adopted by the City Council of the City of Bradford as indicated in article histories. Amendments noted where applicable.]

GENERAL REFERENCES

Water Authority — See Ch. **6**, Art. **I**.

Plumbing — See Ch. **159**.

Sewers — See Ch. **175**.

Water — See Ch. **A238**.

Article I. Water Service; Rules and Regulations

[Adopted 6-11-1974 by Ord. No. 2956]

§ 216-1. Copies of schedule; rules and regulations.

- A. Copies of the schedule of water rates and charges established by formal action of City Council and of the rules and regulations governing the operations of the Water Department are open to inspection at the City Hall, 24 Kennedy Street, Bradford, Pennsylvania.

- B. These rules and regulations, which have been adopted by the city, are a part of the contract with every person, corporation, company or political subdivision who or which desires water service, and they, by signing for the service, agree to be bound thereby and should understand that the water supply will be furnished subject to Pennsylvania Department of Environmental Resources rules and regulations.

§ 216-2. Application for service connection.

Any property owner desiring water service must make application on the form furnished by the Water Department; said form may be signed by the owner or his authorized agent. All applications made for a service connection and meter outside of the limits of the City of Bradford must be approved or disapproved by councilmanic action.

§ 216-3. Application for water service.

- A. The prospective customer or the duly authorized agent thereof will make signed application for water service upon the Water Department's printed form provided therefor, and, if approved by the Water Department, water will be supplied in conformity with the class, scope and type of service appertaining to the customer's premises as set forth in the application and only at the rate schedule applicable thereunto. The customer's application for service duly approved by the Water Department, together with these rules and regulations, constitute the contract between the customer and the Water Department; nevertheless, the acceptance and use of water service at any premises by an occupant without formal application therefor obligates the occupant as the contractual party and he is bound thereby as the customer. When requested in writing by the property owner, an application for a supply of water may be received from a tenant under the condition that the owner act as guarantor for the payment of all bills rendered. If the tenant neglects to make such payments within the time specified in § 216-19 of this chapter, it will be the responsibility of the owner to make such payments.
- B. A new application must be made to the Water Department and approved thereby upon any change in the identity of the customer at any premises or in the service described in the appurtenant application, and the Water Department, upon five days' notice, may discontinue water service until such new application has been made and approved.
- C. Service will be renewed under a proper application when the conditions under which such service was discontinued are corrected and upon the payment of all charges provided in the schedule of water rates and charges or in the rules and regulations.
- D. When application is made for temporary use of water, requiring a temporary connection, the cost of installation and removal of such temporary facilities shall be borne by the applicant.

§ 216-4. Customer defined.

A customer is the party contracting for a supply of water to a property as hereinafter classified, i.e.:

- A. A building under one roof, owned or leased by one party and occupied as one residence or business;
- B. A combination of buildings owned or leased by one party in one common enclosure and occupied by one family or business;
- C. The one side of a double house having a solid vertical partition wall;
- D. Each side or part of a building occupied by more than one family or business, even though the closet and other fixtures may be used in common; or
- E. Each apartment, office or suite of offices located in a building having several apartments, offices or suites of offices and using in common one or more means of entrance, except that an owner of an apartment house or building accommodating families or businesses may become responsible for all water used on the premises, and such owner shall be considered as the customer.

§ 216-5. Permit required to supply other persons or premises.

No owner or tenant of any premises supplied with water by the Department will be allowed to supply other persons or families or other premises except by written permit from the Water Department. Customers who violate this rule may have their water shut off after notice of five days, and it may remain so until the Water Department is satisfied that the rules and regulations will be observed.

§ 216-6. Guaranty deposits.

- A. A deposit may be required from any customer desiring temporary service for less than a thirty-day period in an amount equal to the estimated gross bill for the limited period. The Water Department reserves the right at any time to require a deposit from any regular service customer in an amount equal to the estimated charges for any single billing period (not exceeding three months) plus one month, but not less than \$5, as security for payment of service bills as accrued, whenever the credit of the customer has not been established or thereafter properly maintained as evidenced by service discontinuance incurred under § **216-10** of this chapter.
- B. Deposits may be returned to the depositor when he has established his credit to the satisfaction of the Water Department.
- C. The deposit will not bear interest.
- D. Any customer having a deposit shall pay bills for water service as rendered, in accordance with the rules and regulations, and the deposit shall not be considered as payment on account of a bill during the time the customer is receiving water service.

§ 216-7. Service lines to curb.

- A. The Water Department will make all connections to its mains and furnish and install all service lines from the main to and including the curb box and stop, which will be placed inside the curbline, for the following fee: cost of material and labor plus 20%, including the cost of any state or municipal permit required for the opening of any street or highway.
- B. All of the service lines will be the property of the Authority and under the control of the Water Department. No service connection will be installed during the period that street openings are prohibited by municipal regulations or at any time when, in the judgment of the Water Superintendent, working conditions are unfavorable for installation, either by reason of weather, temperature, conditions of soil or otherwise. The Water Department will be responsible for the maintenance and repairs of the service line between the main and the curb stop.
- C. The location of the service will be designated by the Water Department, and no service line shall occupy the same trench with any facility of a public service company or be within three feet of any open excavation or vault unless such installation plan shall have been previously authorized and approved by the Water Department as evidenced by its written permission.
- D. When it is necessary to renew an existing service line from the street main to the curb stop, the Water Department will renew said service line of the same size in the same location as the old one; but if the applicant for his own convenience desires the new service line at some other location and agrees to pay all expenses of cutting off the old service line at the main, the Water Department will lay the new service line at the location desired, except where the existing service is not on the owner's property or where in the opinion of the Water Superintendent the renewal would work a hardship on the owner by reason of being under a driveway or other improvement.
- E. When the customer desires a change in location or size of an existing service line, the cost of the change shall be borne by the customer.
- F. In all installations or replacements of service lines, only one premises of one customer will be permitted to be supplied through one service pipe; if one premises of one customer shall have one structure so divided by partition walls to permit separate ownership at any time of the several divisions of the structure or shall have two or more separate and distinct structures thereon susceptible of more than one and the same ownership, the Water Department will provide two or more separate service stops as may be required at the termination of one service connection of ample capacity, and the customer will be required to install accordingly two or more separate service lines.

§ 216-8. Service lines from curb to premises.

- A. All service lines from the curb stop to the premises shall be installed at the expense of the customer and remain an appurtenance of the premises to be supplied and accordingly maintained in proper condition; the service line shall comply with Water Department specifications for size, material and location or otherwise have Water Department approval and shall be laid at a minimum depth of 42 inches throughout its length and shall terminate in a brass stop and waste stop of approved pattern within the premises at a point easily accessible to the occupant at all times for protection against leaks and freezing in piping of the premises and to facilitate repairs thereto.
- B. All leaks in the customer's service lines shall be promptly repaired by the customer; upon failure to make repairs with reasonable dispatch after due notice, the Water Department may discontinue water service, which will not be restored until all proper and necessary expense incurred by the Water Department in the discontinuance and restoration of water service to the premises involved shall have been paid to the Water Department by the offending customer.
- C. Under no circumstances will the Water Department be responsible for maintenance of the service lines or any piping or fixture on the premises supplied, other than the Water Department's own specific property, or for damage caused by water escaping therefrom, and the customer shall invariably comply with state and municipal regulations with reference thereto and shall make any changes therein necessitated by reason of change of grade in street or sidewalk, relocation of distribution main or otherwise.
- D. All underground service lines in sizes from three-fourths ($\frac{3}{4}$) inch to two inches shall be Type K soft copper to be buried a minimum depth of 3.5 feet.
- E. The weights of the pipe shall be as follows:

Pipe Size (inches)	Weight (pounds per foot)
$\frac{3}{4}$	0.641
1	0.839
1 $\frac{1}{4}$	1.040
1 $\frac{1}{2}$	1.360
2	2.060

- F. Joints. All underground joints shall be of the compression type; no sweat or solder joints will be allowed.
- G. Inspection. A representative of the Water Department shall inspect all service lines before they are covered.

§ 216-9. Violation of rules where multiple customers are on the same service.

Where more than one occupant of a premises is supplied through one common service line, any violation of the rules and regulations by any one occupant shall be deemed a violation by all, and the Water Department may take necessary action accordingly as provided by the rules and regulations, except that water service to the premises shall be continued until the customer has been given a reasonable opportunity to install a separate service line for each occupant in compliance with § **216-7** of this chapter.

§ 216-10. Discontinuance of service.

- A. Water will be turned off at any premises upon order of the customer without in any way affecting the existing contract.
- B. Service under any contractual application or special contract, including public fire protection service and any other municipal use, may be discontinued after due notice for any one of the following reasons as may be applicable:
 - (1) For misrepresentation in the application as to property interest or service.
 - (2) For the use of water for any other property or purpose than that described in the application.
 - (3) For failure to maintain, in good order, connections, service lines or fixtures for which the customer or owner is responsible.
 - (4) For molesting any service pipe, meter, curb stop or seal or any other appliance of the Water Department.
 - (5) For willful or careless waste of water by reason of improper, impaired or deteriorated piping, fixtures or otherwise, such as leaving the water running to prevent freezing of the house lines.
 - (6) For nonpayment of any account, fee or charge within 10 days after expiration of the period allowed for payment.
 - (7) In case of unreported vacancy of premises.
 - (8) For violation of any rule of the Water Department.
 - (9) For introducing water or any other liquid other than that of the Water Department's into the service line of the Water Department through a cross-connection from an outside source.
 - (10) For refusal of access to property for inspecting fixtures, etc., or for reading, caring for or removing meters.

- (11) For refusal to conserve water during periods of restricted supply.
 - (12) For failure to pay water bills or charges at a prior location.
 - (13) As required by law when so directed by the Sanitary Authority.
- C. As necessity may arise in case of break or rupture of any main, any emergency or other unavoidable cause, the Water Department shall have the right to temporarily suspend the water supply in order to make necessary repairs, connections or installations; however, the Water Department will use all practicable and reasonable measures to afford, whenever possible, advance notice of such interruption of service.
- D. However, the Water Department will not be liable for any damage or inconvenience suffered by customers or occupants of premises supplied, nor in any case will the Water Department be liable for any claim against it at any time for interruption in service, inadequate supply or pressure, quality of water or for any cause reasonably beyond its control.

§ 216-11. Opening and closing valves and curb stops.

The operation of a service stop or valve is absolutely prohibited to anyone other than an employee of the Water Department in the regular line of duty, except that a regularly licensed plumber will be permitted to operate the same when necessary in conjunction with his proper work on the relevant premises, but he shall invariably leave the stop or valve in the same position as found.

§ 216-12. Supply of water.

- A. The Water Department shall have the right to reserve a sufficient supply of water at all times in the reservoirs to provide for fire protection and other emergencies or to restrict or regulate the quantity of water used at customers' premises in cases of scarcity or whenever the public welfare may require such action.
- B. The Water Department reserves the right to suspend the use of fountains and hose for sprinkling streets and yards, washing cars, etc., whenever in the opinion of the Water Department public exigency requires it. The Water Department shall not be liable for failure to supply water at any time, provided that such failure shall not be due to negligence upon its part.

§ 216-13. Temporary uses.

- A. Contractors, builders or others will be required to make application to the Water Department before using water for any of their several construction purposes. The Water Department may require a guaranty deposit from contractors and builders.

- B. Water for such purposes, at the option of the Water Department, may be furnished by metered service. The Water Department will install and disconnect the meter, the charge for which shall be cost plus 20%, payable at the time the permit is granted.

§ 216-14. Meters.

- A. All industrial and commercial customers inside the City of Bradford shall be serviced through meters. Domestic customers will be charged on a flat-rate basis, unless a meter is requested by the owner.
- B. All customers on the system outside of the boundaries of the City of Bradford will be served through a meter.
- C. Inside the city, the Water Department will furnish the meter to be installed by the customer. Outside the city, the domestic customer will pay \$45 for the use of the meter; however, the meter remains in the ownership of the Bradford City Water Department. Meters shall be accessible to the Water Department at all reasonable hours and shall be subject to its control exclusively. The Water Department only shall possess the right to determine the style and size of the meter to be installed.
- D. Metered service contemplates the supply of water through an individual service line and meter to each and every occupant of the premises supplied. Where the premises are not adapted for such separate meter installations in the judgment of the Water Department, one common service line will be permitted and one meter installation will be made accordingly; however, the charge for service will be made on the same basis as if an individual meter were installed for each and every occupant of the premises.
- E. The meter will be set after the customer has had the plumbing arranged to receive the meter at a convenient point approved by the Water Department so as to control the entire supply, and a proper place and protection for the meter shall be provided by the applicant. In cases where it is not practical to place the meter within a building, a brick or concrete pit with a suitable iron cover, or other approved meter box, shall be built inside the property line by the customer. The size and dimensions of the pit or box shall be as approved by the Water Department, give adequate access to the meter and permit its installation or removal.
- F. Meters will be maintained by the Water Department so far as ordinary wear is concerned, but loss or damage due to freezing, hot water or any other external cause shall be paid by the customer. Where hot water or heating systems or boilers are so constructed that there is a possibility of hot water being forced back through the meter, the customer shall protect the meter by installing a check valve on the outlet side of the meter and shall for his own protection insert a safety valve in connection with the hot water or heating system. The Water Department will not be liable for any damage due to the failure of a customer's safety valve.
- G. The charge for the reinstallation or changing of a meter when removed because of damage in any way due to the negligence of the customer shall be \$5 for meters one inch

in diameter and smaller and \$4 per inch in diameter or fraction thereof for meters larger than one inch, which charges shall include testing of the repaired meter.

- H. If at any time a customer shall question the accuracy of the meter, upon his request, accompanied by the deposit of the required fee, the Water Department will test the same and adjust the matter as provided in the following rule: If the meter so tested shall be found to be accurate within the limits herein specified [4%], a fee determined from the schedule below *Editor's Note: See § 216-24.* shall be paid to the Water Department by the consumer requiring such test, but if not so found then the cost thereof shall be borne by the Water Department furnishing the service. The amount of the fee shall be \$5 for each water service meter for an outlet not exceeding one inch. For other water service meters having an outlet not exceeding two inches the test fee shall be \$10 per meter.
- I. Larger meters shall be tested at cost.
- J. In no case will correction of billing for meter inaccuracy be made for a longer period than two months prior to date of the test unless the Water Department is satisfied that inaccuracy has been of longer duration.

§ 216-15. Leaks or waste.

All water passing through a meter shall be charged for at the regular rate, and no allowance will be made for excessive consumption due to leaks or waste.

§ 216-16. Leaks and defective plumbing.

The Water Department shall not be liable for any damage resulting from leaks, broken pipes or from any other cause occurring to or within any house or building, and it is expressly stipulated by and between the Water Department and the customer that no claims shall be made against the Water Department on account of bursting or breaking of any main or service pipe or any attachment to said waterworks.

§ 216-17. Fire protection service.

- A. Public fire hydrants will be installed on the system within the city at the expense of the Water Department upon approval of the Superintendent and the Chief of the Fire Department.
- B. All public fire hydrants will be owned and maintained by the Water Department.
- C. No person except the Superintendent of the Water Department or other authorized person shall take water from any public fire hydrant, except for fire purposes or for the use of the Fire Department in case of fire, and no public fire hydrant shall be used for sprinkling streets, flushing sewers or gutters or for any other than fire purposes, except with the approval and written consent of the Water Department. The Water Department shall be notified immediately upon the use of any public hydrant.

- D. Whenever the location or position of a fire hydrant is ordered changed by the city, the change will be made by the Water Department.
- E. Upon request of the duly authorized officials of the city, the Water Department will make inspections at convenient times and at reasonable intervals to determine the condition of the fire hydrants, such inspections to be made by a representative of the Water Department and a duly authorized representative of the city.
- F. All privately installed fire hydrants shall meet the specifications of the Water Department and will be subject to the approval of the Fire Chief and the Superintendent of the Water Department. They shall be installed at the owner's expense.
- G. No cross-connection or tap for use other than fire protection shall be made in the piping of a private fire protection service line on the premises or within a building, and no water shall be used through a private fire service line except for the purpose of fire extinguishment. The Water Department reserves the right to order a private fire protection service line metered at the cost of the customer, including the cost of a fire meter.

§ 216-18. Responsibility for service.

It shall be expressly understood and agreed by and between the customer receiving service and the Water Department that the Water Department does not assume any liability as insurers of property or person and that the agreement does not contemplate any special service, pressure, capacity or facility other than the ordinary or the changing conditions of the water supply system of the Water Department, as the same exist from day to day. The Water Department hereby declares that it is agreed by the customer by acceptance of service that the Water Department shall be free and exempt from any and all claims for injury or damage to persons or property on customers' premises or to any other person or property by reason of fire, water or failure of water supply in pressure or capacity.

§ 216-19. Bills and payment.

[Amended 11-23-1976 by Ord. No. 2983]

- A. Bills as rendered for any indicated period or service, either special, monthly or quarterly, will show the proper charge therefor as determined by the applicable rate schedule and also the amount of any abatement or deduction allowed or any fee or additional charge due and payable under the rules and regulations. Bills shall be considered as duly rendered when delivered at, or mailed to, the recorded address of the customer as afforded by him for that purpose or otherwise the premises supplied; nonreceipt of a bill shall never constitute a waiver thereof; the Water Department at any time will issue a duplicate bill upon proper request, and no claim for exemption from assessment or delayed-payment charge for any reason whatsoever will be entertained or allowed. All bills for flat-rate water service are due and payable on the first day of each month for which service is

furnished. No credit for vacancies will be allowed unless the coupon is returned by the 10th of the month for which vacancy is claimed. An eight-dollar service charge shall be made for restoring of service where water has been turned off for the nonpayment of bills and for the convenience of the owner working on waterlines. Payment mailed, as evidenced by the United States Post Office mark, on or previous to the last day of the month will be deemed by the Water Department to be a payment of the bill within the month. Charges for temporary use shall be payable on demand.

- B. The bill for repairs or replacement of damaged meter installations or parts thereof will be rendered to the responsible party, either occupant of premises or customer, and in case payment of the same is not made within 30 days after presentation of the bill the Water Department may shut off and discontinue the supply of water to the premises until all proper charges are paid, nor shall such action by the Water Department preclude or stay collection of the damage bill by process of law.
- C. In case the Water Department has been unable for any reason to obtain the meter reading at the regular meter reading period, the Water Department reserves the right to regularly bill the customer for an estimated consumption so indicated on the bill, which estimated consumption shall be deducted from the recorded consumption at the subsequent meter reading period, and the bill for the subsequent period shall be rendered accordingly.
- D. Any customer, upon receipt of a bill, having reason to doubt its accuracy shall bring or mail the bill within five days to the Water Department for investigation.

§ 216-20. Customer notification to shut off water; complaints; charge for restoration of service; use of water for steam generation; access to premises.

[Amended 11-23-1976 by Ord. No. 2983]

- A. The customer shall notify the Water Department in the event of vacating of premises or closing the same temporarily, requesting the Water Department to shut off the water. In such case the meter will be read and bill rendered accordingly; however, at the option of the Water Department when shutting off the water, the meter may be removed and the account closed as of that date. Such notification shall be in writing, delivered at the office of the Water Department on forms available at the office of the Water Department.
- B. Complaints with regard to the character of the service furnished or the reading of meters or of the bills rendered must be made at the Water Department office, whether verbally or in writing, and a record of such complaint will be kept by the Water Department, giving the name and address of the complainant, the date, the nature of the complaint and the remedy.
- C. A fee of \$8, payable in advance, shall be made for turning on water in restoration of service after discontinuance for nonpayment of bills or vacancies.

- D. Except for an emergency turnoff as determined by the city, for which no charge shall be made, a service charge of \$20, payable in advance, shall be made for turning water off or on when the requested service is to be made after regularly scheduled work hours, on weekends or on holidays.
- E. Customers using water for steam generation are warned not to depend upon the hydraulic or hydrostatic pressure of the Water Department's supply system for supplying such boilers. The Water Department will not be responsible for any accident or damage in which such practices frequently result. Steam and hot-water heating plants, also hot-water generators and storage tanks, shall in all cases be provided with check valves in the water supply piping to the same and other proper devices to prevent damage or collapse if the water supply should be shut off or should fail for any reason whatsoever. The Water Department will not in any case be responsible for accident or damage resulting from the imperfect installation or action of such devices or from the omission of such installations.
- F. Any authorized employee of the Water Department, upon the presentation of credentials if otherwise unknown, shall have unrestricted access at all reasonable hours to any premises supplied with water for the purpose of reading meters, making inspection or securing such other information as may be deemed necessary for the proper and efficient operation of the water system.

§ 216-21. Main extensions.

Any person or persons requiring the extension of a street main in the area served or to be served by the water system out of the corporate limits shall enter a line deposit agreement with the City of Bradford Water Department. The provisions of that agreement should include the following:

- A. The person or persons shall deposit the full estimated cost of extending the street main with the Water Department.
- B. The deposit will not bear interest.
- C. The Water Department will construct or contract to construct the extension.
- D. After construction of the extension, actual costs will be calculated and the overpayment returned or the underpayment billed for.
- E. One reimbursement will be made for each customer service line connected to the extension set forth in the agreement, and no reimbursements will be made after 10 years have passed from the date of the agreement.
- F. The waterline and all appurtenances thereto will become the property of the Bradford City Water Authority upon completion.
- G. The Water Department will operate and maintain the extension.

- H. Each line extension agreement will stand on its own and not be incorporated with any extension in another area or adjacent thereto.
- I. The minimum size pipeline to be constructed in any public street or right-of-way (Authority owned) will be six inches in diameter.
- J. If a main larger than six inches is required for the depositor's requirements, then the depositor will be required to pay for the larger pipeline.
- K. If the Water Department requires a larger pipeline than is needed for the extension, the Authority and/or city will pay the difference between the size required by the depositor and the size determined by the Water Department.
- L. Any customer desiring water service above sea level elevation (1,580 feet) will necessitate the installation of a pumping station. The total cost of this installation shall be the responsibility of the customer, and a suitable water rate for this service will be determined by the Water Department at the time of installation.

§ 216-22. Hose permits.

[Amended 11-23-1976 by Ord. No. 2983] A fee of \$5 for the season will be charged for the use of the hose for any purpose unless the property is metered. Automatic lawn or garden sprinklers and/or soakers are prohibited unless the property is metered.

§ 216-23. Water supply.

- A. No service will be rendered to any customer who has a private well supply unless the same is disconnected from his system.
- B. If, in the opinion of the Superintendent of the Water Department, a particular use of water by a customer might cause contamination to the public water supply, he may order the installation of a backflow preventer.

§ 216-24. Water rate schedules.

[Amended 12-23-1976 by Ord. No. 2983; 12-15-1981 by Ord. No. 3034]

- A. The following schedules of water rates to be paid by users of the city water system are hereby adopted:

SCHEDULE A

Flat Rate Charges Per Quarter

Domestic and commercial rates for inside city consumers:

First fixture (usually kitchen sink)_____ \$8.75

SCHEDULE A**Flat Rate Charges Per Quarter****Domestic and commercial rates for inside city consumers:**

Wash basin and each additional_____	\$1.16
Bathtub, first_____	\$2.28
Bathtub, each additional_____	\$1.16
Hot-water tank_____	\$1.16
Slop sink_____	\$8.75
Urinal, self-closing_____	\$2.28
Urinal, each additional_____	\$1.16
Toilet, first_____	\$3.44
Toilet, each additional_____	\$1.16
Laundry tray, each part_____	\$1.16
Automatic washer_____	\$1.16
Basin for beauty parlor_____	\$10.25
Basin, each additional_____	\$1.16
Basin for barbershop_____	\$10.25
Basin, each additional_____	\$1.16
Shower stall_____	\$1.16
Drinking fountain_____	\$1.16
Restaurant, first fixture_____	\$18.34
Public toilet_____	\$5.33

General:

Hose for lawns, walks or porches _____	\$5.00 per season
Carnival _____	\$81.00 per week
Circus _____	\$40.50 per day

SCHEDULE A**Flat Rate Charges Per Quarter****Domestic and commercial rates for inside city consumers:****SCHEDULE B-1****Minimum Rates for Meters****Minimum Per Quarter**

Meter Size (inches)	Inside City	Outside City
5/8 x 3/4 domestic	\$15.17	\$31.19
3/4	\$20.23	\$27.84
1	\$25.32	\$34.80
1 1/4	\$27.84	\$38.28
1 1/2	\$30.37	\$41.76
2	\$35.42	\$48.69
3	\$40.49	\$55.65
4	\$50.60	\$69.58
6	\$75.88	\$104.35

Minimum charge for houses on Vista pump: \$47.33

Commercial - Consumption Charges - Outside City

All water consumed: \$0.99 per 1,000 gallons

SCHEDULE C-1**Monthly Industrial Water Rates**

	Gallons	Rate	Cost	Total Gallons
First	33,000	\$0.6625	\$21.86	33,000
Next	167,000	\$0.5681	\$116.73	200,000

SCHEDULE C-1**Monthly Industrial Water Rates**

	Gallons	Rate	Cost	Total Gallons
Next	83,000	\$0.5049	\$158.64	283,000
Next	50,000	\$0.4417	\$180.73	333,000
Next	334,000	\$0.4323	\$325.12	667,000
Next	333,000	\$0.3624	\$445.80	1,000,000
Next	333,000	\$0.2966	\$544.57	1,333,000
Next	334,000	\$0.2734	\$635.89	1,667,000
Next	3,333,000	\$0.2420	\$1,442.48	5,000,000
Next	5,000,000	\$0.2169	\$2,526.98	10,000,000

All over 15,000,000 gallons: \$0.19 per thousand gallons

SCHEDULE D-1**Quarterly Inside City Metered Commercial Water Rates**

	Gallons	Rate	Cost	Total Gallons
First	100,000	\$0.662	\$35.40	100,000
Next	500,000	\$0.568	\$350.20	600,000
Next	250,000	\$0.505	\$476.45	850,000
Next	150,000	\$0.441	\$542.50	1,000,000
Next	1,000,000	\$0.432	\$974.60	2,000,000
Next	1,000,000	\$0.363	\$1,337.60	3,000,000
Next	1,000,000	\$0.297	\$1,634.60	4,000,000
Next	1,000,000	\$0.273	\$1,907.60	5,000,000
Next	10,000,000	\$0.236	\$4,267.60	15,000,000
Next	15,000,000	\$0.213	\$7,462.60	30,000,000

SCHEDULE D-1**Quarterly Inside City Metered Commercial Water Rates**

	Gallons	Rate	Cost	Total Gallons
Next	15,000,000	\$0.198	\$10,432.60	45,000,000

All over 45,000,000 gallons: \$0.19 per 1,000 gallons

Outside City Commercial Metered Charges

All water consumed: \$0.99 per 1,000 gallons

SCHEDULE E**Quarterly Domestic Meter Rates Inside City**

Gallons	Rate Per Thousand	Cost
1,000 to 10,000	\$1.517	\$15.17
11,000	\$1.31	\$16.48
12,000	\$1.31	\$17.79
13,000	\$1.31	\$19.10
14,000	\$1.31	\$20.41
15,000	\$1.31	\$21.72
16,000	\$1.31	\$23.03
17,000	\$1.31	\$24.34
18,000	\$1.31	\$25.65
19,000	\$1.31	\$26.96
20,000	\$1.31	\$28.27
21,000	\$1.31	\$29.58
22,000	\$1.31	\$30.89
23,000	\$1.31	\$32.20
24,000	\$1.31	\$33.51

SCHEDULE E**Quarterly Domestic Meter Rates Inside City**

Gallons	Rate Per Thousand	Cost
25,000	\$1.31	\$34.82
26,000	\$1.31	\$36.13
27,000	\$1.31	\$37.44
28,000	\$1.31	\$38.75
29,000	\$1.31	\$40.06
30,000	\$1.31	\$41.37
31,000	\$1.14	\$42.51
32,000	\$1.14	\$43.65
33,000	\$1.14	\$44.79
34,000	\$1.14	\$45.93
35,000	\$1.14	\$47.07
36,000	\$1.14	\$48.21
37,000	\$1.14	\$49.35
38,000	\$1.14	\$50.49
39,000	\$1.14	\$51.63
40,000	\$1.14	\$52.77
41,000	\$1.14	\$53.91
42,000	\$1.14	\$55.05
43,000	\$1.14	\$56.19
44,000	\$1.14	\$57.33
45,000	\$1.14	\$58.47
46,000	\$1.14	\$59.61
47,000	\$1.14	\$60.75

SCHEDULE E**Quarterly Domestic Meter Rates Inside City**

Gallons	Rate Per Thousand	Cost
48,000	\$1.14	\$61.89
49,000	\$1.14	\$63.03
50,000	\$1.14	\$64.17
51,000	\$1.14	\$65.31
52,000	\$1.14	\$66.45
53,000	\$1.14	\$67.59
54,000	\$1.14	\$67.59
54,000	\$1.14	\$67.59
54,000	\$1.14	\$67.59
54,000	\$1.14	\$67.59
54,000	\$1.14	\$67.59
54,000	\$1.14	\$67.59
54,000	\$1.14	\$67.59
54,000	\$1.14	\$68.73
55,000	\$1.14	\$67.59
54,000	\$1.14	\$69.87
56,000	\$1.14	\$71.01
57,000	\$1.14	\$72.15
58,000	\$1.14	\$73.29
59,000	\$1.14	\$74.43
60,000 next 65,000	\$1.14	\$75.57
125,000 next 100,000	\$0.898	

SCHEDULE E**Quarterly Domestic Meter Rates Inside City**

Gallons	Rate Per Thousand	Cost
225,000 next 200,000	\$0.711	
425,000	\$0.488	
Over	\$0.449	

SCHEDULE F**Quarterly Domestic Meter Rates Outside City**

Gallons	Rate Per Thousand	Cost
12,000	\$2.60	\$31.20
13,000	\$2.17	\$33.37
14,000	\$2.17	\$35.54
15,000	\$2.17	\$37.71
16,000	\$2.17	\$39.88
17,000	\$2.17	\$42.05
18,000	\$2.17	\$44.22
19,000	\$2.17	\$46.39
20,000	\$2.17	\$48.56
21,000	\$2.17	\$50.73
22,000	\$2.17	\$52.90
23,000	\$2.17	\$55.07
24,000	\$2.17	\$57.24
25,000	\$2.17	\$59.41
26,000	\$2.17	\$61.58
27,000	\$2.17	\$63.75

SCHEDULE F**Quarterly Domestic Meter Rates Outside City**

Gallons	Rate Per Thousand	Cost
28,000	\$2.17	\$65.92
29,000	\$2.17	\$68.09
30,000	\$2.17	\$70.26
31,000	\$2.17	\$72.43
32,000	\$2.17	\$74.60
33,000	\$1.68	\$76.28
34,000	\$1.68	\$77.96
35,000	\$1.68	\$79.64
36,000	\$1.68	\$81.32
37,000	\$1.68	\$83.00
38,000	\$1.68	\$84.68
39,000	\$1.68	\$86.36
40,000	\$1.68	\$88.04
41,000	\$1.68	\$89.72
42,000	\$1.68	\$91.40
43,000	\$1.68	\$93.08
44,000	\$1.68	\$94.76
45,000	\$1.68	\$96.44
46,000	\$1.68	\$98.12
47,000	\$1.68	\$99.80
48,000	\$1.68	\$101.48
49,000	\$1.68	\$103.16
50,000	\$1.68	\$104.84

SCHEDULE F**Quarterly Domestic Meter Rates Outside City**

Gallons	Rate Per Thousand	Cost
51,000	\$1.68	\$106.52
52,000	\$1.68	\$108.20
53,000	\$1.68	\$109.88
54,000	\$1.68	\$111.56
55,000	\$1.68	\$113.24
56,000	\$1.68	\$114.92
57,000	\$1.68	\$116.60
58,000	\$1.68	\$118.28
59,000	\$1.68	\$119.96
60,000	\$1.68	\$121.64
61,000	\$1.68	\$123.32
62,000	\$1.68	\$125.00
137,000	\$1.37	
237,000 and all over	\$0.946	

SCHEDULE G**Private Fire Protection Standby Service**

Size of Connection (inches)	Annual Charge
2	\$71.28
3	\$72.90
4	\$142.56
6	\$234.90

SCHEDULE G**Private Fire Protection Standby Service**

Size of Connection (inches)	Annual Charge
8	\$348.30
10	\$810.00
12	\$1,142.10

B. Automatic lawn or garden sprinklers are prohibited unless property is metered.

§ 216-25. Authority to make changes.

The city reserves the right to change or amend from time to time these rules and regulations and the rates for the use of water.

Article II. Connections

[Adopted 8-8-2000 by Ord. No. 2956.1]

§ 216-26. Definitions.

As used in this article, the following terms shall have the meanings indicated, unless a different meaning clearly appears from the context:

BRADFORD CITY WATER AUTHORITY

A body corporate and politic organized under the Municipality Authorities Act of 1945 incorporated by the City of Bradford.

Editor's Note: See 53 P.S. § 301 et seq.

BUILDING MAIN

Extension from the water system of any structure to the lateral of a main.

IMPROVED PROPERTY

Any property within the City of Bradford upon which there is erected a structure intended for continuous or periodic habitation, occupancy or use by human beings or animals.

INDUSTRIAL ESTABLISHMENT

Any improved property located within the City of Bradford and used or intended for use, wholly or in part, for the manufacturing, processing, cleaning, laundering or assembling of any product, commodity or article.

LATERAL

- A. Part of the water system extending from a main to the curblin or, if there shall be no curblin, extending to the property line or;
- B. If no such lateral shall be provided, lateral shall mean that portion of, or place in, a main which is provided for connection of any building main.

MAIN

Any pipe or conduit constituting a part of the water system used or usable for water distribution purposes.

NONPOTABLE WATER

All water other than potable water.

OWNER

Any person vested with ownership, legal or equitable, sole or partial, of any improved property.

PERSON

Any individual, partnership, company, association, society, trust, corporation, municipality, municipal authority or other group or entity.

POTABLE WATER

Water used for direct human ingestion, consumption, showering, bathing and food preparation.

WATER SYSTEM

All facilities, as of any particular time, for production, transmission, storage and distribution of water in the City of Bradford owned by the Authority and leased to the City of Bradford for maintenance, operation and use.

§ 216-27. Use of public water system required.

- A. The owner of any improved property abutting upon the water system shall connect such improved property with and shall use such water system for both potable and nonpotable water use and in such manner as the City of Bradford or Bradford City Water Authority may require within 90 days after notice to such owner from the city or Authority to make such connection, subject to such limitations and restrictions as shall be established herein or otherwise shall be established by the City of Bradford.
- B. The notice by the City of Bradford to make connection to a main referred to in Subsection **A** shall be given by the City of Bradford or by the Bradford City Water Authority, and shall consist of a copy of this article, including any amendments and/or supplements which shall at the time be in effect, or a summary of each section thereof, and a written or printed document requiring the connection in accordance with the provisions of this article and specifying that such connection shall be made within 90 days after the date such notice is given or served. Such notice may be given or served at any time after a main is in place which can deliver water to the particular improved property. Such notice shall be given or served upon the owner by certified mail.

§ 216-28. Building mains and connections.

- A. No person shall uncover, connect with, make any opening into, use, alter or disturb, in any manner, any main or any part of the water system without first obtaining an application for service in writing from the City of Bradford or the Bradford City Water Authority.
- B. Application for service required under Subsection **A** of this section shall be made by the owner of the improved property served or to be served with notice as provided in § **216-27A**, or by the duly authorized agent of such owner.
- C. No person shall make or shall cause to be made a connection of any improved property to a main until such person fulfills each of the following conditions:
 - (1) Notify the City of Bradford or the Bradford City Water Authority of the desire and intention to connect such improved property to a main;
 - (2) Apply for and obtain a permit as required by Subsection **A** of this section;
 - (3) Give the City of Bradford or the Bradford City Water Authority at least 24 hours' notice before such connection will be made in order that the City of Bradford or the Bradford City Water Authority may supervise and inspect or may cause to be supervised and inspected the work of connection and necessary testing; and
 - (4) If applicable, furnish satisfactory evidence to the City of Bradford that any tapping (or connection) fee which may be charged and imposed by the Bradford City Water Authority against the owner of each improved property who connects such improved property to a main has been paid.
- D. Except as otherwise provided in this Subsection **D**, each improved property shall be connected separately and independently with a main through a building main. Grouping of more than one improved property on one building main shall not be permitted, except under special circumstances and for good cause shown, but then only after special permission of the City of Bradford, in writing, shall have been secured and only subject to such rules, regulations and conditions as may be prescribed by the City of Bradford or the Bradford City Water Authority.
- E. All costs and expenses of construction of a building main and all costs and expenses of connection of a building main to a main shall be borne by the owner of the improved property to be connected; and such owner shall indemnify and shall save harmless the City of Bradford or the Bradford City Water Authority from all loss or damage that may be occasioned, directly or indirectly, as a result of construction of a building main or of connection of a building main to a main.
- F. A building main shall be connected to a main at the place designated by the City of Bradford or the Bradford City Water Authority and where, if applicable, the lateral is provided. A smooth, neat joint shall be made, and the connection of a building main to the lateral shall be made secure and watertight.

- G. If the owner of any improved property located with the City of Bradford and abutting upon the water system, subject to the exception provided for in § **216-27A**, after 90 days' notice from the City of Bradford or the Bradford City Water Authority, in accordance with § **216-27A**, shall fail to connect such improved property, the City of Bradford may construct such connection and collect from such owner the costs and expenses thereof in any manner permitted by law.

§ 216-29. Connection and customer facilities fees.

- A. Connection fee. A fee, which shall not exceed an amount based upon the actual cost of the connection of the property extending from the Bradford City Water Authority's main to the property line or curb stop of the property so connected, is hereby authorized pursuant to a resolution of the City Council of the City of Bradford. The City of Bradford may also base such fee from time to time established by the Bradford City Water Authority. In lieu of the payment of the fees, the City of Bradford may require the construction and dedication of those facilities by the property owner or owners requesting such connection. All fees shall be payable to the Bradford City Water Authority.
- B. Customer facilities fee. A fee, which shall not exceed an amount based upon the actual cost of facilities serving the connected property from the property line or curb stop to the proposed dwelling or building to be served, is hereby authorized pursuant to a resolution of the City Council of the City of Bradford. The fee shall be chargeable only in the event that the City of Bradford or the Bradford City Water Authority and not the property owner or owners installs the customer facilities. In lieu of the payment of the customer facilities fee, the City of Bradford may require the construction of those facilities by the property owner or owners requesting customer facilities. The fee may include the cost of a water meter and installation if the City of Bradford or the Bradford City Water Authority provides or installs the same.

§ 216-30. Regulations governing building mains and connections to mains.

- A. No building main shall be covered until it has been inspected and/or approved by the City of Bradford or the Bradford City Water Authority. If any part of a building main is covered before so being inspected and approved, it shall be uncovered for inspection, at the cost and expense of the owner of the improved property to be connected to a main.
- B. Every building main of any improved property shall be maintained in a sanitary and safe operating condition by the owner of such improved property.
- C. Every excavation for a building main shall be guarded adequately with barricades and lights to protect all persons from damage and injury. Any street, sidewalk or other public property disturbed in the course of installation of a building main shall be restored, at the

cost and expense of the owner of the improved property being connected, in a manner satisfactory to the City of Bradford or the Bradford City Water Authority.

- D. If any person shall fail or shall refuse, upon receipt of a notice in writing of the City of Bradford or the Bradford City Water Authority, to remedy any unsatisfactory condition with respect to a building main within 60 days of receipt of such notice, the City of Bradford or the Bradford City Water Authority may refuse to permit such person to be served by the water system until such unsatisfactory condition shall have been remedied to the satisfaction of the City of Bradford.
- E. The City of Bradford or the Bradford City Water Authority reserves the right to adopt, from time to time, additional fees, rules and regulations it shall deem necessary and proper relating to connections with a main and with the water system, which additional rules and regulations, to the extent appropriate, shall be and shall be construed as part of this article.
- F. Any water from sources other than that provided by the Bradford City Water Authority shall not be introduced into or permitted to come into contact with the plumbing transporting water provided by the Authority.

§ 216-31. Appeals; hardship.

In the event any person shall deem the requirement to connect as provided in this article a hardship, such person may appeal to the City Council of the City of Bradford or the Bradford City Water Authority for relief from such connection requirement, which appeal shall be heard in accordance with provisions of the Pennsylvania Local Agency Law. *Editor's Note: See 2 Pa C.S.A. § 551 et seq.*

§ 216-32. Violations and penalties.

Any person, firm or corporation who shall violate any provision of this article shall, upon conviction thereof, be subject to pay a fine of not more than \$600, and in default of payment, to imprisonment for a term not to exceed 30 days. Each day that a violation of this article continues shall constitute a separate offense.

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APPENDIX C

Soil Boring Logs and Well Construction Diagrams



MONITORING WELL

ID NO. **MW-1R**

Groundwater and Environmental Services, Inc.

Page 1 of 1

PROJECT: **UPA Bradford M-061**

SURFACE ELEV.: **NA**

TOTAL DEPTH: **16-ft**

ADDRESS: **227 E Main St**

WATER DEPTH: **6-ft**

CASING EL.: **100.00-ft**

JOB NO. **0703486**

BOREHOLE DIA.: **11.25-inch**

WELL DIA.: **4-inch**

Logged By: **JP**

Drilling Method: **Hollow Stem Auger**

Dates Drilled: **6-6-13**

Sampling Method: **NA**

Drilling Company: **Kodiak Field Services**

Soil Class. System: **USCS**

Drill Rig Type: **Geoprobe 7822DT**

Field Screening: **PID 10.6 eV Lamp (ppm)**

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Recovery	SAMPLE LITHOLOGY	Stratigraphy	Comments	COMPLETION DETAILS
--------------	-----------------	--------------	-------------	----------	------------------	--------------	----------	--------------------

0	0-1	---	---	---	ASPHALT: with GRAVEL subbase	ASPHALT	MW-1 was installed following site activities in 1990. There is no record of well construction or site lithology. MW-1 was overdrilled in June 2013.	Concrete (0 - 1.5-ft bgs.)	
	1-5	---	HSA	HSA	Soil boring complete to 16-ft bgs.			Bentonite Seal (1.5 - 2.25-ft bgs.)	
-5	5-10	---	HSA	HSA				PVC Riser (0 - 3-ft bgs.) 0.020-inch slotted PVC Screen (3 - 16-ft bgs.)	
-10	10-15	---	HSA	HSA				Sand Pack (2.25 - 16-ft bgs.)	
-15	15-16	---	HSA	HSA				Monitoring Well complete to 16-ft bgs.	

Location:

Northing/Latitude: **NA**

Easting/Longitude: **NA**

Horizontal Datum: **NA**

Vertical Datum: **NA**

General Comments:

Complete with concrete pad and locking cap.

bgs = below ground surface, HSA = Hollow Stem Auger

Symbol Key:

Lab Sample Location

Apparent Water Level

MW-1R



MONITORING WELL

ID NO. **MW-3R**

Groundwater and Environmental Services, Inc.

Page 1 of 1

PROJECT: **UPA Bradford M-061**

SURFACE ELEV.: **NA**

TOTAL DEPTH: **8-ft**

ADDRESS: **227 E Main St**

WATER DEPTH: **4-ft**

CASING EL.: **99.21-ft**

JOB NO. **0703938**

BOREHOLE DIA.: **11.25-inch**

WELL DIA.: **4-inch**

Logged By: **JP**

Drilling Method: **Hollow Stem Auger**

Dates Drilled: **10-9-13**

Sampling Method: **NA**

Drilling Company: **Kodiak Field Services**

Soil Class. System: **USCS**

Drill Rig Type: **Geoprobe 7822DT**

Field Screening: **PID 10.6 eV Lamp (ppm)**

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Recovery	SAMPLE LITHOLOGY	Stratigraphy	Comments	COMPLETION DETAILS
--------------	-----------------	--------------	-------------	----------	------------------	--------------	----------	--------------------

0	0-1	---	---	---	ASPHALT: with GRAVEL subbase	ASPHALT		Concrete (0 - 1.25-ft bgs.)
	1-5	---	HSA	HSA	Soil boring complete to 8-ft bgs.			Bentonite Seal (1.25 - 1.75-ft bgs.)
								PVC Riser (0 - 2-ft bgs.)
								0.020-inch slotted PVC Screen (2 - 8-ft bgs.)
-5	5-8	---	HSA	HSA			MW-3 was installed following site activities in 1990. There is no record of well construction or site lithology. MW-3 was overdrilled in October 2013.	Sand Pack (1.75 - 8-ft bgs.)
								Monitoring Well complete to 8-ft bgs.
-10								

Location:

Northing/Latitude: **NA**

Easting/Longitude: **NA**

Horizontal Datum: **NA**

Vertical Datum: **NA**

General Comments:

Complete with concrete pad and locking cap.

bgs = below ground surface, HSA = Hollow Stem Auger

Symbol Key:

Lab Sample Location

Apparent Water Level

MW-3R



MONITORING WELL

ID NO. **SB-2 / MW-4**

Groundwater and Environmental Services, Inc.

Page 1 of 1

PROJECT: **UPA Bradford M-061**

SURFACE ELEV.: **NA**

TOTAL DEPTH: **15-ft**

ADDRESS: **227 E Main St**

WATER DEPTH: **10-ft**

CASING EL.: **99.70-ft**

JOB NO. **0703486**

BOREHOLE DIA.: **11.25-inch**

WELL DIA.: **4-inch**

Logged By: **JP**

Drilling Method: **Direct Push**

Dates Drilled: **6-5-13**

Sampling Method: **5-ft Macrosleeve**

Drilling Company: **Kodiak Field Services**

Soil Class. System: **USCS**

Drill Rig Type: **Geoprobe 7822DT**

Field Screening: **PID 10.6 eV Lamp (ppm)**

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Recovery	SAMPLE LITHOLOGY	Stratigraphy	Comments	COMPLETION DETAILS
0	0-1	---	AK	AK	ASPHALT: with GRAVEL subbase.	ASPHALT		Concrete (0 - 1.5-ft bgs.)
1-2	7.8	AK	AK		FILL: GRAVEL (f), some COBBLES, some to little SAND (f-c), some SILT, trace BOULDERS, dark BROWN, MOIST.	FILL		Bentonite Seal (1.25 - 2.25-ft bgs.)
2-3	---	AK	AK		FILL: SAA, asphalt fragments.			PVC Riser (0 - 3-ft bgs.)
3-4	4.0	AK	AK		FILL: SAA, no asphalt.			
4-5	6.8	AK	AK					
-5	5-7.5	393.3	AK	AK	FILL: GRAVEL with SAND (f-c), little to trace SILT, little to trace CLAY, BROWN, MOIST to WET.			0.020-inch slotted PVC Screen (3 - 15-ft bgs.)
7.5-10	3,689	DP	8"		FILL: CLAY, little SILT, little SAND (f-m), BLACK, WET.			
-10	10-12.5	866.1	DP	29"	FILL: GRAVEL with SAND (f-m), little SILT, little to trace CLAY, BLACK/BROWN, WET.			Sand Pack (2.25 - 15-ft bgs.)
12.5-15	50.9	DP	29"		CL: CLAY, some to little SILT, some to little SAND (f-m), little GRAVEL, light BROWN, MOIST.	CL		
-15					Soil boring complete to 15-ft bgs.			Monitoring Well complete to 15-ft bgs.

Location:

Northing/Latitude: **NA**

Easting/Longitude: **NA**

Horizontal Datum: **NA**

Vertical Datum: **NA**

General Comments:

Complete with concrete pad and locking cap.

bgs = below ground surface, DP = Direct Push, AK = Airknife

SAA = Same as above, (f-m-c) = fine to medium to coarse

Symbol Key:

Lab Sample Location

Apparent Water Level

SB-2 / MW-4



MONITORING WELL

ID NO. **SB-3 / MW-5**

Groundwater and Environmental Services, Inc.

Page 1 of 1

PROJECT: **UPA Bradford M-061**

SURFACE ELEV.: **NA**

TOTAL DEPTH: **12-ft**

ADDRESS: **227 E Main St**

WATER DEPTH: **10-ft**

CASING EL.: **99.42-ft**

JOB NO. **0703486**

BOREHOLE DIA.: **11.25-inch**

WELL DIA.: **4-inch**

Logged By: **JP**

Drilling Method: **Direct Push**

Dates Drilled: **6-5-13**

Sampling Method: **5-ft Macrosleeve**

Drilling Company: **Kodiak Field Services**

Soil Class. System: **USCS**

Drill Rig Type: **Geoprobe 7822DT**

Field Screening: **PID 10.6 eV Lamp (ppm)**

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Recovery	SAMPLE LITHOLOGY	Stratigraphy	Comments	COMPLETION DETAILS
--------------	-----------------	--------------	-------------	----------	------------------	--------------	----------	--------------------

0	0-1	---	AK	AK	ASPHALT: with GRAVEL subbase.	ASPHALT		Concrete (0 - 1.5-ft bgs.)	
	1-2	35.8	AK	AK	CL: CLAY, some SILT, little SAND (f-c), trace GRAVEL, BROWN, DRY.	CL		Bentonite Seal (1 - 1.5-ft bgs.)	
	2-3	40.6	AK	AK					
	3-4	22.3	AK	AK	CL: CLAY, little SILT, BROWN to GRAY, DRY to MOIST.			PVC Riser (0 - 2-ft bgs.)	
	4-5	35.5	AK	AK					
-5	5-7.5	17.6	AK	17"	CL: SAA, light BROWN.			0.020-inch slotted PVC Screen (2 - 12-ft bgs.)	
					CL: CLAY, little SAND (f-c), little GRAVEL, BROWN, MOIST to WET.				
	7.5-10	7.0	DP	17"	GM: GRAVEL and SAND (f-c), some to little SILT, some to little CLAY, BROWN, MOIST.	GM		Sand Pack (1.5 - 12-ft bgs.)	
-10	10-12.5	7.3	DP	30"	SC: CLAY with SAND, little SILT, trace GRAVEL, dark BROWN, SATURATED.	SC		Monitoring Well complete to 12-ft bgs.	
	12.5-15	8.1	DP	30"	SC: SAA, little GRAVEL (some SANDSTONE fragments), BROWN/RED, DRY.			Soil Backfill (12 - 15-ft bgs.)	
-15					Soil boring complete to 15-ft bgs.				

Location:

Northing/Latitude: **NA**

Easting/Longitude: **NA**

Horizontal Datum: **NA**

Vertical Datum: **NA**

General Comments:

Complete with concrete pad and locking cap.

bgs = below ground surface, DP = Direct Push

SAA = Same as above, (f-c) = fine to coarse, AK = Airknife

Symbol Key:

Lab Sample Location

Apparent Water Level

SB-3 / MW-5



MONITORING WELL

ID NO. **SB-6 / MW-6**

Groundwater and Environmental Services, Inc.

Page 1 of 1

PROJECT: **UPA Bradford M-061**

SURFACE ELEV.: **NA**

TOTAL DEPTH: **11.75-ft**

ADDRESS: **227 E Main St**

WATER DEPTH: **6-ft**

CASING EL.: **99.67-ft**

JOB NO. **0703486**

BOREHOLE DIA.: **11.25-inch**

WELL DIA.: **4-inch**

Logged By: **JP**

Drilling Method: **Direct Push**

Dates Drilled: **6-5-13**

Sampling Method: **5-ft Macrosleeve**

Drilling Company: **Kodiak Field Services**

Soil Class. System: **USCS**

Drill Rig Type: **Geoprobe 7822DT**

Field Screening: **PID 10.6 eV Lamp (ppm)**

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Recovery	SAMPLE LITHOLOGY	Stratigraphy	Comments	COMPLETION DETAILS
0	0-1	---	AK	AK	ASPHALT: with GRAVEL subbase.	ASPHALT		Concrete (0 - 1.5-ft bgs.)
	1-2	---	AK	AK	FILL: GRAVEL (f), COBBLES, little to some SAND (f-c), little SILT, BROWN, DRY to MOIST.	FILL		Bentonite Seal (1.25 - 2.25-ft bgs.)
	2-3	12.0	AK	AK				PVC Riser (0 - 2.75-ft bgs.)
	3-4	11.8	AK	AK	FILL: SAA, little SAND (f-c), trace SILT, GRAY, MOIST to WET.			
	4-5	13.2	AK	AK				
-5	5-7.5	1,166	AK	11"	FILL: SAA, some SAND, WET to SATURATED.			0.020-inch slotted PVC Screen (2.75 - 11.75-ft bgs.)
	7.5-10	1,602	DP	11"	CL: CLAY, some SILT, some SAND (f-m), little to trace GRAVEL, BROWN to BLACK, WET.	CL		Sand Pack (2.25 - 11.75-ft bgs.)
-10	10-11.5	236.8	DP	18"	CL: CLAY, some SAND (f-m), little SILT, BLACK, SATURATED.			Monitoring Well complete to 11.75-ft bgs.
	11.5-12.5	18.9	DP	12"	CL: CLAY, little SAND (f-m), little SILT, little to trace GRAVEL, light BROWN, MOIST.			Soil Backfill (11.75 - 12.5-ft bgs.)
					Soil boring complete to 12.5-ft bgs.			

Location:

Northing/Latitude: **NA**

Easting/Longitude: **NA**

Horizontal Datum: **NA**

Vertical Datum: **NA**

General Comments:

Complete with concrete pad and locking cap.

bgs = below ground surface, DP = Direct Push, AK = Airknife

SAA = Same as above, (f-m-c) = fine to medium to coarse

Symbol Key:

Lab Sample Location

Apparent Water Level

SB-6 / MW-6



MONITORING WELL

ID NO. **SB-9 / MW-7**

Groundwater and Environmental Services, Inc.

Page 1 of 1

PROJECT: **UPA Bradford M-061**

SURFACE ELEV.: **NA**

TOTAL DEPTH: **18.5-ft**

ADDRESS: **227 E Main St**

WATER DEPTH: **8-ft**

CASING EL.: **99.77-ft**

JOB NO. **0703938**

BOREHOLE DIA.: **11.25-inch**

WELL DIA.: **4-inch**

Logged By: **JP**

Drilling Method: **Direct Push**

Dates Drilled: **10-9-13**

Sampling Method: **5-ft Macrosleeve**

Drilling Company: **Kodiak Field Services**

Soil Class. System: **USCS**

Drill Rig Type: **Geoprobe 7822DT**

Field Screening: **PID 10.6 eV Lamp (ppm)**

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Recovery	SAMPLE LITHOLOGY	Stratigraphy	Comments	COMPLETION DETAILS
0	0-1	---	AK	AK	ASPHALT: with GRAVEL subbase.	ASPHALT		Concrete (0 - 1.75-ft bgs.)
1-2	13.1	AK	AK	AK	FILL: SAND (f-c) and GRAVEL (f), Cobbles, dark BROWN, DRY.	FILL		PVC Riser (0 - 3-ft bgs.)
2-3	8.7	AK	AK	AK	FILL: SAA, some GRAVEL, brick fragments.			Bentonite Seal (1.75 - 2.5-ft bgs.)
3-4	11.5	AK	AK	AK	FILL: SAA, trace to little CLAY, little SILT, brick fragments.			
4-5	9.2	AK	AK	AK	FILL: GRAVEL and SAND (f-c), trace SILT, BROWN, MOIST.			
-5	5-7.5	20.7	AK	8"	FILL: SAA, SAND (f), brick fragments, MOIST to WET.			Sand Pack (2.5 - 16-ft bgs.)
	7.5-10	25.6	DP	8"	SC: SAND (f), little CLAY, little SILT, little GRAVEL, GRAY/dk. BROWN, WET.	SC		0.020-inch slotted PVC Screen (3 - 16-ft bgs.)
-10	10-12.5	30.7	DP	15"	SC: SAND (f), some CLAY (soft to hard), trace GRAVEL, BROWN, WET.			
	12.5-15	31.9	DP	14"	CL: CLAY (hard), some GRAVEL, little SILT, SAND (f), BROWN, MOIST.	CL		Monitoring Well complete to 16-ft bgs.
-15	15-17	30.7	DP	14"				Soil Backfill (16 - 18.5-ft bgs.)
	17-18.5	28.1	DP	14"				
-20					Soil boring complete to 18.5-ft bgs.			

Location:

Northing/Latitude: **NA**

Easting/Longitude: **NA**

Horizontal Datum: **NA**

Vertical Datum: **NA**

General Comments:

Complete with concrete pad and locking cap.

bgs = below ground surface, DP = Direct Push

SAA = Same as above, (f-c) = fine to coarse, AK = Airknife

Symbol Key:

Lab Sample Location

Apparent Water Level

SB-9 / MW-7



MONITORING WELL

ID NO. **MW-8**

Groundwater and Environmental Services, Inc.

Page 1 of 1

PROJECT: **UPA Bradford M-061**

SURFACE ELEV.: **NA**

TOTAL DEPTH: **19.75-ft**

ADDRESS: **227 E Main St**

WATER DEPTH: **NA**

CASING EL.: **89.76-ft**

JOB NO. **0703938**

BOREHOLE DIA.: **8.25-inch**

WELL DIA.: **2-inch**

Logged By: **JP**

Drilling Method: **Direct Push**

Dates Drilled: **10-10-13**

Sampling Method: **5-ft Macrosleeve**

Drilling Company: **Kodiak Field Services**

Soil Class. System: **USCS**

Drill Rig Type: **Geoprobe 7822DT**

Field Screening: **PID 10.6 eV Lamp (ppm)**

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Recovery	SAMPLE LITHOLOGY	Stratigraphy	Comments	COMPLETION DETAILS
--------------	-----------------	--------------	-------------	----------	------------------	--------------	----------	--------------------

0	0-1	---	AK	AK	Topsoil: with FILL material.	Topsoil		Concrete (0 - 1.75-ft bgs.)	
	1-2	5.4	AK	AK	CL: CLAY, some SILT, little GRAVEL, little to trace SAND (f), BROWN, DRY, organics present - rootlets.	CL		PVC Riser (0 - 5-ft bgs.)	
-5	2-3	6.0	AK	AK				Bentonite Seal (1.5 - 4-ft bgs.)	
	3-4	5.3	AK	AK					
	4-5	5.6	AK	AK					
	5-7.5	7.6	DP	22"	CL: SAA, little GRAVEL (SANDSTONE fragments).				
-10	7.5-10	7.1	DP	22"				Sand Pack (4 - 19.75-ft bgs.)	
	10-12.5	7.5	DP	30"	CL: CLAY (hard to soft), some SILT, little SAND (f), little to trace GRAVEL, BROWN, DRY.				
	12.5-15	5.9	DP	30"				0.020-inch slotted PVC Screen (5 - 19.75-ft bgs.)	
	15-17	4.4	DP	16"	CL: SAA, BROWN/GRAY (mottling)				
-15	17-19	4.9	DP	16"			Encountered a sandstone cobble or boulder at 19-ft bgs causing geoprobe refusal. Auger refusal was observed at 19.75-ft bgs.		
	19-19.75	---	HSA	HSA				Monitoring Well complete to 19.75-ft bgs.	
					Soil boring complete to 19.75-ft bgs.				

Location:

Northing/Latitude: **NA**

Easting/Longitude: **NA**

Horizontal Datum: **NA**

Vertical Datum: **NA**

General Comments:

Complete with concrete pad and locking cap.

bgs = below ground surface, DP = Direct Push

SAA = Same as above, (f-c) = fine to coarse, AK = Airknife

Symbol Key:

Lab Sample Location

Apparent Water Level

MW-8



MONITORING WELL

ID NO. **MW-9**

Groundwater and Environmental Services, Inc.

Page 1 of 2

PROJECT: **UPA Bradford M-061**

SURFACE ELEV.: **NA**

TOTAL DEPTH: **30-ft bgs**

ADDRESS: **227 E Main St**

WATER DEPTH: **NA**

CASING EL.: **89.99-ft**

JOB NO. **0703938**

BOREHOLE DIA.: **8.25-inch**

WELL DIA.: **2-inch**

Logged By: **JP**

Drilling Method: **Direct Push**

Dates Drilled: **10-10-13**

Sampling Method: **5-ft Macrosleeve**

Drilling Company: **Kodiak Field Services**

Soil Class. System: **USCS**

Drill Rig Type: **Geoprobe 7822DT**

Field Screening: **PID 10.6 eV Lamp (ppm)**

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Recovery	SAMPLE LITHOLOGY	Stratigraphy	Comments	COMPLETION DETAILS
--------------	-----------------	--------------	-------------	----------	------------------	--------------	----------	--------------------

0	0-1	---	AK	AK	Topsoil: with FILL material.	Topsoil		Concrete (0 - 2-ft bgs.)	
	1-2	5.1	AK	AK	CL: CLAY, some SILT, little GRAVEL, little SAND (f), BROWN, DRY.	CL		PVC Riser (0 - 10-ft bgs.)	
	2-3	4.3	AK	AK					
	3-4	6.7	AK	AK					
	4-5	5.4	AK	AK					
-5	5-7.5	12.2	DP	27"				Bentonite Seal (2 - 9-ft bgs.)	
	7.5-10	14.4	DP	27"					
-10	10-12.5	18.2	DP	25"	GC: GRAVEL (some SANDSTONE fragments), some SAND (f-c), little CLAY, little SILT, BROWN, DRY.	GC			
	12.5-15	26.4	DP	25"	GC: GRAVEL and CLAY, some to little SAND (f-c), little SILT, BROWN, DRY.			Sand Pack (9 - 30-ft bgs.)	
-15	15-17.5	19.6	DP	30"	CL: CLAY, some SILT, little to trace GRAVEL (some SANDSTONE fragments), little SAND (f), BROWN, DRY.	CL			
	17.5-20	15.6	DP	30"	CL: SAA, CLAY (hard to soft).			0.020-inch slotted PVC Screen (10 - 30-ft bgs.)	
-20	20-22.5	11.6	DP	29"	CL: CLAY (hard), some SILT, little GRAVEL, little to trace SAND (f), BROWN/RED, DRY.				

Location:

Northing/Latitude: **NA**

Easting/Longitude: **NA**

Horizontal Datum: **NA**

Vertical Datum: **NA**

General Comments:

Complete with concrete pad and locking cap.

bgs = below ground surface, DP = Direct Push

SAA = Same as above, (f-c) = fine to coarse, AK = Airknife

Symbol Key:

Lab Sample Location

Apparent Water Level

MW-9



MONITORING WELL

ID NO. **MW-9**

Groundwater and Environmental Services, Inc.

Page 2 of 2

PROJECT: **UPA Bradford M-061**

SURFACE ELEV.: **NA**

TOTAL DEPTH: **30-ft bgs**

ADDRESS: **227 E Main St**

WATER DEPTH: **NA**

CASING EL.: **89.99-ft**

JOB NO. **0703938**

BOREHOLE DIA.: **8.25-inch**

WELL DIA.: **2-inch**

Logged By: **JP**

Drilling Method: **Direct Push**

Dates Drilled: **10-10-13**

Sampling Method: **5-ft Macrosleeve**

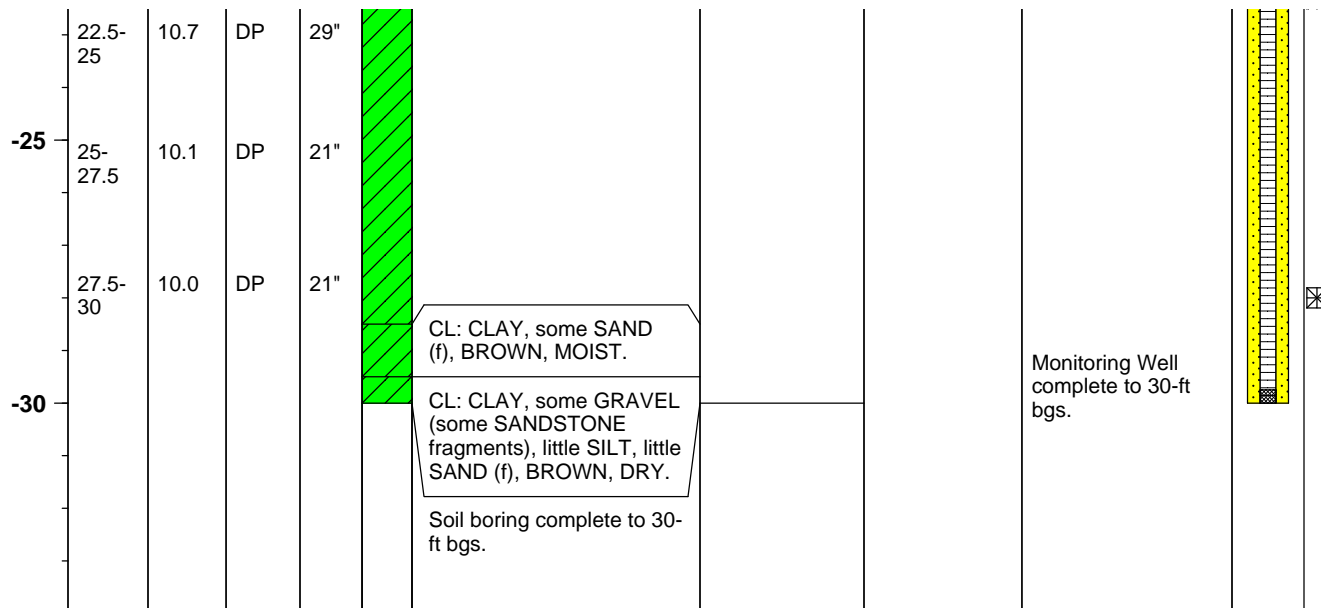
Drilling Company: **Kodiak Field Services**

Soil Class. System: **USCS**

Drill Rig Type: **Geoprobe 7822DT**

Field Screening: **PID 10.6 eV Lamp (ppm)**

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Recovery	SAMPLE LITHOLOGY	Stratigraphy	Comments	COMPLETION DETAILS
--------------	-----------------	--------------	-------------	----------	------------------	--------------	----------	--------------------



Location:

Northing/Latitude: **NA**

Easting/Longitude: **NA**

Horizontal Datum: **NA**

Vertical Datum: **NA**

General Comments:

Complete with concrete pad and locking cap.

bgs = below ground surface, DP = Direct Push

SAA = Same as above, (f-c) = fine to coarse, AK = Airknife

Symbol Key:

Lab Sample Location

Apparent Water Level

MW-9



MONITORING WELL

ID NO. **MW-10**

Groundwater and Environmental Services, Inc.

Page 1 of 2

PROJECT: **UPA Bradford M-061**
ADDRESS: **227 E Main St**
JOB NO. **0703938**

SURFACE ELEV.: **NA**
WATER DEPTH: **12-ft**
BOREHOLE DIA.: **8.25-inch**

TOTAL DEPTH: **30-ft**
CASING EL.: **88.76-ft**
WELL DIA.: **2-inch**

Logged By: **JP**
Dates Drilled: **12-17-13**
Drilling Company: **H.A.D., Inc.**
Drill Rig Type: **CME-55**

Drilling Method: **Hollow Stem Auger**
Sampling Method: **2-ft split-spoon**
Soil Class. System: **USCS**
Field Screening: **PID 10.6 eV Lamp (ppm)**

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Recovery	SAMPLE LITHOLOGY	Stratigraphy	Comments	COMPLETION DETAILS
0	0-1	---	HC	HC	Fill: Varying amounts of GRAVEL, CLAY, SAND (f-c), SILT, wood debris, brick fragments, dark BROWN DRY to MOIST.	Fill		Concrete (0 - 2-ft bgs.)
	1-2	238.7	HC	HC				
	2-3	1,092	HC	HC				
	3-4	1,060	HC	HC	Fill: GRAVEL and SAND (f-c), little SILT, little CLAY, dark GRAY/BLACK, MOIST to WET.			PVC Riser (0 - 10-ft bgs.)
	4-5	766.4	HC	HC				
-5	5-7	81.3	2.4 5.7	16"	Fill: SAA, WET to SATURATED.	CL		Bentonite Seal (2 - 9-ft bgs.)
	7-9	25.2	6.6 10.8	18"	CL: CLAY (stiff), some SILT, trace SAND (f), trace GRAVEL, dark BROWN, MOIST.			
	9-11	39.4	6.7 11.8	22"	CL: SAA, little GRAVEL, MOIST to WET.			
-10	11-13	22.1	3.4 4.6	12"	CL: CLAY (soft) and SILT, little SAND (f), little GRAVEL, light BROWN, SATURATED.			
	13-15	63.1	3.7 7.9	16"				
-15	15-17	26.8	3.5 7.12	14"	CL: SAA, CLAY (stiff), WET to MOIST.			Sand Pack (9 - 30-ft bgs.)
	17-20	---	HSA	HSA				
-20	20-22	48.9	4.7 13.16	24"	CL: CLAY (very stiff), some SILT, little SAND (f), little GRAVEL, BROWN/GRAY, MOIST.			0.020-inch slotted PVC Screen (10 - 30-ft bgs.)
	22-25	---	HSA	HSA				

Location:

Northing/Latitude: **NA**
Easting/Longitude: **NA**
Horizontal Datum: **NA**
Vertical Datum: **NA**

General Comments:

Complete with concrete pad and locking cap.
bgs = below ground surface, HSA= Hollow Stem Auger
SAA = Same as above, (f-c) = fine to coarse, HC = Handclear

Symbol Key:

Lab Sample Location 
Apparent Water Level 

MW-10



MONITORING WELL

ID NO. **MW-10**

Groundwater and Environmental Services, Inc.

Page 2 of 2

PROJECT: **UPA Bradford M-061**

SURFACE ELEV.: **NA**

TOTAL DEPTH: **30-ft**

ADDRESS: **227 E Main St**

WATER DEPTH: **12-ft**

CASING EL.: **88.76-ft**

JOB NO. **0703938**

BOREHOLE DIA.: **8.25-inch**

WELL DIA.: **2-inch**

Logged By: **JP**

Drilling Method: **Hollow Stem Auger**

Dates Drilled: **12-17-13**

Sampling Method: **2-ft split-spoon**

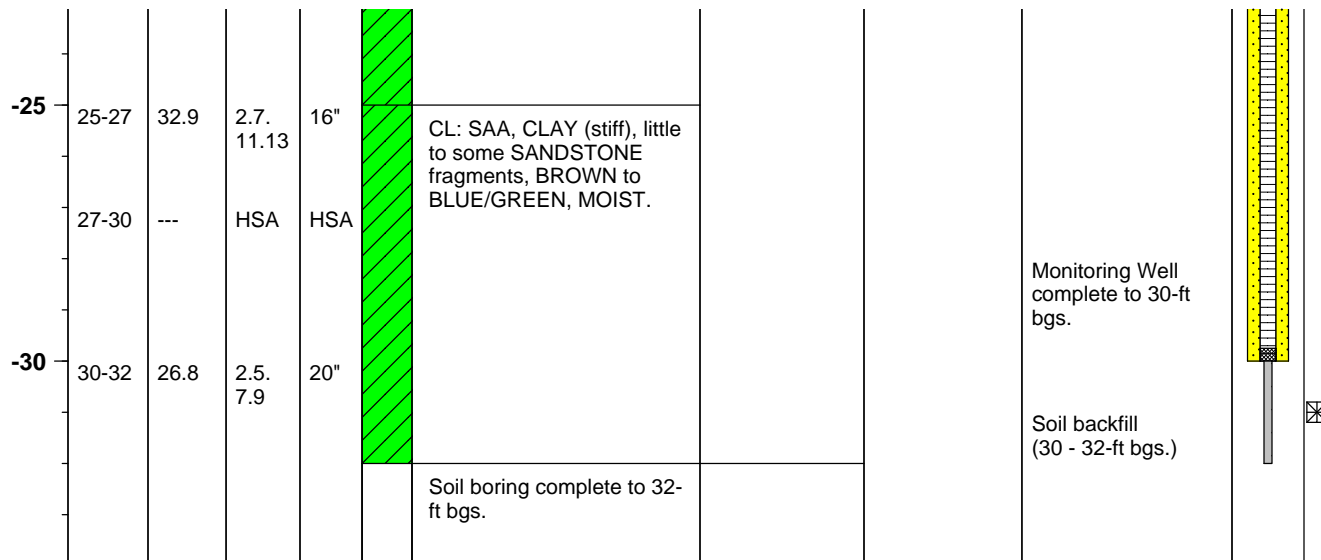
Drilling Company: **H.A.D., Inc.**

Soil Class. System: **USCS**

Drill Rig Type: **CME-55**

Field Screening: **PID 10.6 eV Lamp (ppm)**

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Rec- overy	SAMPLE LITHOLOGY	Stratigraphy	Comments	COMPLETION DETAILS
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Location:

Northing/Latitude: **NA**

Easting/Longitude: **NA**

Horizontal Datum: **NA**

Vertical Datum: **NA**

General Comments:

Complete with concrete pad and locking cap.

bgs = below ground surface, HSA= Hollow Stem Auger

SAA = Same as above, (f-c) = fine to coarse, HC = Handclear

Symbol Key:

Lab Sample Location

Apparent Water Level

MW-10



MONITORING WELL

ID NO. **MW-11**

Groundwater and Environmental Services, Inc.

Page 1 of 1

PROJECT: **UPA Bradford M-061**

SURFACE ELEV.: **NA**

TOTAL DEPTH: **30-ft bgs**

ADDRESS: **227 E Main St**

WATER DEPTH: **15-ft**

CASING EL.: **87.28-ft**

JOB NO. **0703938**

BOREHOLE DIA.: **8.25-inch**

WELL DIA.: **2-inch**

Logged By: **JP**

Drilling Method: **Hollow Stem Auger**

Dates Drilled: **12-12-13**

Sampling Method: **2-ft split-spoon**

Drilling Company: **H.A.D., Inc.**

Soil Class. System: **USCS**

Drill Rig Type: **CME-55**

Field Screening: **PID 10.6 eV Lamp (ppm)**

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Recovery	SAMPLE LITHOLOGY	Stratigraphy	Comments	COMPLETION DETAILS
--------------	-----------------	--------------	-------------	----------	------------------	--------------	----------	--------------------

0	0-1	---	HC	HC	Topsoil: with Fill material.	Topsoil		Concrete (0 - 2-ft bgs.)
	1-2	13.7	HC	HC		Fill		PVC Riser (0 - 10-ft bgs.)
	2-3	14.5	HC	HC	Fill: CLAY (soft), some SILT, little SAND (f-c), little GRAVEL, dark to light BROWN, DRY.			
	3-4	16.9	HC	HC				
	4-5	9.3	HC	HC				
-5	5-7	23.6	1.6. 10.12	14"	Fill: SAND (f-c), some GRAVEL, some to little CLAY little to trace SILT, light BROWN, DRY.	CL		Bentonite Seal (2 - 9-ft bgs.)
	7-9	---	HSA	HSA				
-10	9-11	26.2	3.6. 12.12	18"	Fill: SAND (f-c), some CLAY, some GRAVEL, little SILT, light BROWN, DRY.			
	11-13	---	HSA	HSA				
	13-15	33.0	3.5. 16.10	24"	CL: CLAY (soft), some SILT, little SAND (f), light BROWN, DRY.			
-15	15-17	---	HSA	HSA	CL: SAA, CLAY (soft to stiff), little to trace GRAVEL, DRY to MOIST.			Sand Pack (9 - 30-ft bgs.)
	17-20	34.3	1.9. 10.13	16"				
-20	20-22	---	HSA	HSA	CL: SAA, CLAY (very stiff), some GRAVEL (some SANDSTONE fragments), WET to MOIST.			0.020-inch slotted PVC Screen (10 - 30-ft bgs.)
	22-25	27.4	2.7. 9.11	24"	CL: SAA, RED/BROWN.			
-25	25-27	---	HSA	HSA	CL: SAA, CLAY (stiff to soft), some GRAVEL.			
	27-30	---	HSA	HSA				
-30	30-32	26.2	2.4. 8.13	24"	CL: SAA, trace GRAVEL.			Monitoring Well complete to 30-ft bgs.
					Soil boring complete to 32-ft bgs.			Soil backfill (30 - 32-ft bgs.)

Location:

Northing/Latitude: **NA**

Easting/Longitude: **NA**

Horizontal Datum: **NA**

Vertical Datum: **NA**

General Comments:

Complete with concrete pad and locking cap.

bgs = below ground surface, HSA = Hollow Stem Auger

SAA = Same as above, (f-c) = fine to coarse, HC = Handclear

Symbol Key:

Lab Sample Location

Apparent Water Level

MW-11



MONITORING WELL

ID NO. **MW-12**

Groundwater and Environmental Services, Inc.

Page 1 of 1

PROJECT: **UPA Bradford M-061**

SURFACE ELEV.: **NA**

TOTAL DEPTH: **16-ft**

ADDRESS: **227 E Main St**

WATER DEPTH: **9-ft**

CASING EL.: **99.30-ft**

JOB NO. **0703938**

BOREHOLE DIA.: **11.25-inch**

WELL DIA.: **4-inch**

Logged By: **JP**

Drilling Method: **Hollow Stem Auger**

Dates Drilled: **12-12-13**

Sampling Method: **2-ft split-spoon**

Drilling Company: **H.A.D., Inc.**

Soil Class. System: **USCS**

Drill Rig Type: **CME-55**

Field Screening: **PID 10.6 eV Lamp (ppm)**

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Recovery	SAMPLE LITHOLOGY	Stratigraphy	Comments	COMPLETION DETAILS
0	0-1	---	AK	AK	ASPHALT: with GRAVEL subbase	ASPHALT		Concrete (0 - 1.75-ft bgs.)
1-2	9.2	AK	AK			FILL		PVC Riser (0 - 3-ft bgs.)
2-3	9.6	AK	AK		Fill: SAND (f-c) and GRAVEL, trace SILT, dark BRWON, DRY.			Bentonite Seal (1.75 - 2.5-ft bgs.)
3-4	6.0	AK	AK		Fill: SAA, little to trace CLAY.			
4-5	8.3	AK	AK		Fill: SAA, little to some CLAY (soft).			
-5	5-6	---	4.5. 50/1	1"	Fill: GRAVEL with SAND (f-c) and CLAY (soft), little SILT, BROWN, DRY.			
6-7	---	HSA	HSA		Fill: GRAVEL (some SANDSTONE fragments).	CL		Sand Pack (2.5 - 16-ft bgs.)
7-9	2,313	1.1. 1.2	7"		CL: CLAY (soft), some to little SILT, little SAND (f), trace GRAVEL (SANDSTONE fragments), BROWN, MOIST to SATURATED.			
9-11	2,547	3.3. 7.7	16"		SM: SAND (f) and SILT, dark BROWN, SATURATED.	SM		
-10	11-13	2,501	2.8. 12.16	18"	SM: SAA, little GRAVEL.			
13-15	163.1	9.11. 14.16	12"		CL: CLAY (hard), some SILT, some GRAVEL (some SANDSTONE fragments), little SAND (f), BROWN/GRAY, SATURATED.	CL		0.020-inch slotted PVC Screen (3 - 16-ft bgs.)
-15	15-16	---	HSA	HSA	CL: CLAY (stiff), some SILT, little to trace GRAVEL, little SAND (f), RED/BROWN, MOIST.			Monitoring Well complete to 16-ft bgs.
-20					Soil boring complete to 16-ft bgs.			

Location:

Northing/Latitude: **NA**

Easting/Longitude: **NA**

Horizontal Datum: **NA**

Vertical Datum: **NA**

General Comments:

Complete with concrete pad and locking cap.

bgs = below ground surface, HSA= Hollow Stem Auger

SAA = Same as above, (f-c) = fine to coarse, AK = Airknife

Symbol Key:

Lab Sample Location

Apparent Water Level

MW-12



MONITORING WELL

ID NO. **SB-1 / MW-13**

Groundwater and Environmental Services, Inc.

Page 1 of 2

PROJECT: **UPA Bradford M-061**

SURFACE ELEV.: **NA**

TOTAL DEPTH: **35-ft**

ADDRESS: **227 E Main St**

WATER DEPTH: **10-ft**

CASING EL.: **99.83-ft**

JOB NO. **0703938**

BOREHOLE DIA.: **11.25-inch**

WELL DIA.: **4-inch**

Logged By: **JP**

Drilling Method: **Direct Push / Hollow Stem Auger**

Dates Drilled: **6-5-13 & 12-18-13**

Sampling Method: **5-ft Macrosleeve / 2-ft split-spoon**

Drilling Company: **Kodiak Field Services / H.A.D., Inc.**

Soil Class. System: **USCS**

Drill Rig Type: **Geoprobe 7822DT / CME-55**

Field Screening: **PID 10.6 eV Lamp (ppm)**

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Recovery	SAMPLE LITHOLOGY	Stratigraphy	Comments	COMPLETION DETAILS
0	0-1	---	AK	AK	ASPHALT: with GRAVEL subbase	ASPHALT		Concrete (0 - 2-ft bgs.)
	1-2	6.7	AK	AK	FILL: GRAVEL, some COBBLES, some SAND (f-c), some SILT, dark BROWN, MOIST.	FILL		
	2-3	5.3	AK	AK	FILL: SAA, ASPHALT fragments.			
	3-4	4.2	AK	AK				
	4-5	4.0	AK	AK				
-5	5-6	11.9	AK	AK	FILL: GRAVEL (f) and SAND (f-c), some SILT, dark BROWN, MOIST.			
	6-7	35.8	AK	AK	FILL: SAA, trace to little CLAY, BROWN to GRAY.			
	7-7.5	---	AK	AK				
	7.5-10	156.2	DP	9"	FILL: GRAVEL with SAND (f-c), little to trace SILT, BROWN, MOIST to WET.			PVC Riser (0 - 23-ft bgs.)
-10	10-12.5	402.0	DP	28"	FILL: SAND (f-c) with SILT, some GRAVEL, little to trace CLAY, BROWN/GRAY, WET to SATURATED.			
	12.5-15	14.2	DP	27"	CL: CLAY, some SILT, some to little SAND (f-c), trace GRAVEL, light BROWN, MOIST.	CL		Bentonite Seal (2 - 22-ft bgs.)
-15	15-17	27.2	7.13. 13.14	16"	CL: CLAY (stiff), some SILT, little GRAVEL, trace SAND (f), BROWN, WET.		Soil boring was overdrilled to 35-ft bgs, and converted to 4-inch monitoring well by H.A.D., Inc. on 12-18-13.	
	17-19	47.5	-24. 42.18	8"	CL: SAA, some to little GRAVEL (SANDSTONE fragments), little SAND (f), MOIST.			
	19-21	42.4	-2. 8.13	12"				
-20								

Location:

Northing/Latitude: **NA**

Easting/Longitude: **NA**

Horizontal Datum: **NA**

Vertical Datum: **NA**

General Comments:

Complete with concrete pad and locking cap.

bgs = below ground surface, DP = Direct Push

SAA = Same as above, (f-c) = fine to coarse, AK = Airknife

Symbol Key:

Lab Sample Location

Apparent Water Level

SB-1 / MW-13



MONITORING WELL

ID NO. **SB-1 / MW-13**

Groundwater and Environmental Services, Inc.

Page 2 of 2

PROJECT: **UPA Bradford M-061**

SURFACE ELEV.: **NA**

TOTAL DEPTH: **35-ft**

ADDRESS: **227 E Main St**

WATER DEPTH: **10-ft**

CASING EL.: **99.83-ft**

JOB NO. **0703938**

BOREHOLE DIA.: **11.25-inch**

WELL DIA.: **4-inch**

Logged By: **JP**

Drilling Method: **Direct Push / Hollow Stem Auger**

Dates Drilled: **6-5-13 & 12-18-13**

Sampling Method: **5-ft Macrosleeve / 2-ft split-spoon**

Drilling Company: **Kodiak Field Services / H.A.D., Inc.**

Soil Class. System: **USCS**

Drill Rig Type: **Geoprobe 7822DT / CME-55**

Field Screening: **PID 10.6 eV Lamp (ppm)**

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Recovery	SAMPLE LITHOLOGY	Stratigraphy	Comments	COMPLETION DETAILS
--------------	-----------------	--------------	-------------	----------	------------------	--------------	----------	--------------------

-20	21-23	61.3	2.4. 6.10	24"	CL: CLAY (stiff to soft), some SILT, trace GRAVEL, BROWN, MOIST.			
	23-25	60.7	2.7. 7.3	17"	SM: SAND (f) and SILT, trace GRAVEL, BROWN, WET to SATURATED.	SM		
-25	25-27	49.8	1.2. 5.8	22"	CL: CLAY (soft to stiff), some SILT, little SAND (f), trace GRAVEL, BROWN, WET.	CL		0.020-inch slotted PVC Screen (23 - 35-ft bgs.)
	27-29	66.8	3.8. 12.14	24"	CL: SAA, RED/BROWN, little GRAVEL (SANDSTONE fragments), BLUE/GREEN.			Sand pack (22 - 35-ft bgs.)
-30	29-31	32.8	2.8. 10.37	18"				
	31-33	20.3	4.8. 10.17	24"	CL: CLAY (soft to stiff), some SILT, little to trace SAND (f), trace GRAVEL, BROWN, WET to MOIST.			
-35	33-35	18.9	3.8. 8.12	24"				Monitoring Well complete to 35-ft bgs.
					Soil boring complete to 35-ft bgs.			

Location:

Northing/Latitude: **NA**

Easting/Longitude: **NA**

Horizontal Datum: **NA**

Vertical Datum: **NA**

General Comments:

Complete with concrete pad and locking cap.

bgs = below ground surface, DP = Direct Push

SAA = Same as above, (f-c) = fine to coarse, AK = Airknife

Symbol Key:

Lab Sample Location

Apparent Water Level

SB-1 / MW-13



MONITORING WELL

ID NO. **SB-10 / MW-14**

Groundwater and Environmental Services, Inc.

Page 1 of 1

PROJECT: **UPA Bradford M-061**

SURFACE ELEV.: **NA**

TOTAL DEPTH: **16-ft**

ADDRESS: **227 E Main St**

WATER DEPTH: **7-ft**

CASING EL.: **100.12-ft**

JOB NO. **0703938**

BOREHOLE DIA.: **11.25-inch**

WELL DIA.: **4-inch**

Logged By: **JP**

Drilling Method: **Direct Push / Hollow Stem Augers (HSA)**

Dates Drilled: **10-9-13 & 12-12-13**

Sampling Method: **5-ft macrosleeve**

Drilling Company: **Kodiak Field Services, H.A.D., Inc.**

Soil Class. System: **USCS**

Drill Rig Type: **Geoprobe 7822DT / CME-55**

Field Screening: **PID 10.6 eV Lamp (ppm)**

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Recovery	SAMPLE LITHOLOGY	Stratigraphy	Comments	COMPLETION DETAILS
0	0-1	---	AK	AK	ASPHALT: with GRAVEL subbase.	ASPHALT		Concrete (0 - 1.5-ft bgs.)
	1-2	---	AK	AK	FILL: GRAVEL and SAND (f-c), brick and cinder block fragments, little SILT, BROWN to GRAY, DRY.	FILL		PVC Riser (0 - 3-ft bgs.)
	2-3	15.1	AK	AK				
	3-4	18.6	AK	AK				
	4-5	26.2	AK	AK	FILL: SAA, little to trace SILT, no brick or cinder block fragments, DRY to WET.			Bentonite seal (1.5 - 2.5-t bgs.)
-5	5-6	18.1	AK	AK				
	6-7.5	13.4	AK	AK				
	7.5-10	3,723	DP	8"	FILL: SAA, trace CLAY, DRY to MOIST.	CL		Sand Pack (2.5 - 16-ft bgs.)
					CL: CLAY, some SILT, trace GRAVEL, trace SAND (f-m), BLACK/BROWN, MOIST to WET.		Collected Shelby tube from 9-11 ft bgs.	
-10	10-12.5	32.9	DP	25"	CL: CLAY (soft), some SAND (f), little SILT, little GRAVEL, BROWN/GRAY, MOIST to WET.			
	12.5-15	11.1	DP	24"	CL: SAA, CLAY (soft), BROWN, MOIST.		Soil boring was converted to a 16-ft monitoring well by H.A.D., Inc, using hollow stem augers on 12-12-13.	0.020-inch slotted PVC Screen (3 - 16-ft bgs.)
-15	15-16	---	HSA	HSA	CL: CLAY, some to little GRAVEL, little SAND (f), BROWN, MOIST to DRY.			Monitoring Well Complete to 16-ft bgs.
					Soil boring complete to 16-ft bgs.			

Location:

Northing/Latitude: **NA**

Easting/Longitude: **NA**

Horizontal Datum: **NA**

Vertical Datum: **NA**

General Comments:

Complete with concrete pad and locking cap.

bgs = below ground surface, DP = Direct Push, AK = Airknife

SAA = Same as above, (f-m-c) = fine to medium to coarse

Symbol Key:

Lab Sample Location

Apparent Water Level

SB-10 / MW-14



MONITORING WELL

ID NO. **MW-15**

Groundwater and Environmental Services, Inc.

Page 1 of 1

PROJECT: **UPA Bradford M-061**

SURFACE ELEV.: **NA**

TOTAL DEPTH: **9.5-ft**

ADDRESS: **227 E Main St**

WATER DEPTH: **NA**

CASING EL.: **99.57-ft**

JOB NO. **0703938**

BOREHOLE DIA.: **11.25-inch**

WELL DIA.: **4-inch**

Logged By: **JP**

Drilling Method: **Hollow Stem Auger**

Dates Drilled: **6-5-14**

Sampling Method: **2-ft split-spoon**

Drilling Company: **H.A.D., Inc.**

Soil Class. System: **USCS**

Drill Rig Type: **CME-55**

Field Screening: **PID 10.6 eV Lamp (ppm)**

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Recovery	SAMPLE LITHOLOGY	Stratigraphy	Comments	COMPLETION DETAILS
--------------	-----------------	--------------	-------------	----------	------------------	--------------	----------	--------------------

0	0-1	---	AK	AK	ASPHALT: with GRAVEL subbase	ASPHALT		Concrete (0 - 2-ft bgs.)	
	1-2	3.1	AK	AK	Fill: CLAY (soft), some SILT, some SAND (f-m), little GRAVEL, BROWN, MOIST.	FILL		PVC Riser (0 - 3.5-ft bgs.)	
	2-3	7.2	AK	AK	Fill: SAA, little GRAVEL (some SANDSTONE fragments).			Bentonite Seal (2 - 3-ft bgs.)	
	3-4	1.3	AK	AK	Fill: SAA, little SAND (f-m).				
	4-5	3.0	AK	AK					
-5	5-7	4.2	5.6. 8.9	12"	Fill: CLAY (soft) and SAND (f), some GRAVEL, BROWN, MOIST.			Sand Pack (3 - 9.5-ft bgs.)	
	7-9	9.3	7.11. 18.21	10"	Fill: SAA, some GRAVEL (some SANDSTONE fragments).			0.020-inch slotted PVC Screen (3.5 - 9.5-ft bgs.)	
	9-9.5	19.8	50/5	5"	Fill: CLAY (soft), some SAND (f), little GRAVEL (SANDSTONE fragments), BROWN, MOIST.		Encountered split-spoon refusal at 9.5-ft bgs.		
	9.5-10	---	HSA	HSA	Fill: Boulder.		Encountered auger refusal at 10-ft bgs.	Monitoring Well complete to 9.5-ft bgs.	
-10					Soil boring complete to 10-ft bgs.				

Location:

Northing/Latitude: **NA**

Easting/Longitude: **NA**

Horizontal Datum: **NA**

Vertical Datum: **NA**

General Comments:

Complete with concrete pad and locking cap.

bgs = below ground surface, HSA= Hollow Stem Auger

SAA = Same as above, (f-m) = fine to medium, AK = Airknife

Symbol Key:

Lab Sample Location

Apparent Water Level

MW-15



MONITORING WELL

ID NO. **MW-16**

Groundwater and Environmental Services, Inc.

Page 1 of 1

PROJECT: **UPA Bradford M-061**

SURFACE ELEV.: **NA**

TOTAL DEPTH: **16-ft**

ADDRESS: **227 E Main St**

WATER DEPTH: **NA**

CASING EL.: **98.60-ft**

JOB NO. **0703938**

BOREHOLE DIA.: **11.25-inch**

WELL DIA.: **4-inch**

Logged By: **JP**

Drilling Method: **Hollow Stem Auger**

Dates Drilled: **6-5-14**

Sampling Method: **2-ft split-spoon**

Drilling Company: **H.A.D., Inc.**

Soil Class. System: **USCS**

Drill Rig Type: **CME-55**

Field Screening: **PID 10.6 eV Lamp (ppm)**

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Recovery	SAMPLE LITHOLOGY	Stratigraphy	Comments	COMPLETION DETAILS
0	0-1	---	AK	AK	ASPHALT: with GRAVEL subbase	ASPHALT		Concrete (0 - 2-ft bgs.)
	1-2	---	AK	AK	Fill: GRAVEL, some COBBLES, some SAND (f-m), some concrete fragments, BROWN, MOIST.	FILL		PVC Riser (0 - 4-ft bgs.)
	2-3	---	AK	AK	Fill: Brick fragments, some GRAVEL, some COBBLES, some SAND (f-m), BROWN, MOIST.			Bentonite Seal (2 - 3-ft bgs.)
	3-4	4.9	AK	AK	Fill: CLAY (soft), some SAND (f), BROWN, MOIST.			
	4-5	3.5	AK	AK	Fill: SAA, little GRAVEL (some SANDSTONE fragments), BROWN, MOIST.			
-5	5-7	2.3	7.6. 6.6	6"	Fill: SILT, some SAND (f), little GRAVEL (some SANDSTONE fragments), BROWN, DRY.			
	7-9	1.9	wt. wt. 3.5	24"	CL: CLAY, (soft), some SILT, some SAND (f), little GRAVEL (some SANDSTONE fragments), BROWN, MOIST.	CL		Sand Pack (3 - 16-ft bgs.)
	9-11	2.0	5.7. 10.10	10"	CL: SAA, CLAY (soft to stiff).			
-10	11-13	2.4	5.8. 9.11	12"	SC: SAND (f) and CLAY (stiff), some SILT, little GRAVEL (some SANDSTONE fragments), BROWN, DRY.	SC		0.020-inch slotted PVC Screen (4 - 16-ft bgs.)
	13-15	2.0	11.7. 7.11	12"	Soil boring complete to 17-ft bgs.			
-15	15-17	5.3	9.9. 10.10	16"				Monitoring Well complete to 16-ft bgs.
								Soil backfill (16 - 17-ft bgs.)

Location:

Northing/Latitude: **NA**

Easting/Longitude: **NA**

Horizontal Datum: **NA**

Vertical Datum: **NA**

General Comments:

Complete with concrete pad and locking cap.

bgs = below ground surface, HSA= Hollow Stem Auger, wt= weight

SAA = Same as above, (f-m) = fine to medium, AK = Airknife

Symbol Key:

Lab Sample Location

Apparent Water Level

MW-16



MONITORING WELL

ID NO. **MW-17**

Groundwater and Environmental Services, Inc.

Page 1 of 2

PROJECT: **UPA Bradford M-061**

SURFACE ELEV.: **NA**

TOTAL DEPTH: **22-ft**

ADDRESS: **227 E Main St**

WATER DEPTH: **14-ft**

CASING EL.: **77.95-ft**

JOB NO. **0703938**

BOREHOLE DIA.: **11.25-inch**

WELL DIA.: **4-inch**

Logged By: **JP**

Drilling Method: **Hollow Stem Auger**

Dates Drilled: **6-4-14**

Sampling Method: **2-ft split-spoon**

Drilling Company: **H.A.D., Inc.**

Soil Class. System: **USCS**

Drill Rig Type: **CME-55**

Field Screening: **PID 10.6 eV Lamp (ppm)**

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Recovery	SAMPLE LITHOLOGY	Stratigraphy	Comments	COMPLETION DETAILS
0	0-1	---	AK	AK	ASPHALT: overlying layer of Bricks.	ASPHALT		Concrete (0 - 2-ft bgs.)
	1-2	---	AK	AK	Fill: Brick and GRAVEL (SANDSTONE fragments), some CLAY (soft), some SILT, BROWN, DRY.	FILL		
	2-3	4.7	AK	AK	Fill: CLAY (soft), some SILT, little SAND (f), trace GRAVEL, BROWN, MOIST.			Bentonite Seal (2 - 6-ft bgs.)
	3-4	---	AK	AK				
	4-5	5.9	AK	AK	Fill: sandstone COBBLES and brick fragments, little CLAY (soft), little SILT, BROWN, MOIST.	CL		PVC Riser (0 - 7-ft bgs.)
-5	5-6	4.5	AK	AK	CL: CLAY (soft), some SILT, little SAND (f), little GRAVEL, BROWN, MOIST.			
	6-7	3.9	AK	AK	CL: SAA, little GRAVEL (SANDSTONE fragments), WET to SATURATED.			
	7-8	3.5	AK	AK	CL: CLAY (stiff to soft), some SAND (f-m), some SILT, little GRAVEL (SANDSTONE fragments), BROWN, MOIST.			
	8-10	2.9	2.6. 9.10	20"				Sand Pack (6 - 22-ft bgs.)
-10	10-12	3.5	10.10. 10.13	6"				
	12-14	5.0	wt.5. 13.13	12"	CL: CLAY (stiff to soft), some SAND (f-m), some SILT, little GRAVEL (SANDSTONE fragments), BROWN, MOIST.			0.020-inch slotted PVC Screen (7 - 22-ft bgs.)
	14-16	5.2	3.5. 5.8	18"	CL: SAA, CLAY (very soft), SATURATED to WET.			
-15								

Location:

Northing/Latitude: **NA**

Easting/Longitude: **NA**

Horizontal Datum: **NA**

Vertical Datum: **NA**

General Comments:

Complete with concrete pad and locking cap.

bgs = below ground surface, HSA= Hollow Stem Auger, wt= weight

SAA = Same as above, (f-m) = fine to medium, AK = Airknife

Symbol Key:

Lab Sample Location

Apparent Water Level

MW-17



MONITORING WELL

ID NO. **MW-17**

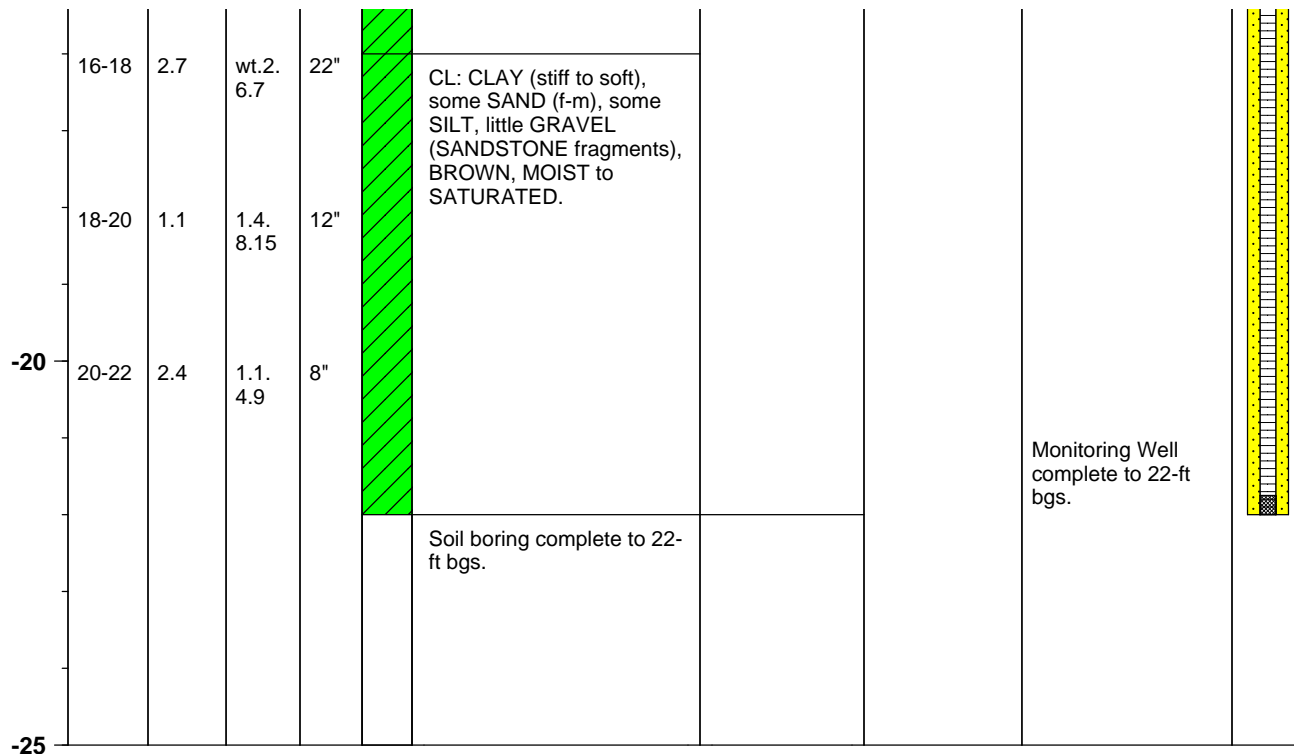
Groundwater and Environmental Services, Inc.

Page 2 of 2

PROJECT: UPA Bradford M-061	SURFACE ELEV.: NA	TOTAL DEPTH: 22-ft
ADDRESS: 227 E Main St	WATER DEPTH: 14-ft	CASING EL.: 77.95-ft
JOB NO. 0703938	BOREHOLE DIA.: 11.25-inch	WELL DIA.: 4-inch

Logged By: JP	Drilling Method: Hollow Stem Auger
Dates Drilled: 6-4-14	Sampling Method: 2-ft split-spoon
Drilling Company: H.A.D., Inc.	Soil Class. System: USCS
Drill Rig Type: CME-55	Field Screening: PID 10.6 eV Lamp (ppm)

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Recovery	SAMPLE LITHOLOGY	Stratigraphy	Comments	COMPLETION DETAILS
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Location:

Northing/Latitude: **NA**
 Easting/Longitude: **NA**
 Horizontal Datum: **NA**
 Vertical Datum: **NA**

General Comments:

Complete with concrete pad and locking cap.
 bgs = below ground surface, HSA= Hollow Stem Auger, wt= weight
 SAA = Same as above, (f-m) = fine to medium, AK = Airknife

Symbol Key:

Lab Sample Location 
 Apparent Water Level 

MW-17



MONITORING WELL

ID NO. **MW-18**

Groundwater and Environmental Services, Inc.

Page 1 of 2

PROJECT: **UPA Bradford M-061**

SURFACE ELEV.: **NA**

TOTAL DEPTH: **30-ft**

ADDRESS: **227 E Main St**

WATER DEPTH: **NA**

CASING EL.: **76.65-ft**

JOB NO. **0703938**

BOREHOLE DIA.: **11.25-inch**

WELL DIA.: **4-inch**

Logged By: **JP**

Drilling Method: **Hollow Stem Auger**

Dates Drilled: **6-3-14**

Sampling Method: **2-ft split-spoon**

Drilling Company: **H.A.D., Inc.**

Soil Class. System: **USCS**

Drill Rig Type: **CME-55**

Field Screening: **PID 10.6 eV Lamp (ppm)**

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Recovery	SAMPLE LITHOLOGY	Stratigraphy	Comments	COMPLETION DETAILS
0	0-1	---	AK	AK	ASPHALT: overlying layer of Bricks.	ASPHALT		Concrete (0 - 2-ft bgs.)
1-2	4.1	AK	AK		CL: CLAY (soft), some SILT, little SAND (f), little GRAVEL, trace COBBLES, BROWN, MOIST.	CL		Bentonite Seal (2 - 9-ft bgs.)
2-3	3.7	AK	AK		CL: SAA, MOIST to WET.			
3-4	3.6	AK	AK					
4-5	3.7	AK	AK					
-5	5-6	3.5	AK	AK	CL: SAA, WET to SATURATED.			
6-7	2.6	AK	AK					
7-8	3.9	AK	AK					PVC Riser (0 - 10-ft bgs.)
8-10	5.4	6.8. 11.12	14"		CL: CLAY (soft to stiff), some SILT, some SAND (f), little GRAVEL (SANDSTONE fragments), BROWN, MOIST.			
-10	10-12	4.7	2.6. 10.12	16'				
12-14	5.4	2.3. 6.8	12"		CL: SAA, CLAY (stiff to soft).			Sand Pack (9 - 30-ft bgs.)
14-16	5.3	1.7. 7.8	18"					
-15	16-18	4.2	1.3. 6.7	14"	SC: SAND (f) and CLAY (soft) to very soft), little GRAVEL (SANDSTONE fragments), BROWN, MOIST.	SC		
18-20	4.6	2.3. 6.9	13"		SC: SAA, CLAY (soft to stiff).			0.020-inch slotted PVC Screen (10 - 30-ft bgs.)
-20	20-22	4.8	1.4. 5.8	12"				

Location:

Northing/Latitude: **NA**

Easting/Longitude: **NA**

Horizontal Datum: **NA**

Vertical Datum: **NA**

General Comments:

Complete with concrete pad and locking cap.

bgs = below ground surface, HSA= Hollow Stem Auger

SAA = Same as above, (f-c) = fine to coarse, AK = Airknife

Symbol Key:

Lab Sample Location

Apparent Water Level

MW-18



MONITORING WELL

ID NO. **MW-18**

Groundwater and Environmental Services, Inc.

Page 2 of 2

PROJECT: **UPA Bradford M-061**

SURFACE ELEV.: **NA**

TOTAL DEPTH: **30-ft**

ADDRESS: **227 E Main St**

WATER DEPTH: **NA**

CASING EL.: **76.65-ft**

JOB NO. **0703938**

BOREHOLE DIA.: **11.25-inch**

WELL DIA.: **4-inch**

Logged By: **JP**

Drilling Method: **Hollow Stem Auger**

Dates Drilled: **6-3-14**

Sampling Method: **2-ft split-spoon**

Drilling Company: **H.A.D., Inc.**

Soil Class. System: **USCS**

Drill Rig Type: **CME-55**

Field Screening: **PID 10.6 eV Lamp (ppm)**

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Recovery	SAMPLE LITHOLOGY	Stratigraphy	Comments	COMPLETION DETAILS
--------------	-----------------	--------------	-------------	----------	------------------	--------------	----------	--------------------

-25	22-24	4.9	1.5. 5.7	24"	SC: SAA, CLAY (stiff to soft).			
	24-26	4.5	2.3. 3.5	18"	SC: SAA, CLAY (soft), MOIST to WET.			
	26-28	4.5	2.5. 8.18	12"				
-30	28-30	4.2	2.4. 7.7	14"	SP: SAND (f-c, well-graded) and GRAVEL, little CLAY, BROWN, SATURATED	SP		
					Soil boring complete to 30-ft bgs.		Monitoring Well complete to 30-ft bgs.	

Location:

Northing/Latitude: **NA**

Easting/Longitude: **NA**

Horizontal Datum: **NA**

Vertical Datum: **NA**

General Comments:

Complete with concrete pad and locking cap.

bgs = below ground surface, HSA= Hollow Stem Auger

SAA = Same as above, (f-c) = fine to coarse, AK = Airknife

Symbol Key:

Lab Sample Location

Apparent Water Level

MW-18



MONITORING WELL

ID NO. **MW-19**

Groundwater and Environmental Services, Inc.

Page 1 of 2

PROJECT: **UPA Bradford M-061**

SURFACE ELEV.: **NA**

TOTAL DEPTH: **30-ft**

ADDRESS: **227 E Main St**

WATER DEPTH: **26-ft**

CASING EL.: **75.36-ft**

JOB NO. **0703938**

BOREHOLE DIA.: **11.25-inch**

WELL DIA.: **4-inch**

Logged By: **JP**

Drilling Method: **Hollow Stem Auger**

Dates Drilled: **6-4-14**

Sampling Method: **2-ft split-spoon**


Drilling Company: **H.A.D., Inc.**

Soil Class. System: **USCS**

Drill Rig Type: **CME-55**

Field Screening: **PID 10.6 eV Lamp (ppm)**

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Recovery	SAMPLE LITHOLOGY	Stratigraphy	Comments	COMPLETION DETAILS
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0	0-1	---	AK	AK	ASPHALT: overlying layer of Bricks.	ASPHALT	Concrete (0 - 2-ft bgs.)	
	1-2	5.5	AK	AK	CL: CLAY (soft), some SILT, little SAND (f), little GRAVEL, BROWN, MOIST.	CL	Bentonite Seal (2 - 9-ft bgs.)	
	2-3	5.5	AK	AK				
	3-4	4.5	AK	AK				
	4-5	3.4	AK	AK				
-5	5-6	4.0	AK	AK	CL: SAA, some SAND (f), WET.		PVC Riser (0 - 10-ft bgs.)	
	6-7	9.9	AK	AK				
	7-8	4.1	AK	AK				
	8-10	3.5	2.7. 11.20	16"				
-10	10-12	3.7	7.16. 12.12	18"	CL: CLAY (soft to stiff), some SILT, some SAND (f), little GRAVEL (SANDSTONE fragments), BROWN, MOIST.		Sand Pack (9 - 30-ft bgs.)	
	12-14	3.0	1.6. 6.7	11"				
	14-16	4.8	2.3. 4.4	6"				
	16-18	4.5	1.1. 3.5	24"				
-15	18-20	3.1	3.4. 9.10	12"	SC: SAND (f) and CLAY (very soft), little GRAVEL (SANDSTONE fragments), BROWN, MOIST.		0.020-inch slotted PVC Screen (10 - 30-ft bgs.)	
-20					SC: SAND (f), some CLAY (soft to stiff), little GRAVEL (some SANDSTONE fragments), BROWN, MOIST.			

Location:

Northing/Latitude: **NA**
Easting/Longitude: **NA**
Horizontal Datum: **NA**
Vertical Datum: **NA**

General Comments:

Complete with concrete pad and locking cap.
bgs = below ground surface, HSA= Hollow Stem Auger
SAA = Same as above, (f) = fine, AK = Airknife

Symbol Key:

Lab Sample Location
Apparent Water Level

MW-19



MONITORING WELL

ID NO. **MW-19**

Groundwater and Environmental Services, Inc.

Page 2 of 2

PROJECT: **UPA Bradford M-061**

SURFACE ELEV.: **NA**

TOTAL DEPTH: **30-ft**

ADDRESS: **227 E Main St**

WATER DEPTH: **26-ft**

CASING EL.: **75.36-ft**

JOB NO. **0703938**

BOREHOLE DIA.: **11.25-inch**

WELL DIA.: **4-inch**

Logged By: **JP**

Drilling Method: **Hollow Stem Auger**

Dates Drilled: **6-4-14**

Sampling Method: **2-ft split-spoon**




Drilling Company: **H.A.D., Inc.**

Soil Class. System: **USCS**

Drill Rig Type: **CME-55**

Field Screening: **PID 10.6 eV Lamp (ppm)**

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Recovery	SAMPLE LITHOLOGY	Stratigraphy	Comments	COMPLETION DETAILS
--------------	-----------------	--------------	-------------	----------	------------------	--------------	----------	--------------------

-20	20-22	2.8	2.5. 10.12	24"		SC: SAND (f) and CLAY (stiff to soft), little GRAVEL (some SANDSTONE fragments), BROWN, MOIST.	SC			
	22-24	4.3	1.9. 11.12	24"						
-25	24-26	2.8	2.7. 9.11	24"		SC: SAA, CLAY (soft to very soft), MOIST to WET.				
	26-28	1.8	2.10. 11.10	22"						
-30	28-30	2.8	3.10. 11.13	21"		SP: GRAVEL (well-graded) and SAND (f), little CLAY, BROWN, SATURATED.	SP			
						Soil boring complete to 30-ft bgs.				

Monitoring Well complete to 30-ft bgs.

Location:

Northing/Latitude: **NA**

Easting/Longitude: **NA**

Horizontal Datum: **NA**

Vertical Datum: **NA**



General Comments:

Complete with concrete pad and locking cap.

bgs = below ground surface, HSA= Hollow Stem Auger

SAA = Same as above, (f) = fine, AK = Airknife

Symbol Key:

Lab Sample Location 
Apparent Water Level 

MW-19



MONITORING WELL

ID NO. **MW-20**

Groundwater and Environmental Services, Inc.

Page 1 of 2

PROJECT: **UPA Bradford M-061**

SURFACE ELEV.: **67.03-ft**

TOTAL DEPTH: **23-ft**

ADDRESS: **227 E Main St**

WATER DEPTH: **17-ft**

CASING EL.: **66.78-ft**

JOB NO. **0704231**

BOREHOLE DIA.: **11.25-inch**

WELL DIA.: **4-inch**

Logged By: **JP**

Drilling Method: **Hollow Stem Auger**

Dates Drilled: **12-9-14**

Sampling Method: **2-ft split-spoon**

Drilling Company: **H.A.D., Inc.**

Soil Class. System: **USCS**

Drill Rig Type: **LC-60**

Field Screening: **PID 10.6 eV Lamp (ppm)**

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Recovery	SAMPLE LITHOLOGY	Stratigraphy	Comments	COMPLETION DETAILS
0	0-1	2.1	AK	AK	Topsoil	Topsoil		Concrete (0 - 1.5-ft bgs.)
	1-2	3.6	AK	AK	CL: CLAY (soft), some SILT, some SAND (f), BROWN, MOIST.	CL		
	2-3	4.2	AK	AK	CL: SAA, little GRAVEL (some SANDSTONE fragments).			Bentonite Seal (1.5 - 7-ft bgs.)
	3-4	2.2	AK	AK				
	4-5	7.9	AK	AK				
-5	5-7	6.9	1.1. 4.5	14"	CL: CLAY (soft), some SILT, little to some SAND (f-m), little to some GRAVEL, BROWN, MOIST, organics present (rootlets).			PVC Riser (0 - 8-ft bgs.)
	7-9	8.2	2.2. 3.5	6"				
	9-11	8.8	1.1. 2.2	9"				
-10	11-13	8.1	1.1. 1.2	11"	SC: SAND (f) and CLAY (soft), little SILT, some to little GRAVEL, BROWN, MOIST to WET.	SC		Sand Pack (7 - 23-ft bgs.)
	13-15	14.6	wt.1. 1.1	5"	SP: SAND (f) and GRAVEL, some CLAY (soft), little SILT, BROWN, WET.	SP		
-15	15-17	11.6	wt.wt. wt.1	3"	GC: GRAVEL and CLAY (soft), little SAND (f), little SILT, BROWN, MOIST.	GC		
	17-19	4.2	1.1. 6.7	24"	GM: GRAVEL and SAND (f-m), little SILT, trace CLAY, dk BROWN, WET to SATURATED.	GM		0.020-inch slotted PVC Screen (8 - 23-ft bgs.)
-20	19-21	3.6	3.8. 9.11	6"	GM: SAA, no CLAY, SATURATED.			

Location:

Northing/Latitude: **NA**

Easting/Longitude: **NA**

Horizontal Datum: **NA**

Vertical Datum: **NA**

General Comments:

Complete with concrete pad and locking cap.

bgs = below ground surface, HSA= Hollow Stem Auger

SAA = Same as above, (f-c) = fine to coarse, AK = Airknife

Symbol Key:

Lab Sample Location

Apparent Water Level

MW-20



MONITORING WELL

ID NO. **MW-20**

Groundwater and Environmental Services, Inc.

Page 2 of 2

PROJECT: **UPA Bradford M-061**

SURFACE ELEV.: **67.03-ft**

TOTAL DEPTH: **23-ft**

ADDRESS: **227 E Main St**

WATER DEPTH: **17-ft**

CASING EL.: **66.78-ft**

JOB NO. **0704231**

BOREHOLE DIA.: **11.25-inch**

WELL DIA.: **4-inch**

Logged By: **JP**

Drilling Method: **Hollow Stem Auger**

Dates Drilled: **12-9-14**

Sampling Method: **2-ft split-spoon**

Drilling Company: **H.A.D., Inc.**

Soil Class. System: **USCS**

Drill Rig Type: **LC-60**

Field Screening: **PID 10.6 eV Lamp (ppm)**

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Rec- overy	SAMPLE LITHOLOGY	Stratigraphy	Comments	COMPLETION DETAILS
-----------------	--------------------	-----------------	----------------	---------------	------------------	--------------	----------	--------------------

-20								
	21-23	2.6	1.26. 19.11	16"	GM: GRAVEL (some SANDSTONE fragments) and SAND (f-c), little SILT, BROWN, SATURATED.			
					Soil boring complete to 23- ft bgs.			Monitoring Well complete to 23-ft bgs.
-25								

Location:

Northing/Latitude: **NA**

Easting/Longitude: **NA**

Horizontal Datum: **NA**

Vertical Datum: **NA**



General Comments:

Complete with concrete pad and locking cap.

bgs = below ground surface, HSA= Hollow Stem Auger

SAA = Same as above, (f-c) = fine to coarse, AK = Airknife

Symbol Key:

Lab Sample Location 
Apparent Water Level 

MW-20



MONITORING WELL

ID NO. **MW-21**

Groundwater and Environmental Services, Inc.

Page 1 of 2

PROJECT: **UPA Bradford M-061**
ADDRESS: **227 E Main St**
JOB NO. **0704231**


















SURFACE ELEV.: **86.59-ft**
WATER DEPTH: **21-ft**
BOREHOLE DIA.: **11.25-inch**

TOTAL DEPTH: **25-ft**
CASING EL.: **86.70-ft**
WELL DIA.: **4-inch**

Logged By: **JP**
Dates Drilled: **12-11-14**
Drilling Company: **H.A.D., Inc.**
Drill Rig Type: **LC-60**

Drilling Method: **Hollow Stem Auger**
Sampling Method: **25-ft**
Soil Class. System: **USCS**
Field Screening: **PID 10.6 eV Lamp (ppm)**

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Recovery	SAMPLE LITHOLOGY	Stratigraphy	Comments	COMPLETION DETAILS
--------------	-----------------	--------------	-------------	----------	------------------	--------------	----------	--------------------

0	0-1	0.3	AK	AK		Topsoil	Topsoil	Concrete (0 - 1.5-ft bgs.)	
	1-2	0.2	AK	AK		CL: CLAY (soft), some SILT, some SAND (f), some sandstone COBBLES, BROWN, MOIST.	CL		
	2-3	0.4	AK	AK					
	3-4	---	AK	AK				Bentonite Seal (1.5 - 6-ft bgs.)	
	4-5	0.1	AK	AK					
-5	5-7	1.9	1.4. 7.21	14"		CL: SAA, little GRAVEL (SANDSTONE fragments).			
						CL: CLAY (soft), some SILT, some to little GRAVEL, little SAND (f), BROWN, MOIST.		PVC Riser (0 - 7-ft bgs.)	
	7-9	0.9	7.8. 14.14	15"					
						CL: SAA, CLAY (stiff), little GRAVEL (some SANDSTONE fragments), RED/BROWN.			
-10	9-11	2.7	4.5. 7.13	13"					
	11-13	4.2	1.2. 9.16	24"				Sand Pack (6 - 25-ft bgs.)	
	13-15	2.4	1.4. 14.15	8"					
-15	15-17	2.6	1.4. 7.9	24"					

Location:

Northing/Latitude: **NA**
Easting/Longitude: **NA**
Horizontal Datum: **NA**
Vertical Datum: **NA**

General Comments:

Complete with concrete pad and locking cap.
bgs = below ground surface, HSA= Hollow Stem Auger
SAA = Same as above, (f) = fine, AK = Airknife

Symbol Key:

Lab Sample Location 
Apparent Water Level 

MW-21



MONITORING WELL

ID NO. **MW-21**

Groundwater and Environmental Services, Inc.

Page 2 of 2

PROJECT: **UPA Bradford M-061**

SURFACE ELEV.: **86.59-ft**

TOTAL DEPTH: **25-ft**

ADDRESS: **227 E Main St**

WATER DEPTH: **21-ft**

CASING EL.: **86.70-ft**

JOB NO. **0704231**

BOREHOLE DIA.: **11.25-inch**

WELL DIA.: **4-inch**

Logged By: **JP**

Drilling Method: **Hollow Stem Auger**

Dates Drilled: **12-11-14**

Sampling Method: **25-ft**

Drilling Company: **H.A.D., Inc.**

Soil Class. System: **USCS**

Drill Rig Type: **LC-60**

Field Screening: **PID 10.6 eV Lamp (ppm)**

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Rec-covery	SAMPLE LITHOLOGY	Stratigraphy	Comments	COMPLETION DETAILS
17-19	2.4	9.42. 32.12	18"		CL: CLAY (soft), some SAND (f), little SILT, BROWN, MOIST.			
19-21	5.8	1.2. 9.29	24"		CL: CLAY (stiff), some SILT, little SAND (f), trace, GRAVEL, BROWN, MOIST.	SC		
21-23	4.4	4.9. 12.13	24"		SC: SAND (f) and CLAY (soft), little SILT, trace GRAVEL, BROWN, WET.	CL		
23-25	0.6	1.7. 14.14	22"		CL: CLAY (stiff to soft), some SILT, little to some SAND (f), trace to little GRAVEL, BROWN, MOIST to WET.	SC		
					SC: SAND (f) and CLAY (soft), little SILT, BROWN, SATURATED.	CL		
					CL: CLAY (stiff to very stiff), some SILT, little SAND (f), little GRAVEL (some SANDSTONE fragments), BROWN, WET.			
					Soil boring complete to 25-ft bgs.			
								0.020-inch slotted PVC Screen (7 - 25-ft bgs.)
								Monitoring Well complete to 25-ft bgs.

Location:

Northing/Latitude: **NA**

Easting/Longitude: **NA**

Horizontal Datum: **NA**

Vertical Datum: **NA**

General Comments:

Complete with concrete pad and locking cap.

bgs = below ground surface, HSA= Hollow Stem Auger

SAA = Same as above, (f) = fine, AK = Airknife

Symbol Key:

Lab Sample Location

Apparent Water Level

MW-21



MONITORING WELL

ID NO. **MW-22**

Groundwater and Environmental Services, Inc.

Page 1 of 2

PROJECT: **UPA Bradford M-061**

SURFACE ELEV.: **NA**

TOTAL DEPTH: **34-ft**

ADDRESS: **227 E Main St**

WATER DEPTH: **NA**

CASING EL.: **99.22-ft**

JOB NO. **0704231**

BOREHOLE DIA.: **11.25-inch**

WELL DIA.: **4-inch**

Logged By: **JP**

Drilling Method: **Hollow Stem Auger**

Dates Drilled: **12-16-14**

Sampling Method: **34-ft**

Drilling Company: **H.A.D., Inc.**

Soil Class. System: **USCS**

Drill Rig Type: **LC-60**

Field Screening: **PID 10.6 eV Lamp (ppm)**

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Recovery	SAMPLE LITHOLOGY	Stratigraphy	Comments	COMPLETION DETAILS
0	0-1	7.4	AK	AK	Asphalt: with GRAVEL subbase.	Asphalt		Concrete (0 - 1.5-ft bgs.)
	1-2	6.8	AK	AK		FILL		
	2-3	9.5	AK	AK	FILL: CLAY (soft), some SILT, some SAND (f), some sandstone COBBLES, BROWN, MOIST.			Bentonite Seal (1.5 - 21-ft bgs.)
	3-4	18.5	AK	AK				
	4-5	35.7	AK	AK	FILL: SILT, some CLAY, some SAND (f), BROWN, MOIST.			
-5	5-7	16.4	1.1. 4.5	4"	FILL: CLAY (soft), some SILT, BROWN, MOIST.	CL		PVC Riser (0 - 22-ft bgs.)
	7-9	19.9	5.10. 13.14	8"	CL: CLAY (soft to stiff), some SILT, some to little GRAVEL (SANDSTONE fragments), little to trace SAND (f), BROWN, MOIST.			
-10	9-11	24.4	1.5. 14.14	13"				
	11-13	22.0	5.7. 9.10	14"	CL: CLAY (soft), some SAND (f), little SILT, GRAY/BROWN, MOIST.			Sand Pack (21 - 34-ft bgs.)
	13-15	17.5	1.5. 9.9	10"	CL: CLAY (stiff), some SILT, little SAND (f), little GRAVEL (some SANDSTONE fragments), BROWN, MOIST.			
-15	15-17	44.2	4.7. 9.14	11"				
	17-20	---	HSA	HSA				0.020-inch slotted PVC Screen (22 - 34-ft bgs.)
-20	20-22	19.8	3.7. 10.13	8"				
	22-25	---	HSA	HSA				

Location:

Northing/Latitude: **NA**

Easting/Longitude: **NA**

Horizontal Datum: **NA**

Vertical Datum: **NA**

General Comments:

Complete with concrete pad and locking cap.

bgs = below ground surface, HSA= Hollow Stem Auger

SAA = Same as above, (f) = fine, AK = Airknife

Symbol Key:

Lab Sample Location

Apparent Water Level

MW-22



MONITORING WELL

ID NO. **MW-22**

Groundwater and Environmental Services, Inc.

Page 2 of 2

PROJECT: **UPA Bradford M-061**

SURFACE ELEV.: **NA**

TOTAL DEPTH: **34-ft**

ADDRESS: **227 E Main St**

WATER DEPTH: **NA**

CASING EL.: **99.22-ft**

JOB NO. **0704231**

BOREHOLE DIA.: **11.25-inch**

WELL DIA.: **4-inch**

Logged By: **JP**

Drilling Method: **Hollow Stem Auger**

Dates Drilled: **12-16-14**

Sampling Method: **34-ft**

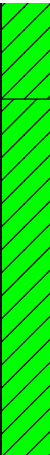
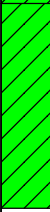

Drilling Company: **H.A.D., Inc.**

Soil Class. System: **USCS**

Drill Rig Type: **LC-60**

Field Screening: **PID 10.6 eV Lamp (ppm)**

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Recovery	SAMPLE LITHOLOGY	Stratigraphy	Comments	COMPLETION DETAILS
--------------	-----------------	--------------	-------------	----------	------------------	--------------	----------	--------------------

-25	25-27	12.3	5.8. 13.15	19"		CL: SAA, CLAY (very stiff), trace SAND (f), RED/BROWN.				
	27-30	---	HSA	HSA						
-30	30-32	9.8	1.3. 8.16	15"		CL: SAA, CLAY (very stiff to hard), some to little GRAVEL (some SANDSTONE fragments).				
	32-34	---	HSA	HSA						
-35	34-36	10.5	1.3. 8.9	14"						
						Soil boring complete to 36-ft bgs.				

Monitoring Well complete to 34-ft bgs.

Soil Backfill (34 - 36-ft bgs.)

Location:

Northing/Latitude: **NA**

Easting/Longitude: **NA**

Horizontal Datum: **NA**

Vertical Datum: **NA**

General Comments:

Complete with concrete pad and locking cap.

bgs = below ground surface, HSA= Hollow Stem Auger

SAA = Same as above, (f) = fine, AK = Airknife

Symbol Key:

Lab Sample Location 
Apparent Water Level 

MW-22



MONITORING WELL

ID NO. **MW-23**

Groundwater and Environmental Services, Inc.

Page 1 of 2

PROJECT: **UPA Bradford M-061**

SURFACE ELEV.: **NA**

TOTAL DEPTH: **34.5-ft**

ADDRESS: **227 E Main St**

WATER DEPTH: **NA**

CASING EL.: **98.70-ft**

JOB NO. **0704231**

BOREHOLE DIA.: **11.25-inch**

WELL DIA.: **4-inch**

Logged By: **JP**

Drilling Method: **Hollow Stem Auger**

Dates Drilled: **12-12-14**

Sampling Method: **2-ft split-spoon**

Drilling Company: **H.A.D., Inc.**

Soil Class. System: **USCS**

Drill Rig Type: **LC-60**

Field Screening: **PID 10.6 eV Lamp (ppm)**

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Recovery	SAMPLE LITHOLOGY	Stratigraphy	Comments	COMPLETION DETAILS
0	0-1	---	AK	AK	Asphalt: with GRAVEL subbase.	Asphalt		Concrete (0 - 1.5-ft bgs.)
	1-2	0.7	AK	AK	FILL: COBBLES and BOULDERS, brick fragments, cinder block fragments, SILT, some SAND (f), BROWN, MOIST.	FILL		Bentonite Seal (1.5 - 21-ft bgs.)
	2-3	0.4	AK	AK				
	3-4	0.2	AK	AK				
	4-5	---	HSA	HSA				
-5	5-7	---	HSA	HSA	FILL: SILT, some SAND (f), little GRAVEL, BROWN, DRY.			PVC Riser (0 - 22-ft bgs.)
	7-9	0.8	1.4. 7.7	5"	CL: CLAY (soft), little SILT, little GRAVEL, trace to little SAND (f), BROWN, MOIST.			
	9-11	11.6	1.7. 14.11	24"				
-10	11-13	1.5	5.14. 14.11	7"	CL: CLAY (stiff), little to some SILT, trace SAND (f), trace GRAVEL, BROWN, MOIST.	CL		Sand Pack (21 - 34.5-ft bgs.)
	13-15	9.6	---. 4.10	22"	SC: SAND (f) and CLAY (soft), BROWN, WET.	SC		
	15-17	7.9	---. 4.10	16"	CL: CLAY (stiff), little to some SILT, trace SAND (f), trace GRAVEL, RED/BROWN, MOIST.	CL		
-15	17-20	---	HSA	HSA	CL: CLAY (soft to stiff), some to little SAND (f), some SILT, trace GRAVEL, BROWN, MOIST.			0.020-inch slotted PVC Screen (22 - 34.5-ft bgs.)
-20	20-22	3.6	4.10. 15.11	23"	SC: SAND (f) and CLAY, BROWN, MOIST.	SC		

Location:

Northing/Latitude: **NA**

Easting/Longitude: **NA**

Horizontal Datum: **NA**

Vertical Datum: **NA**

General Comments:

Complete with concrete pad and locking cap.

bgs = below ground surface, HSA= Hollow Stem Auger

SAA = Same as above, (f) = fine, AK = Airknife

Symbol Key:

Lab Sample Location

Apparent Water Level

MW-23



MONITORING WELL

ID NO. **MW-23**

Groundwater and Environmental Services, Inc.

Page 2 of 2

PROJECT: **UPA Bradford M-061**
ADDRESS: **227 E Main St**
JOB NO. **0704231**

SURFACE ELEV.: **NA**
WATER DEPTH: **NA**
BOREHOLE DIA.: **11.25-inch**

TOTAL DEPTH: **34.5-ft**
CASING EL.: **98.70-ft**
WELL DIA.: **4-inch**

Logged By: **JP**
Dates Drilled: **12-12-14**
Drilling Company: **H.A.D., Inc.**
Drill Rig Type: **LC-60**

Drilling Method: **Hollow Stem Auger**
Sampling Method: **2-ft split-spoon**
Soil Class. System: **USCS**
Field Screening: **PID 10.6 eV Lamp (ppm)**

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Recovery	SAMPLE LITHOLOGY	Stratigraphy	Comments	COMPLETION DETAILS
--------------	-----------------	--------------	-------------	----------	------------------	--------------	----------	--------------------

-25	22-25	---	HSA	HSA	CL: CLAY (soft to stiff), little SAND (f), little SILT, little GRAVEL (some SANDSTONE fragments), trace GRAVEL, BROWN, MOIST.	CL		
	25-27	2.5	6.15. 14.14	18"	CL: CLAY (stiff), some SILT, little GRAVEL (SANDSTONE fragments), little to trace SAND (f), BROWN, MOIST.			
-30	27-30	---	HSA	HSA	CL: CLAY (soft), some SAND (f), trace GRAVEL, BROWN, MOIST.			
	30-31	---	4.50/4	1"	CL: CLAY (stiff), some SILT, little GRAVEL (some SANDSTONE fragments), little SAND (f), BROWN, MOIST.			
	31-32	---	HSA	HSA	CL: CLAY (stiff), some COBBLES (sandstone fragments), trace SILT, BROWN, MOIST.			
	32-34	3.1	-.4. 16.26	16"	CL: CLAY (stiff), some SILT, little GRAVEL (some SANDSTONE fragments), trace SAND (f), RED/BROWN, MOIST.			
-35	34-36	2.8	-.4. 14.16	12"	CL: CLAY (stiff), some SILT, little GRAVEL (some SANDSTONE fragments), trace SAND (f), RED/BROWN, MOIST.			
					Soil boring complete to 36-ft bgs.			
-40								

Monitoring Well complete to 34.5-ft bgs.

Soil Backfill (34.5 - 36-ft bgs.)

Location:

Northing/Latitude: **NA**
Easting/Longitude: **NA**
Horizontal Datum: **NA**
Vertical Datum: **NA**

General Comments:

Complete with concrete pad and locking cap.
bgs = below ground surface, HSA= Hollow Stem Auger
SAA = Same as above, (f) = fine, AK = Airknife

Symbol Key:

Lab Sample Location 
Apparent Water Level 

MW-23



MONITORING WELL

ID NO. **MW-24**

Groundwater and Environmental Services, Inc.

Page 1 of 1

PROJECT: **UPA Bradford M-061**

SURFACE ELEV.: **71.71-ft**

TOTAL DEPTH: **27-ft**

ADDRESS: **227 E Main St**

WATER DEPTH: **23-ft**

CASING EL.: **71.62-ft**

JOB NO. **0704231**

BOREHOLE DIA.: **11.25-inch**

WELL DIA.: **4-inch**

Logged By: **JP**

Drilling Method: **Hollow Stem Auger**

Dates Drilled: **12-9-14**

Sampling Method: **2-ft split-spoon**

Drilling Company: **H.A.D., Inc.**

Soil Class. System: **USCS**

Drill Rig Type: **LC-60**

Field Screening: **PID 10.6 eV Lamp (ppm)**

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Recovery	SAMPLE LITHOLOGY	Stratigraphy	Comments	COMPLETION DETAILS
0	0-1	0.0	HC	HC	Topsoil	Topsoil		Concrete (0 - 1.5-ft bgs.)
	1-2	0.2	HC	HC				
	2-3	0.1	HC	HC	CL: CLAY (soft), some SILT, little SAND (f), trace GRAVEL, BROWN, MOIST, organics present - rootlets.	CL		Bentonite Seal (1.5 - 6-ft bgs.)
	3-4	0.1	HC	HC				
	4-5	0.2	HC	HC				
-5	5-7	0.0	3.4. 6.8	22"	CL: SAA, little to some SAND (f), little to some GRAVEL.			PVC Riser (0 - 7-ft bgs.)
	7-9	0.3	4.12. 13.11	24"				
	9-11	1.2	1.2. 4.7	8"	CL: CLAY (stiff), some SILT, little to trace SAND (f), trace GRAVEL, BROWN, MOIST.			
-10	11-13	1.9	1.3. 4.4	13"	CL: CLAY (soft), some SILT, trace SAND (f), trace GRAVEL, BROWN, MOIST.			Sand Pack (6 - 27-ft bgs.)
	13-15	1.2	1.2. 4.7	12"				
-15	15-17	2.3	1.4. 8.11	8"	CL: SAA, CLAY (soft to stiff).			
	17-19	3.4	1.3. 11.14	20"	CL: SAA, CLAY (soft), little SAND (f).			0.020-inch slotted PVC Screen (7 - 27-ft bgs.)
	19-21	0.9	2.6. 11.14	14"	CL: CLAY (soft), some SAND (f), some GRAVEL (some SANDSTONE fragments), little SILT, BROWN, MOIST.			
-20	21-23	3.0	1.11. 17.23	24"				
	23-25	3.3	1.3. 22.39	24"	CL: SAA, little GRAVEL, light BROWN, MOIST to SATURATED.	SC		
-25	25-27	1.0	1.5. 13.22	24"	SC: SAND (f) and CLAY (soft), some GRAVEL, little SILT, BROWN, MOIST to WET.			Monitoring Well complete to 27-ft bgs.
-30					Soil boring complete to 27-ft bgs.			

Location:

Northing/Latitude: **NA**

Easting/Longitude: **NA**

Horizontal Datum: **NA**

Vertical Datum: **NA**

General Comments:

Complete with concrete pad and locking cap.

bgs = below ground surface, HSA= Hollow Stem Auger

SAA = Same as above, (f) = fine, HC = hand clear

Symbol Key:

Lab Sample Location

Apparent Water Level

MW-24



SOIL BORING

ID NO. **SB-4**

Groundwater and Environmental Services, Inc.

Page 1 of 1

PROJECT: **UPA Bradford M-061**

SURFACE ELEV.: **99.91-ft**

TOTAL DEPTH: **5.25-ft**

ADDRESS: **227 E Main St**

WATER DEPTH: **NA**

CASING EL.: **NA**

JOB NO. **0703486**

BOREHOLE DIA.: **10-inch**

WELL DIA.: **NA**

Logged By: **JP**

Drilling Method: **Airknife**

Dates Drilled: **6-4-13**

Sampling Method: **Hand Auger**

Drilling Company: **Kodiak Field Services**

Soil Class. System: **USCS**

Drill Rig Type: **Airknife**

Field Screening: **PID 10.6 eV Lamp (ppm)**

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Recovery	SAMPLE LITHOLOGY	Stratigraphy	Comments	COMPLETION DETAILS
0	0-1	---	AK	AK	ASPHALT: with GRAVEL subbase.	ASPHALT		Concrete (0 - 1.5-ft bgs.)
1-2	---	AK	AK					
2-3	47.3	AK	AK		FILL: SAA, little SAND (f-c), BROWN, DRY.	FILL		Topsoil Backfill (1.5 - 5.25-ft bgs.)
3-4	73.4	AK	AK		FILL: GRAVEL with SAND (f-m), asphalt fragments, trace CLAY, BLACK, DRY.			
4-5	16.5	AK	AK		FILL: SAND (f-m), some to little CLAY, little SILT, BLACK, DRY.			
-5	---	AK	AK		FILL: CLAY, some to little SILT, trace SAND (f-m), BROWN/BLACK, DRY.			
					FILL: Cobbles to Boulder.			
					Soil boring complete to 5.25-ft bgs.			

Location:

Northing/Latitude: **NA**

Easting/Longitude: **NA**

Horizontal Datum: **NA**

Vertical Datum: **NA**

General Comments:

Complete with concrete pad and locking cap.

bgs = below ground surface, AK = Airknife

SAA = Same as above, (f-m-c) = fine to medium to coarse

Symbol Key:

Lab Sample Location

Apparent Water Level

SB-4



SOIL BORING

ID NO. **SB-5**

Groundwater and Environmental Services, Inc.

Page 1 of 1

PROJECT: **UPA Bradford M-061**

SURFACE ELEV.: **100.03-ft**

TOTAL DEPTH: **15-ft**

ADDRESS: **227 E Main St**

WATER DEPTH: **10-ft**

CASING EL.: **NA**

JOB NO. **0703486**

BOREHOLE DIA.: **11.25-inch**

WELL DIA.: **NA**

Logged By: **JP**

Drilling Method: **Direct Push**

Dates Drilled: **6-5-13**

Sampling Method: **5-ft macrosleeve**

Drilling Company: **Kodiak Field Services**

Soil Class. System: **USCS**

Drill Rig Type: **Geoprobe 7822DT**

Field Screening: **PID 10.6 eV Lamp (ppm)**

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Recovery	SAMPLE LITHOLOGY	Stratigraphy	Comments	COMPLETION DETAILS
0	0-1	---	AK	AK	ASPHALT: with GRAVEL subbase.	ASPHALT		Concrete (0 - 1.5-ft bgs.)
	1-2	---	AK	AK	FILL: GRAVEL(f), COBBLES, trace SAND (f-c), BROWN, DRY.	FILL		
	2-3	---	AK	AK	FILL: SAA, little SAND, trace SILT.			
	3-4	14.9	AK	AK	FILL: SAA, trace CLAY, DRY to MOIST.			
	4-5	29.2	AK	AK	CL: CLAY, some SILT, trace GRAVEL, trace SAND (f-m), BLACK/BROWN, MOIST to WET.	CL		Topsoil Backfill (1.5 - 15-ft bgs.)
-5	5-6	57.6	AK	AK	CL: CLAY, little SILT, little to trace SAND, (f-m), little GRAVEL, BROWN, MOIST to WET.			
	6-7	215.9	AK	AK	CL: CLAY, some GRAVEL, little SILT, little SAND (f-m), BROWN, WET.			
	7-7.5	---	AK	AK	CL: CLAY with GRAVEL, some SAND, some to little SILT, BROWN, MOIST.			
	7.5-10	45.0	DP	27"				
-10	10-12.5	88.9	DP	24"				
	12.5-15	9.3	DP	25"				
-15					Soil boring complete to 15-ft bgs.			

Location:

Northing/Latitude: **NA**

Easting/Longitude: **NA**

Horizontal Datum: **NA**

Vertical Datum: **NA**

General Comments:

Complete with concrete pad and locking cap.

bgs = below ground surface, DP = Direct Push, AK = Airknife

SAA = Same as above, (f-m-c) = fine to medium to coarse

Symbol Key:

Lab Sample Location

Apparent Water Level

SB-5



SOIL BORING

ID NO. **SB-7**

Groundwater and Environmental Services, Inc.

Page 1 of 1

PROJECT: **UPA Bradford M-061**

SURFACE ELEV.: **97.30-ft**

TOTAL DEPTH: **5.75-ft**

ADDRESS: **227 E Main St**

WATER DEPTH: **NA**

CASING EL.: **NA**

JOB NO. **0703486**

BOREHOLE DIA.: **4-inch**

WELL DIA.: **NA**

Logged By: **JP**

Drilling Method: **Hand Auger**

Dates Drilled: **6-4-13**

Sampling Method: **Hand Auger**

Drilling Company: **Kodiak Field Services**

Soil Class. System: **USCS**

Drill Rig Type: **NA**

Field Screening: **PID 10.6 eV Lamp (ppm)**

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Recovery	SAMPLE LITHOLOGY	Stratigraphy	Comments	COMPLETION DETAILS
--------------	-----------------	--------------	-------------	----------	------------------	--------------	----------	--------------------

0	0-1	---	HA	HA	Topsoil: with FILL material.	Topsoil		
					Asphalt: with GRAVEL subbase.	Asphalt		
	1-2	8.6	HA	HA	CL: CLAY, some SILT, trace GRAVEL, BROWN, DRY (oramics present - rootlets).	CL		
	2-3	7.8	HA	HA	CL: SAA, trace to little SAND (f-m).		Topsoil Backfill (0 - 6-ft bgs.)	
	3-4	7.6	HA	HA				
	4-5	6.9	HA	HA	CL: SAA, little to trace GRAVEL.			
-5	5-6	6.7	HA	HA				
					Soil boring complete to 5.75-ft bgs.			

Location:

Northing/Latitude: **NA**

Easting/Longitude: **NA**

Horizontal Datum: **NA**

Vertical Datum: **NA**

General Comments:

SAA = Same as above, (f-m) = fine to medium

bgs = below ground surface, HA = Hand Auger

Symbol Key:

Lab Sample Location

Apparent Water Level

SB-7



SOIL BORING

ID NO. **SB-8**

Groundwater and Environmental Services, Inc.

Page 1 of 1

PROJECT: **UPA Bradford M-061**
ADDRESS: **227 E Main St**
JOB NO. **0703486**


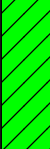



SURFACE ELEV.: **95.61-ft**
WATER DEPTH: **4.75-ft**
BOREHOLE DIA.: **4-inch**

TOTAL DEPTH: **5-ft**
CASING EL.: **96.37-ft**
WELL DIA.: **1-inch**

Logged By: **JP**
Dates Drilled: **6-4-13**
Drilling Company: **Kodiak Field Servies**
Drill Rig Type: **NA**

Drilling Method: **Hand Auger**
Sampling Method: **Hand Auger**
Soil Class. System: **USCS**
Field Screening: **PID 10.6 eV Lamp (ppm)**

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Recovery	SAMPLE LITHOLOGY	Stratigraphy	Comments	COMPLETION DETAILS
--------------	-----------------	--------------	-------------	----------	------------------	--------------	----------	--------------------

0	0-1	---	HA	HA	 TOPSOIL: with FILL material.	TOPSOIL		
	1-2	9.3	HA	HA	 CL: CLAY, some SILT, trace GRAVEL, BROWN, DRY.	CL		
	2-3	9.2	HA	HA	 CL: SAA, trace to little SAND (f-m), DRY to MOIST.			0.020-inch slotted PVC Screen (-0.5 - 5-ft bgs)
	3-4	6.4	HA	HA				
	4-5	8.9	HA	HA	 CL: CLAY, some GRAVEL, little SILT, little SAND (f-m), BROWN, WET to SATURATED.			Sand Pack (0 - 5-ft bgs)
-5					Soil Boring completed to 5-ft bgs.			Soil boring point complete to 5-ft bgs.

Location:

Northing/Latitude: **NA**
Easting/Longitude: **NA**
Horizontal Datum: **NA**
Vertical Datum: **NA**

General Comments:

bgs = below ground surface, SAA = Same as above
(f-m) fine to medium, HA = Hand Auger

Symbol Key:

Lab Sample Location 
Apparent Water Level 

SB-8



SOIL BORING

ID NO. **SB-11**

Groundwater and Environmental Services, Inc.

Page 1 of 1

PROJECT: **UPA Bradford M-061**
ADDRESS: **227 E Main St**
JOB NO. **0703938**

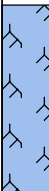
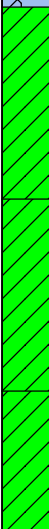

SURFACE ELEV.: **NA**
WATER DEPTH: **3.75-ft**
BOREHOLE DIA.: **4-inch**

TOTAL DEPTH: **3.75-ft**
CASING EL.: **94.48-ft**
WELL DIA.: **1-inch**

Logged By: **JP**
Dates Drilled: **10-9-13**
Drilling Company: **Kodiak Field Servies**
Drill Rig Type: **NA**

Drilling Method: **Hand Auger**
Sampling Method: **Hand Auger**
Soil Class. System: **USCS**
Field Screening: **PID 10.6 eV Lamp (ppm)**

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Rec- overy	SAMPLE LITHOLOGY	Stratigraphy	Comments	COMPLETION DETAILS
-----------------	--------------------	-----------------	----------------	---------------	------------------	--------------	----------	--------------------

0	0-1	---	HA	HA		TOPSOIL: with FILL material.	TOPSOIL		
1-2	5.7	HA	HA		CL: CLAY, some to little SILT, little to trace SAND (f-m), little GRAVEL, BROWN, DRY.	CL		0.020-inch slotted PVC Screen (-0.75 - 3.75-ft bgs)	
2-3	6.2	HA	HA		CL: SAA, MOIST (organics present - rootlets).				
3-4	7.4	HA	HA		CL: CLAY (soft), some SILT, little SAND (f-m), trace GRAVEL, BROWN, WET.				
				Soil boring completed to 3.75-ft bgs.		Soil Boring Point complete to 3.75-ft bgs.			
-5									

Location:

Northing/Latitude: **NA**
Easting/Longitude: **NA**
Horizontal Datum: **NA**
Vertical Datum: **NA**

General Comments:

bgs = below ground surface, SAA = Same as above
(f-m) fine to medium, HA = Hand Auger

Symbol Key:

Lab Sample Location 
Apparent Water Level 

SB-11



SOIL GAS MONITORING POINT

ID NO. **VP-1**

Groundwater and Environmental Services, Inc.

Page 1 of 1

PROJECT: Kwik Fill # M-061	SURFACE ELEV.: NA	TOTAL DEPTH: 5-feet
ADDRESS: 227 E Main St	WATER DEPTH: NA	CASING EL.: NA
JOB NO. 0703938	BOREHOLE DIA.: 11-inch	WELL DIA.: NA

Logged By: JP	Drilling Method: Airknife
Dates Drilled: 10-8-13	Sampling Method: Hand Auger
Drilling Company: HAD	Soil Class. System: USCS
Drill Rig Type: Vac Master Truck	Field Screening: PID 10.6 eV Lamp (ppm)

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Recovery	SAMPLE LITHOLOGY	Stratigraphy	Comments	COMPLETION DETAILS
--------------	-----------------	--------------	-------------	----------	------------------	--------------	----------	--------------------

0	0-1	---	AK	AK	Asphalt: with GRAVEL subbase.	Asphalt		Concrete (0 - 2-ft bgs.)	
	1-2	17.7	AK	AK	FILL: GRAVEL and SAND (f), brick fragments, COBBLES, BROWN, DRY.	FILL			
	2-3	15.2	AK	AK	FILL: SAND (f-c), some to little GRAVEL, little to trace SILT, dark BROWN, DRY.			Bentonite seal (2 - 3.5-ft bgs.)	
	3-4	---	AK	AK	FILL: BOULDER, little SAND (f-c), trace SILT, BROWN, DRY.		Encountered large boulder at 3.3-ft bgs.	Sand pack (3.5 - 5-ft bgs.)	
	4-5	10.9	AK	AK	FILL: SAND (f-m), little SILT, little to trace GRAVEL, BROWN, DRY.			1/2-inch Stainless steel screen (4 - 4.5-ft bgs.)	
-5					Soil boring complete to 5-ft bgs.			Soil gas monitoring point complete to 5-ft bgs.	

Location:

Northing/Latitude: **NA**
 Easting/Longitude: **NA**
 Horizontal Datum: **NA**
 Vertical Datum: **NA**

General Comments:

Complete with concrete pad and cap
 bgs = below ground surface, f-m-c = fine to medium to coarse
 AK = Airknife

Symbol Key:

Lab Sample Location
 Apparent Water Level

VP-1



SOIL GAS MONITORING POINT

ID NO. **VP-2**

Groundwater and Environmental Services, Inc.

Page 1 of 1

PROJECT: **Kwik Fill # M-061**

SURFACE ELEV.: **NA**

TOTAL DEPTH: **5-feet**

ADDRESS: **227 E Main St**

WATER DEPTH: **NA**

CASING EL.: **NA**

JOB NO. **0703938**

BOREHOLE DIA.: **11-inch**

WELL DIA.: **NA**

Logged By: **JP**

Drilling Method: **Airknife**

Dates Drilled: **10-8-13**

Sampling Method: **Hand Auger**

Drilling Company: **HAD**

Soil Class. System: **USCS**

Drill Rig Type: **Vac Master Truck**

Field Screening: **PID 10.6 eV Lamp (ppm)**

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Rec- overy	SAMPLE LITHOLOGY	Stratigraphy	Comments	COMPLETION DETAILS
-----------------	--------------------	-----------------	----------------	---------------	------------------	--------------	----------	--------------------

0	0-1	---	AK	AK	Asphalt: with GRAVEL subbase.	Asphalt		Concrete (0 - 2-ft bgs.)	
	1-2	---	AK	AK	FILL: GRAVEL (f), some COBBLES, little SAND (f-c), BROWN, DRY.	FILL			
	2-3	7.7	AK	AK	FILL: SAA, GRAY, MOIST.			Bentonite seal (2 - 3.5-ft bgs.)	
	3-4	---	AK	AK	FILL: SAA, trace SAND (f-c).			Sand pack (3.5 - 5-ft bgs.)	
	4-5	---	AK	AK				1/2-inch Stainless steel screen (4 - 4.5-ft bgs.)	
-5					Soil boring complete to 5-ft bgs.			Soil gas monitoring point complete to 5-ft bgs.	

Location:

Northing/Latitude: **NA**

Easting/Longitude: **NA**

Horizontal Datum: **NA**

Vertical Datum: **NA**

General Comments:

Complete with concrete pad and cap
bgs = below ground surface, f-c = fine to coarse
SAA = Same as above, AK = Airknife

Symbol Key:

Lab Sample Location

Apparent Water Level

VP-2



SOIL GAS MONITORING POINT

ID NO. **VP-3**

Groundwater and Environmental Services, Inc.

Page 1 of 1

PROJECT: **Kwik Fill # M-061**

SURFACE ELEV.: **NA**

TOTAL DEPTH: **5-feet**

ADDRESS: **227 E Main St**

WATER DEPTH: **4.75-ft**

CASING EL.: **NA**

JOB NO. **0703938**

BOREHOLE DIA.: **11-inch**

WELL DIA.: **NA**

Logged By: **JP**

Drilling Method: **Airknife**

Dates Drilled: **10-8-13**

Sampling Method: **Hand Auger**

Drilling Company: **HAD**

Soil Class. System: **USCS**

Drill Rig Type: **Vac Master Truck**

Field Screening: **PID 10.6 eV Lamp (ppm)**

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Recovery	SAMPLE LITHOLOGY	Stratigraphy	Comments	COMPLETION DETAILS
--------------	-----------------	--------------	-------------	----------	------------------	--------------	----------	--------------------

0	0-1	---	AK	AK	Asphalt: with GRAVEL subbase.	Asphalt		Concrete (0 - 2-ft bgs.)
	1-2	8.9	AK	AK	FILL: GRAVEL and SAND (f-c), trace SILT, asphalt fragments, BROWN, DRY.	FILL		
	2-3	9.4	AK	AK	FILL: SAA, MOIST - no Asphalt.			Bentonite seal (2 - 3.5-ft bgs.)
	3-4	9.0	AK	AK				Sand pack (3.5 - 5-ft bgs.)
	4-5	14.0	AK	AK	FILL: SAA, little SILT, little CLAY, BROWN/dark GRAY, MOIST to WET.			1/2-inch Stainless steel screen (4 - 4.5-ft bgs.)
-5					Soil boring complete to 5-ft bgs.			Soil gas monitoring point complete to 5-ft bgs.

Location:

Northing/Latitude: **NA**

Easting/Longitude: **NA**

Horizontal Datum: **NA**

Vertical Datum: **NA**

General Comments:

Complete with concrete pad and cap
bgs = below ground surface, f-c = fine to coarse
SAA = Same as above, AK = Airknife

Symbol Key:

Lab Sample Location

Apparent Water Level

VP-3



SOIL GAS MONITORING POINT

ID NO. **VP-4**

Groundwater and Environmental Services, Inc.

Page 1 of 1

PROJECT: **Kwik Fill # M-061**

SURFACE ELEV.: **NA**

TOTAL DEPTH: **5-feet**

ADDRESS: **227 E Main St**

WATER DEPTH: **NA**

CASING EL.: **NA**

JOB NO. **0703938**

BOREHOLE DIA.: **11-inch**

WELL DIA.: **NA**

Logged By: **JP**

Drilling Method: **Airknife**

Dates Drilled: **10-8-13**

Sampling Method: **Hand Auger**

Drilling Company: **HAD**

Soil Class. System: **USCS**

Drill Rig Type: **Vac Master Truck**

Field Screening: **PID 10.6 eV Lamp (ppm)**

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Recovery	SAMPLE LITHOLOGY	Stratigraphy	Comments	COMPLETION DETAILS
--------------	-----------------	--------------	-------------	----------	------------------	--------------	----------	--------------------

0	0-1	---	AK	AK	Asphalt: with GRAVEL subbase.	Asphalt		Concrete (0 - 2-ft bgs.)
	1-2	8.9	AK	AK				
	2-3	9.4	AK	AK	FILL: GRAVEL, some to little SAND (f-c), little SILT, CLAY BROWN, DRY.	FILL		Bentonite seal (2 - 3-ft bgs.)
	3-4	9.0	AK	AK	FILL: CLAY, some to little SILT, little SAND (f), trace GRAVEL, GRAY/BROWN, DRY.			
	4-5	14.0	AK	AK	FILL: SAA, little SAND (f).			Sand pack (3 - 4.75-ft bgs.)
					FILL: SAA, MOIST.			1/2-inch Stainless steel screen (3.5 - 4-ft bgs.)
-5					Soil boring complete to 4.75-ft bgs.			Soil gas monitoring point complete to 4.75-ft bgs.

Location:

Northing/Latitude: **NA**

Easting/Longitude: **NA**

Horizontal Datum: **NA**

Vertical Datum: **NA**

General Comments:

Complete with concrete pad and cap

bgs = below ground surface, f-c = fine to coarse

SAA = Same as above, AK = Airknife

Symbol Key:

Lab Sample Location

Apparent Water Level

VP-4



APPENDIX D

Soil Laboratory Analytical Reports, 2013-2014

June 21, 2013

Mr. Joseph Skurka
Groundwater & Environmental Services
301 Commerce Park Drive
Cranberry Twp, PA 16066

RE: Project: 0703486 UPA/M-061 BRADFORD
Pace Project No.: 3096204

Dear Mr. Skurka:

Enclosed are the analytical results for sample(s) received by the laboratory on June 07, 2013. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Penny Westrick for
Rachel Christner
rachel.christner@pacelabs.com
Project Manager

Enclosures

cc: Ms. Joan Amodeo, Groundwater and Environmental
Services, Inc.
Ms. Jackie Jones, Groundwater & Environmental Services
Ms. Nicole Kramer, Groundwater & Environmental
Services
Ms. Erin Letrick, Groundwater & Environmental Services



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 0703486 UPA/M-061 BRADFORD

Pace Project No.: 3096204

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4 Greensburg, PA 15601

ACLASS DOD-ELAP Accreditation #: ADE-1544

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California/TNI Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683

Guam/PADEP Certification

Hawaii/PADEP Certification

Idaho Certification

Illinois/PADEP Certification

Indiana/PADEP Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: 90133

Louisiana/TNI Certification #: LA080002

Louisiana/TNI Certification #: 4086

Maine Certification #: PA0091

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification

Missouri Certification #: 235

Montana Certification #: Cert 0082

Nevada Certification

New Hampshire/TNI Certification #: 2976

New Jersey/TNI Certification #: PA 051

New Mexico Certification

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Oregon/TNI Certification #: PA200002

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

South Dakota Certification

Tennessee Certification #: TN2867

Texas/TNI Certification #: T104704188

Utah/TNI Certification #: ANTE

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 460198

Washington Certification #: C868

West Virginia Certification #: 143

Wisconsin/PADEP Certification

Wyoming Certification #: 8TMS-Q

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 0703486 UPA/M-061 BRADFORD

Pace Project No.: 3096204

Sample: SB-1 (6-7') **Lab ID: 3096204001** Collected: 06/03/13 12:45 Received: 06/07/13 18:00 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260						
Benzene	138	ug/kg	3.6	1		06/14/13 11:47	71-43-2	
Ethylbenzene	ND	ug/kg	3.6	1		06/14/13 11:47	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/kg	3.6	1		06/14/13 11:47	98-82-8	
Methyl-tert-butyl ether	27.2	ug/kg	3.6	1		06/14/13 11:47	1634-04-4	
Naphthalene	ND	ug/kg	3.6	1		06/14/13 11:47	91-20-3	
Toluene	ND	ug/kg	3.6	1		06/14/13 11:47	108-88-3	
1,2,4-Trimethylbenzene	ND	ug/kg	3.6	1		06/14/13 11:47	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	3.6	1		06/14/13 11:47	108-67-8	
Xylene (Total)	ND	ug/kg	10.8	1		06/14/13 11:47	1330-20-7	
Surrogates								
Toluene-d8 (S)	98	%	81-117	1		06/14/13 11:47	2037-26-5	
4-Bromofluorobenzene (S)	105	%	74-121	1		06/14/13 11:47	460-00-4	
1,2-Dichloroethane-d4 (S)	95	%	80-120	1		06/14/13 11:47	17060-07-0	

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture	16.1	%	0.10	1		06/19/13 20:01		
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ANALYTICAL RESULTS

Project: 0703486 UPA/M-061 BRADFORD

Pace Project No.: 3096204

Sample: SB-2 (6-6.5') **Lab ID: 3096204002** Collected: 06/03/13 16:20 Received: 06/07/13 18:00 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260						
Benzene	50.9	ug/kg	3.9	1		06/14/13 12:14	71-43-2	
Ethylbenzene	9.5	ug/kg	3.9	1		06/14/13 12:14	100-41-4	
Isopropylbenzene (Cumene)	7.0	ug/kg	3.9	1		06/14/13 12:14	98-82-8	
Methyl-tert-butyl ether	ND	ug/kg	3.9	1		06/14/13 12:14	1634-04-4	
Naphthalene	5.1	ug/kg	3.9	1		06/14/13 12:14	91-20-3	
Toluene	14.9	ug/kg	3.9	1		06/14/13 12:14	108-88-3	
1,2,4-Trimethylbenzene	171	ug/kg	3.9	1		06/14/13 12:14	95-63-6	
1,3,5-Trimethylbenzene	78.9	ug/kg	3.9	1		06/14/13 12:14	108-67-8	
Xylene (Total)	269	ug/kg	11.7	1		06/14/13 12:14	1330-20-7	
Surrogates								
Toluene-d8 (S)	102	%	81-117	1		06/14/13 12:14	2037-26-5	
4-Bromofluorobenzene (S)	131	%	74-121	1		06/14/13 12:14	460-00-4	S5
1,2-Dichloroethane-d4 (S)	98	%	80-120	1		06/14/13 12:14	17060-07-0	

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture	16.7	%	0.10	1		06/19/13 20:02		
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ANALYTICAL RESULTS

Project: 0703486 UPA/M-061 BRADFORD

Pace Project No.: 3096204

Sample: SB-3 (2-3') **Lab ID: 3096204003** Collected: 06/03/13 17:30 Received: 06/07/13 18:00 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260						
Benzene	ND ug/kg		3.5	1		06/14/13 12:41	71-43-2	
Ethylbenzene	ND ug/kg		3.5	1		06/14/13 12:41	100-41-4	
Isopropylbenzene (Cumene)	ND ug/kg		3.5	1		06/14/13 12:41	98-82-8	
Methyl-tert-butyl ether	ND ug/kg		3.5	1		06/14/13 12:41	1634-04-4	
Naphthalene	ND ug/kg		3.5	1		06/14/13 12:41	91-20-3	
Toluene	ND ug/kg		3.5	1		06/14/13 12:41	108-88-3	
1,2,4-Trimethylbenzene	ND ug/kg		3.5	1		06/14/13 12:41	95-63-6	
1,3,5-Trimethylbenzene	ND ug/kg		3.5	1		06/14/13 12:41	108-67-8	
Xylene (Total)	ND ug/kg		10.4	1		06/14/13 12:41	1330-20-7	
Surrogates								
Toluene-d8 (S)	98 %		81-117	1		06/14/13 12:41	2037-26-5	
4-Bromofluorobenzene (S)	104 %		74-121	1		06/14/13 12:41	460-00-4	
1,2-Dichloroethane-d4 (S)	96 %		80-120	1		06/14/13 12:41	17060-07-0	

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture	18.0 %	0.10	1	06/19/13 20:02
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ANALYTICAL RESULTS

Project: 0703486 UPA/M-061 BRADFORD

Pace Project No.: 3096204

Sample: SB-4 (3-4) **Lab ID: 3096204004** Collected: 06/04/13 08:10 Received: 06/07/13 18:00 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260						
Benzene	19.5	ug/kg	4.4	1		06/14/13 13:08	71-43-2	
Ethylbenzene	ND	ug/kg	4.4	1		06/14/13 13:08	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/kg	4.4	1		06/14/13 13:08	98-82-8	
Methyl-tert-butyl ether	ND	ug/kg	4.4	1		06/14/13 13:08	1634-04-4	
Naphthalene	ND	ug/kg	4.4	1		06/14/13 13:08	91-20-3	
Toluene	ND	ug/kg	4.4	1		06/14/13 13:08	108-88-3	
1,2,4-Trimethylbenzene	ND	ug/kg	4.4	1		06/14/13 13:08	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	4.4	1		06/14/13 13:08	108-67-8	
Xylene (Total)	ND	ug/kg	13.3	1		06/14/13 13:08	1330-20-7	
Surrogates								
Toluene-d8 (S)	99	%	81-117	1		06/14/13 13:08	2037-26-5	
4-Bromofluorobenzene (S)	109	%	74-121	1		06/14/13 13:08	460-00-4	
1,2-Dichloroethane-d4 (S)	97	%	80-120	1		06/14/13 13:08	17060-07-0	

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture	25.0	%	0.10	1		06/19/13 20:03		
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ANALYTICAL RESULTS

Project: 0703486 UPA/M-061 BRADFORD

Pace Project No.: 3096204

Sample: SB-5 (6-7') **Lab ID: 3096204005** Collected: 06/04/13 10:45 Received: 06/07/13 18:00 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260						
Benzene	83.6	ug/kg	3.5	1		06/14/13 13:35	71-43-2	
Ethylbenzene	8.4	ug/kg	3.5	1		06/14/13 13:35	100-41-4	
Isopropylbenzene (Cumene)	15.3	ug/kg	3.5	1		06/14/13 13:35	98-82-8	
Methyl-tert-butyl ether	4.3	ug/kg	3.5	1		06/14/13 13:35	1634-04-4	
Naphthalene	5.5	ug/kg	3.5	1		06/14/13 13:35	91-20-3	
Toluene	5.1	ug/kg	3.5	1		06/14/13 13:35	108-88-3	
1,2,4-Trimethylbenzene	38.5	ug/kg	3.5	1		06/14/13 13:35	95-63-6	
1,3,5-Trimethylbenzene	17.1	ug/kg	3.5	1		06/14/13 13:35	108-67-8	
Xylene (Total)	18.9	ug/kg	10.6	1		06/14/13 13:35	1330-20-7	
Surrogates								
Toluene-d8 (S)	125	%	81-117	1		06/14/13 13:35	2037-26-5	S5
4-Bromofluorobenzene (S)	109	%	74-121	1		06/14/13 13:35	460-00-4	
1,2-Dichloroethane-d4 (S)	99	%	80-120	1		06/14/13 13:35	17060-07-0	

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture	24.7	%	0.10	1		06/19/13 20:03		
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ANALYTICAL RESULTS

Project: 0703486 UPA/M-061 BRADFORD

Pace Project No.: 3096204

Sample: SB-6 (2-3') **Lab ID: 3096204006** Collected: 06/04/13 11:55 Received: 06/07/13 18:00 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260						
Benzene	7.8	ug/kg	3.8	1		06/14/13 14:03	71-43-2	
Ethylbenzene	4.2	ug/kg	3.8	1		06/14/13 14:03	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/kg	3.8	1		06/14/13 14:03	98-82-8	
Methyl-tert-butyl ether	ND	ug/kg	3.8	1		06/14/13 14:03	1634-04-4	
Naphthalene	ND	ug/kg	3.8	1		06/14/13 14:03	91-20-3	
Toluene	11.7	ug/kg	3.8	1		06/14/13 14:03	108-88-3	
1,2,4-Trimethylbenzene	ND	ug/kg	3.8	1		06/14/13 14:03	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	3.8	1		06/14/13 14:03	108-67-8	
Xylene (Total)	15.9	ug/kg	11.5	1		06/14/13 14:03	1330-20-7	
Surrogates								
Toluene-d8 (S)	96	%	81-117	1		06/14/13 14:03	2037-26-5	
4-Bromofluorobenzene (S)	105	%	74-121	1		06/14/13 14:03	460-00-4	
1,2-Dichloroethane-d4 (S)	102	%	80-120	1		06/14/13 14:03	17060-07-0	

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture	8.3	%	0.10	1		06/19/13 20:04		
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ANALYTICAL RESULTS

Project: 0703486 UPA/M-061 BRADFORD

Pace Project No.: 3096204

Sample: SB-7 (5-6') **Lab ID: 3096204007** Collected: 06/04/13 15:35 Received: 06/07/13 18:00 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260						
Benzene	ND	ug/kg	2.9	1		06/14/13 14:30	71-43-2	
Ethylbenzene	ND	ug/kg	2.9	1		06/14/13 14:30	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/kg	2.9	1		06/14/13 14:30	98-82-8	
Methyl-tert-butyl ether	ND	ug/kg	2.9	1		06/14/13 14:30	1634-04-4	
Naphthalene	ND	ug/kg	2.9	1		06/14/13 14:30	91-20-3	
Toluene	ND	ug/kg	2.9	1		06/14/13 14:30	108-88-3	
1,2,4-Trimethylbenzene	ND	ug/kg	2.9	1		06/14/13 14:30	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	2.9	1		06/14/13 14:30	108-67-8	
Xylene (Total)	ND	ug/kg	8.8	1		06/14/13 14:30	1330-20-7	
Surrogates								
Toluene-d8 (S)	91	%	81-117	1		06/14/13 14:30	2037-26-5	
4-Bromofluorobenzene (S)	102	%	74-121	1		06/14/13 14:30	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	80-120	1		06/14/13 14:30	17060-07-0	

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture	13.4	%	0.10	1		06/19/13 20:04
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ANALYTICAL RESULTS

Project: 0703486 UPA/M-061 BRADFORD

Pace Project No.: 3096204

Sample: SB-8 (3-4) **Lab ID: 3096204008** Collected: 06/04/13 15:20 Received: 06/07/13 18:00 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260						
Benzene	ND	ug/kg	4.0	1		06/14/13 14:57	71-43-2	
Ethylbenzene	ND	ug/kg	4.0	1		06/14/13 14:57	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/kg	4.0	1		06/14/13 14:57	98-82-8	
Methyl-tert-butyl ether	ND	ug/kg	4.0	1		06/14/13 14:57	1634-04-4	
Naphthalene	ND	ug/kg	4.0	1		06/14/13 14:57	91-20-3	
Toluene	ND	ug/kg	4.0	1		06/14/13 14:57	108-88-3	
1,2,4-Trimethylbenzene	ND	ug/kg	4.0	1		06/14/13 14:57	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	4.0	1		06/14/13 14:57	108-67-8	
Xylene (Total)	ND	ug/kg	12.1	1		06/14/13 14:57	1330-20-7	
Surrogates								
Toluene-d8 (S)	94 %		81-117	1		06/14/13 14:57	2037-26-5	
4-Bromofluorobenzene (S)	107 %		74-121	1		06/14/13 14:57	460-00-4	
1,2-Dichloroethane-d4 (S)	100 %		80-120	1		06/14/13 14:57	17060-07-0	

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture	30.8 %	0.10	1	06/19/13 20:04
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ANALYTICAL RESULTS

Project: 0703486 UPA/M-061 BRADFORD

Pace Project No.: 3096204

Sample: SB-1 (10-12') **Lab ID: 3096204009** Collected: 06/05/13 11:39 Received: 06/07/13 18:00 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260						
Benzene	166	ug/kg	3.0	1		06/14/13 15:24	71-43-2	
Ethylbenzene	122	ug/kg	3.0	1		06/14/13 15:24	100-41-4	
Isopropylbenzene (Cumene)	39.3	ug/kg	3.0	1		06/14/13 15:24	98-82-8	
Methyl-tert-butyl ether	15.7	ug/kg	3.0	1		06/14/13 15:24	1634-04-4	
Naphthalene	53.6	ug/kg	3.0	1		06/14/13 15:24	91-20-3	
Toluene	14.0	ug/kg	3.0	1		06/14/13 15:24	108-88-3	
1,2,4-Trimethylbenzene	2650	ug/kg	152	50		06/18/13 15:26	95-63-6	
1,3,5-Trimethylbenzene	102	ug/kg	3.0	1		06/14/13 15:24	108-67-8	
Xylene (Total)	467	ug/kg	8.9	1		06/14/13 15:24	1330-20-7	
Surrogates								
Toluene-d8 (S)	105	%	81-117	1		06/14/13 15:24	2037-26-5	
4-Bromofluorobenzene (S)	107	%	74-121	1		06/14/13 15:24	460-00-4	
1,2-Dichloroethane-d4 (S)	112	%	80-120	1		06/14/13 15:24	17060-07-0	

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture	14.7	%	0.10	1		06/19/13 20:05		
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ANALYTICAL RESULTS

Project: 0703486 UPA/M-061 BRADFORD

Pace Project No.: 3096204

Sample: SB-1 (13-15') **Lab ID: 3096204010** Collected: 06/05/13 11:40 Received: 06/07/13 18:00 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260						
Benzene	ND ug/kg		2.7	1		06/14/13 15:51	71-43-2	
Ethylbenzene	ND ug/kg		2.7	1		06/14/13 15:51	100-41-4	
Isopropylbenzene (Cumene)	ND ug/kg		2.7	1		06/14/13 15:51	98-82-8	
Methyl-tert-butyl ether	ND ug/kg		2.7	1		06/14/13 15:51	1634-04-4	
Naphthalene	ND ug/kg		2.7	1		06/14/13 15:51	91-20-3	
Toluene	ND ug/kg		2.7	1		06/14/13 15:51	108-88-3	
1,2,4-Trimethylbenzene	ND ug/kg		2.7	1		06/14/13 15:51	95-63-6	
1,3,5-Trimethylbenzene	ND ug/kg		2.7	1		06/14/13 15:51	108-67-8	
Xylene (Total)	ND ug/kg		8.1	1		06/14/13 15:51	1330-20-7	
Surrogates								
Toluene-d8 (S)	95 %		81-117	1		06/14/13 15:51	2037-26-5	
4-Bromofluorobenzene (S)	100 %		74-121	1		06/14/13 15:51	460-00-4	
1,2-Dichloroethane-d4 (S)	94 %		80-120	1		06/14/13 15:51	17060-07-0	

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture	10.8 %	0.10	1	06/19/13 20:05
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ANALYTICAL RESULTS

Project: 0703486 UPA/M-061 BRADFORD

Pace Project No.: 3096204

Sample: SB-2/MW4 (8-10') **Lab ID:** 3096204011 **Collected:** 06/05/13 11:13 **Received:** 06/07/13 18:00 **Matrix:** Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260						
Benzene	11400	ug/kg	268	50		06/18/13 15:51	71-43-2	
Ethylbenzene	57600	ug/kg	2680	500		06/19/13 13:15	100-41-4	
Isopropylbenzene (Cumene)	5980	ug/kg	268	50		06/18/13 15:51	98-82-8	
Methyl-tert-butyl ether	ND	ug/kg	268	50		06/18/13 15:51	1634-04-4	
Naphthalene	13300	ug/kg	268	50		06/18/13 15:51	91-20-3	
Toluene	971	ug/kg	268	50		06/18/13 15:51	108-88-3	
1,2,4-Trimethylbenzene	157000	ug/kg	2680	500		06/19/13 13:15	95-63-6	
1,3,5-Trimethylbenzene	54300	ug/kg	2680	500		06/19/13 13:15	108-67-8	
Xylene (Total)	232000	ug/kg	8050	500		06/19/13 13:15	1330-20-7	
Surrogates								
Toluene-d8 (S)	85	%	81-117	50		06/18/13 15:51	2037-26-5	
4-Bromofluorobenzene (S)	111	%	74-121	50		06/18/13 15:51	460-00-4	
1,2-Dichloroethane-d4 (S)	106	%	80-120	50		06/18/13 15:51	17060-07-0	

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture	25.8	%	0.10	1		06/19/13 20:06		
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REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 0703486 UPA/M-061 BRADFORD

Pace Project No.: 3096204

Sample: SB-2/MW4 (13-15') **Lab ID: 3096204012** Collected: 06/05/13 11:17 Received: 06/07/13 18:00 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260						
Benzene	3.8	ug/kg	3.2	1		06/18/13 15:01	71-43-2	
Ethylbenzene	ND	ug/kg	3.2	1		06/18/13 15:01	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/kg	3.2	1		06/18/13 15:01	98-82-8	
Methyl-tert-butyl ether	ND	ug/kg	3.2	1		06/18/13 15:01	1634-04-4	
Naphthalene	ND	ug/kg	3.2	1		06/18/13 15:01	91-20-3	
Toluene	ND	ug/kg	3.2	1		06/18/13 15:01	108-88-3	
1,2,4-Trimethylbenzene	ND	ug/kg	3.2	1		06/18/13 15:01	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	3.2	1		06/18/13 15:01	108-67-8	
Xylene (Total)	ND	ug/kg	9.6	1		06/18/13 15:01	1330-20-7	
Surrogates								
Toluene-d8 (S)	90	%	81-117	1		06/18/13 15:01	2037-26-5	
4-Bromofluorobenzene (S)	106	%	74-121	1		06/18/13 15:01	460-00-4	
1,2-Dichloroethane-d4 (S)	115	%	80-120	1		06/18/13 15:01	17060-07-0	
Percent Moisture		Analytical Method: ASTM D2974-87						
Percent Moisture	10.8	%	0.10	1		06/19/13 20:06		

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ANALYTICAL RESULTS

Project: 0703486 UPA/M-061 BRADFORD

Pace Project No.: 3096204

Sample: SB-3/MW5 (13-15') **Lab ID:** 3096204013 **Collected:** 06/05/13 14:26 **Received:** 06/07/13 18:00 **Matrix:** Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260						
Benzene	ND	ug/kg	2.9	1		06/14/13 17:12	71-43-2	
Ethylbenzene	ND	ug/kg	2.9	1		06/14/13 17:12	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/kg	2.9	1		06/14/13 17:12	98-82-8	
Methyl-tert-butyl ether	ND	ug/kg	2.9	1		06/14/13 17:12	1634-04-4	
Naphthalene	ND	ug/kg	2.9	1		06/14/13 17:12	91-20-3	
Toluene	ND	ug/kg	2.9	1		06/14/13 17:12	108-88-3	
1,2,4-Trimethylbenzene	ND	ug/kg	2.9	1		06/14/13 17:12	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	2.9	1		06/14/13 17:12	108-67-8	
Xylene (Total)	ND	ug/kg	8.6	1		06/14/13 17:12	1330-20-7	
Surrogates								
Toluene-d8 (S)	94 %		81-117	1		06/14/13 17:12	2037-26-5	
4-Bromofluorobenzene (S)	104 %		74-121	1		06/14/13 17:12	460-00-4	
1,2-Dichloroethane-d4 (S)	94 %		80-120	1		06/14/13 17:12	17060-07-0	

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture	10.0 %		0.10	1		06/19/13 20:07		
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ANALYTICAL RESULTS

Project: 0703486 UPA/M-061 BRADFORD

Pace Project No.: 3096204

Sample: SB-5 (13-15') **Lab ID: 3096204014** Collected: 06/05/13 12:52 Received: 06/07/13 18:00 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260						
Benzene	ND	ug/kg	3.2	1		06/14/13 17:39	71-43-2	
Ethylbenzene	ND	ug/kg	3.2	1		06/14/13 17:39	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/kg	3.2	1		06/14/13 17:39	98-82-8	
Methyl-tert-butyl ether	7.4	ug/kg	3.2	1		06/14/13 17:39	1634-04-4	
Naphthalene	ND	ug/kg	3.2	1		06/14/13 17:39	91-20-3	
Toluene	ND	ug/kg	3.2	1		06/14/13 17:39	108-88-3	
1,2,4-Trimethylbenzene	ND	ug/kg	3.2	1		06/14/13 17:39	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	3.2	1		06/14/13 17:39	108-67-8	
Xylene (Total)	ND	ug/kg	9.7	1		06/14/13 17:39	1330-20-7	
Surrogates								
Toluene-d8 (S)	91	%	81-117	1		06/14/13 17:39	2037-26-5	
4-Bromofluorobenzene (S)	106	%	74-121	1		06/14/13 17:39	460-00-4	
1,2-Dichloroethane-d4 (S)	96	%	80-120	1		06/14/13 17:39	17060-07-0	

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture	11.3	%	0.10	1		06/19/13 20:07		
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ANALYTICAL RESULTS

Project: 0703486 UPA/M-061 BRADFORD

Pace Project No.: 3096204

Sample: **SB-6/MW-6 (5-7')** Lab ID: **3096204015** Collected: 06/05/13 12:04 Received: 06/07/13 18:00 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260						
Benzene	3660	ug/kg	197	50		06/18/13 16:16	71-43-2	
Ethylbenzene	1920	ug/kg	197	50		06/18/13 16:16	100-41-4	
Isopropylbenzene (Cumene)	4760	ug/kg	197	50		06/18/13 16:16	98-82-8	
Methyl-tert-butyl ether	ND	ug/kg	197	50		06/18/13 16:16	1634-04-4	
Naphthalene	8690	ug/kg	197	50		06/18/13 16:16	91-20-3	
Toluene	356	ug/kg	197	50		06/18/13 16:16	108-88-3	
1,2,4-Trimethylbenzene	3930	ug/kg	197	50		06/18/13 16:16	95-63-6	
1,3,5-Trimethylbenzene	638	ug/kg	197	50		06/18/13 16:16	108-67-8	
Xylene (Total)	2050	ug/kg	591	50		06/18/13 16:16	1330-20-7	
Surrogates								
Toluene-d8 (S)	122	%	81-117	50		06/18/13 16:16	2037-26-5	S2
4-Bromofluorobenzene (S)	102	%	74-121	50		06/18/13 16:16	460-00-4	
1,2-Dichloroethane-d4 (S)	87	%	80-120	50		06/18/13 16:16	17060-07-0	

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture	19.2	%	0.10	1		06/19/13 20:08
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ANALYTICAL RESULTS

Project: 0703486 UPA/M-061 BRADFORD

Pace Project No.: 3096204

Sample: SB-6/MW-6 (8-10') **Lab ID:** 3096204016 **Collected:** 06/05/13 12:05 **Received:** 06/07/13 18:00 **Matrix:** Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260						
Benzene	377	ug/kg	183	50		06/18/13 16:41	71-43-2	
Ethylbenzene	544	ug/kg	183	50		06/18/13 16:41	100-41-4	
Isopropylbenzene (Cumene)	851	ug/kg	183	50		06/18/13 16:41	98-82-8	
Methyl-tert-butyl ether	ND	ug/kg	183	50		06/18/13 16:41	1634-04-4	
Naphthalene	1030	ug/kg	183	50		06/18/13 16:41	91-20-3	
Toluene	ND	ug/kg	183	50		06/18/13 16:41	108-88-3	
1,2,4-Trimethylbenzene	374	ug/kg	183	50		06/18/13 16:41	95-63-6	
1,3,5-Trimethylbenzene	189	ug/kg	183	50		06/18/13 16:41	108-67-8	
Xylene (Total)	ND	ug/kg	550	50		06/18/13 16:41	1330-20-7	
Surrogates								
Toluene-d8 (S)	112	%	81-117	50		06/18/13 16:41	2037-26-5	
4-Bromofluorobenzene (S)	84	%	74-121	50		06/18/13 16:41	460-00-4	
1,2-Dichloroethane-d4 (S)	81	%	80-120	50		06/18/13 16:41	17060-07-0	

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture	12.3	%	0.10	1		06/19/13 20:08
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ANALYTICAL RESULTS

Project: 0703486 UPA/M-061 BRADFORD

Pace Project No.: 3096204

Sample: SB-6/MW-6 (11.5-12.5') **Lab ID:** 3096204017 **Collected:** 06/05/13 12:11 **Received:** 06/07/13 18:00 **Matrix:** Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260						
Benzene	ND ug/kg		4.1	1		06/14/13 19:01	71-43-2	
Ethylbenzene	ND ug/kg		4.1	1		06/14/13 19:01	100-41-4	
Isopropylbenzene (Cumene)	ND ug/kg		4.1	1		06/14/13 19:01	98-82-8	
Methyl-tert-butyl ether	ND ug/kg		4.1	1		06/14/13 19:01	1634-04-4	
Naphthalene	ND ug/kg		4.1	1		06/14/13 19:01	91-20-3	
Toluene	ND ug/kg		4.1	1		06/14/13 19:01	108-88-3	
1,2,4-Trimethylbenzene	ND ug/kg		4.1	1		06/14/13 19:01	95-63-6	
1,3,5-Trimethylbenzene	ND ug/kg		4.1	1		06/14/13 19:01	108-67-8	
Xylene (Total)	ND ug/kg		12.3	1		06/14/13 19:01	1330-20-7	
Surrogates								
Toluene-d8 (S)	92 %		81-117	1		06/14/13 19:01	2037-26-5	
4-Bromofluorobenzene (S)	102 %		74-121	1		06/14/13 19:01	460-00-4	
1,2-Dichloroethane-d4 (S)	89 %		80-120	1		06/14/13 19:01	17060-07-0	
Percent Moisture		Analytical Method: ASTM D2974-87						
Percent Moisture	11.3 %		0.10	1		06/19/13 20:09		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 0703486 UPA/M-061 BRADFORD

Pace Project No.: 3096204

QC Batch:	MSV/16455	Analysis Method:	EPA 8260
QC Batch Method:	EPA 8260	Analysis Description:	8260 MSV UST-SOIL
Associated Lab Samples:	3096204001, 3096204002, 3096204003, 3096204004, 3096204005, 3096204006, 3096204007, 3096204008, 3096204009, 3096204010, 3096204013, 3096204014, 3096204017		

METHOD BLANK: 595469 Matrix: Solid

Associated Lab Samples: 3096204001, 3096204002, 3096204003, 3096204004, 3096204005, 3096204006, 3096204007, 3096204008, 3096204009, 3096204010, 3096204013, 3096204014, 3096204017

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/kg	ND	5.0	06/14/13 11:20	
1,3,5-Trimethylbenzene	ug/kg	ND	5.0	06/14/13 11:20	
Benzene	ug/kg	ND	5.0	06/14/13 11:20	
Ethylbenzene	ug/kg	ND	5.0	06/14/13 11:20	
Isopropylbenzene (Cumene)	ug/kg	ND	5.0	06/14/13 11:20	
Methyl-tert-butyl ether	ug/kg	ND	5.0	06/14/13 11:20	
Naphthalene	ug/kg	ND	5.0	06/14/13 11:20	
Toluene	ug/kg	ND	5.0	06/14/13 11:20	
Xylene (Total)	ug/kg	ND	15.0	06/14/13 11:20	
1,2-Dichloroethane-d4 (S)	%	88	80-120	06/14/13 11:20	
4-Bromofluorobenzene (S)	%	103	74-121	06/14/13 11:20	
Toluene-d8 (S)	%	98	81-117	06/14/13 11:20	

LABORATORY CONTROL SAMPLE: 595470

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/kg	20	16.5	82	67-130	
1,3,5-Trimethylbenzene	ug/kg	20	17.3	87	65-132	
Benzene	ug/kg	20	20.9	105	65-130	
Ethylbenzene	ug/kg	20	18.4	92	65-131	
Isopropylbenzene (Cumene)	ug/kg	20	19.4	97	64-137	
Methyl-tert-butyl ether	ug/kg	20	17.4	87	71-130	
Naphthalene	ug/kg	20	17.2	86	70-123	
Toluene	ug/kg	20	18.5	93	63-132	
Xylene (Total)	ug/kg	60	53.5	89	65-134	
1,2-Dichloroethane-d4 (S)	%			88	80-120	
4-Bromofluorobenzene (S)	%			103	74-121	
Toluene-d8 (S)	%			97	81-117	

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QUALITY CONTROL DATA

Project: 0703486 UPA/M-061 BRADFORD

Pace Project No.: 3096204

QC Batch: MSV/16472 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV UST-SOIL
Associated Lab Samples: 3096204011, 3096204012, 3096204015, 3096204016

METHOD BLANK: 596005 Matrix: Solid

Associated Lab Samples: 3096204011, 3096204012, 3096204015, 3096204016

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/kg	ND	5.0	06/18/13 12:25	
1,3,5-Trimethylbenzene	ug/kg	ND	5.0	06/18/13 12:25	
Benzene	ug/kg	ND	5.0	06/18/13 12:25	
Ethylbenzene	ug/kg	ND	5.0	06/18/13 12:25	
Isopropylbenzene (Cumene)	ug/kg	ND	5.0	06/18/13 12:25	
Methyl-tert-butyl ether	ug/kg	ND	5.0	06/18/13 12:25	
Naphthalene	ug/kg	ND	5.0	06/18/13 12:25	
Toluene	ug/kg	ND	5.0	06/18/13 12:25	
Xylene (Total)	ug/kg	ND	15.0	06/18/13 12:25	
1,2-Dichloroethane-d4 (S)	%	104	80-120	06/18/13 12:25	
4-Bromofluorobenzene (S)	%	103	74-121	06/18/13 12:25	
Toluene-d8 (S)	%	89	81-117	06/18/13 12:25	

LABORATORY CONTROL SAMPLE: 596006

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/kg	20	14.6	73	67-130	
1,3,5-Trimethylbenzene	ug/kg	20	15.1	76	65-132	
Benzene	ug/kg	20	19.9	100	65-130	
Ethylbenzene	ug/kg	20	16.6	83	65-131	
Isopropylbenzene (Cumene)	ug/kg	20	16.8	84	64-137	
Methyl-tert-butyl ether	ug/kg	20	16.7	83	71-130	
Naphthalene	ug/kg	20	15.0	75	70-123	
Toluene	ug/kg	20	16.6	83	63-132	
Xylene (Total)	ug/kg	60	47.9	80	65-134	
1,2-Dichloroethane-d4 (S)	%			101	80-120	
4-Bromofluorobenzene (S)	%			98	74-121	
Toluene-d8 (S)	%			95	81-117	

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QUALITY CONTROL DATA

Project: 0703486 UPA/M-061 BRADFORD

Pace Project No.: 3096204

QC Batch:	PMST/3875	Analysis Method:	ASTM D2974-87
QC Batch Method:	ASTM D2974-87	Analysis Description:	Dry Weight/Percent Moisture
Associated Lab Samples:	3096204001, 3096204002, 3096204003, 3096204004, 3096204005, 3096204006, 3096204007, 3096204008, 3096204009, 3096204010, 3096204011, 3096204012, 3096204013, 3096204014, 3096204015, 3096204016, 3096204017		

SAMPLE DUPLICATE: 596834

Parameter	Units	3096374001 Result	Dup Result	RPD	Qualifiers
Percent Moisture	%	4.3	4.5	3	

SAMPLE DUPLICATE: 596835

Parameter	Units	3096579002 Result	Dup Result	RPD	Qualifiers
Percent Moisture	%	2.8	2.8	0	

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QUALIFIERS

Project: 0703486 UPA/M-061 BRADFORD

Pace Project No.: 3096204

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

BATCH QUALIFIERS

Batch: MSV/16455

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

S2 Surrogate recovery outside laboratory control limits due to matrix interferences (confirmed by similar results from sample re-analysis).

S5 Surrogate recovery outside control limits due to matrix interferences (not confirmed by re-analysis).

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 0703486 UPA/M-061 BRADFORD

Pace Project No.: 3096204

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
3096204001	SB-1 (6-7')	EPA 8260	MSV/16455		
3096204002	SB-2 (6-6.5')	EPA 8260	MSV/16455		
3096204003	SB-3 (2-3')	EPA 8260	MSV/16455		
3096204004	SB-4 (3-4')	EPA 8260	MSV/16455		
3096204005	SB-5 (6-7')	EPA 8260	MSV/16455		
3096204006	SB-6 (2-3')	EPA 8260	MSV/16455		
3096204007	SB-7 (5-6')	EPA 8260	MSV/16455		
3096204008	SB-8 (3-4')	EPA 8260	MSV/16455		
3096204009	SB-1 (10-12')	EPA 8260	MSV/16455		
3096204010	SB-1 (13-15')	EPA 8260	MSV/16455		
3096204011	SB-2/MW4 (8-10')	EPA 8260	MSV/16472		
3096204012	SB-2/MW4 (13-15')	EPA 8260	MSV/16472		
3096204013	SB-3/MW5 (13-15')	EPA 8260	MSV/16455		
3096204014	SB-5 (13-15')	EPA 8260	MSV/16455		
3096204015	SB-6/MW-6 (5-7')	EPA 8260	MSV/16472		
3096204016	SB-6/MW-6 (8-10')	EPA 8260	MSV/16472		
3096204017	SB-6/MW-6 (11.5-12.5')	EPA 8260	MSV/16455		
3096204001	SB-1 (6-7')	ASTM D2974-87	PMST/3875		
3096204002	SB-2 (6-6.5')	ASTM D2974-87	PMST/3875		
3096204003	SB-3 (2-3')	ASTM D2974-87	PMST/3875		
3096204004	SB-4 (3-4')	ASTM D2974-87	PMST/3875		
3096204005	SB-5 (6-7')	ASTM D2974-87	PMST/3875		
3096204006	SB-6 (2-3')	ASTM D2974-87	PMST/3875		
3096204007	SB-7 (5-6')	ASTM D2974-87	PMST/3875		
3096204008	SB-8 (3-4')	ASTM D2974-87	PMST/3875		
3096204009	SB-1 (10-12')	ASTM D2974-87	PMST/3875		
3096204010	SB-1 (13-15')	ASTM D2974-87	PMST/3875		
3096204011	SB-2/MW4 (8-10')	ASTM D2974-87	PMST/3875		
3096204012	SB-2/MW4 (13-15')	ASTM D2974-87	PMST/3875		
3096204013	SB-3/MW5 (13-15')	ASTM D2974-87	PMST/3875		
3096204014	SB-5 (13-15')	ASTM D2974-87	PMST/3875		
3096204015	SB-6/MW-6 (5-7')	ASTM D2974-87	PMST/3875		
3096204016	SB-6/MW-6 (8-10')	ASTM D2974-87	PMST/3875		
3096204017	SB-6/MW-6 (11.5-12.5')	ASTM D2974-87	PMST/3875		

REPORT OF LABORATORY ANALYSIS

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The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.



Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	6ES	Report To:	Joe Skurka	Attention:	
Address:	301 Commerce Park Dr. Granberry Twp., PA. 16066	Copy To:	Joan Amodeo	Company Name:	
Email To:		Purchase Order No.:		Address:	
Phone:	800 267-2549	Project Name:	VPA / M-061 Bradford	Pace Quote Reference:	
Requested Due Date/TAT:	Standard	Project Number:	0703486	Pace Project Manager:	
				Pace Profile #:	
				REGULATORY AGENCY <input type="checkbox"/> NPDES <input type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER <input type="checkbox"/> UST <input type="checkbox"/> RCRA <input type="checkbox"/> OTHER _____	
				Page: 1 of 2 1628403	
				Site Location STATE: PA	

[illegible]



Sample Condition Upon Receipt

Client Name: GES

Project # 3096264

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☒ Pace Other _____

Tracking #: _____

Custody Seal on Cooler/Box Present: ☐ yes ☒ no Seals intact: ☐ yes ☐ no

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☐ None ☒ Other Ziploc bags

Thermometer Used 5 (6) 7 Type of Ice: ☒ Wet ☐ Blue ☐ None ☐ Samples on ice, cooling process has begun

Cooler Temperature 0.5 0.2

Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: JAW 6-7-13

Temp should be above freezing to 6°C

Comments:

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12. Sample #2 SB2/mw-4 on container label
-Includes date/time/ID/Analysis Matrix: <u>SL</u>		
All containers needing preservation have been checked.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
exceptions: VOA, coliform, TOC, O&G, WDRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed <u>JAW</u> Lot # of added preservative
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution:

Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: [Signature]

Date: 6/10/13

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

Project Number:

Project Number:

Client Name: CES

[illegible]

October 28, 2013

Mr. Joseph Skurka
Groundwater & Environmental Services
301 Commerce Park Drive
Cranberry Twp, PA 16066

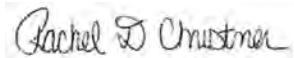
RE: Project: UPA M-061 BRADFORD
Pace Project No.: 30105103

Dear Mr. Skurka:

Enclosed are the analytical results for sample(s) received by the laboratory on October 12, 2013. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Rachel Christner

rachel.christner@pacelabs.com
Project Manager

Enclosures

cc: Ms. Joan Amodeo, Groundwater and Environmental
Services, Inc.
Ms. Jackie Jones, Groundwater & Environmental Services
Ms. Nicole Kramer, Groundwater & Environmental
Services
Ms. Erin Letrick, Groundwater & Environmental Services



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: UPA M-061 BRADFORD

Pace Project No.: 30105103

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4 Greensburg, PA 15601

ACLASS DOD-ELAP Accreditation #: ADE-1544

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California/TNI Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683

Guam/PADEP Certification

Hawaii/PADEP Certification

Idaho Certification

Illinois/PADEP Certification

Indiana/PADEP Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: 90133

Louisiana/TNI Certification #: LA080002

Louisiana/TNI Certification #: 4086

Maine Certification #: PA0091

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification

Missouri Certification #: 235

Montana Certification #: Cert 0082

Nevada Certification

New Hampshire/TNI Certification #: 2976

New Jersey/TNI Certification #: PA 051

New Mexico Certification

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Oregon/TNI Certification #: PA200002

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

South Dakota Certification

Tennessee Certification #: TN2867

Texas/TNI Certification #: T104704188

Utah/TNI Certification #: ANTE

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 460198

Washington Certification #: C868

West Virginia Certification #: 143

Wisconsin/PADEP Certification

Wyoming Certification #: 8TMS-Q

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: UPA M-061 BRADFORD

Pace Project No.: 30105103

Sample: SB-9/MW-7 (3-4') **Lab ID:** 30105103001 **Collected:** 10/07/13 15:26 **Received:** 10/12/13 11:50 **Matrix:** Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260						
Benzene	ND	ug/kg	3.3	1		10/20/13 19:50	71-43-2	
Ethylbenzene	ND	ug/kg	3.3	1		10/20/13 19:50	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/kg	3.3	1		10/20/13 19:50	98-82-8	
Methyl-tert-butyl ether	ND	ug/kg	3.3	1		10/20/13 19:50	1634-04-4	
Naphthalene	ND	ug/kg	3.3	1		10/20/13 19:50	91-20-3	
Toluene	ND	ug/kg	3.3	1		10/20/13 19:50	108-88-3	
1,2,4-Trimethylbenzene	ND	ug/kg	3.3	1		10/20/13 19:50	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	3.3	1		10/20/13 19:50	108-67-8	
Xylene (Total)	ND	ug/kg	9.9	1		10/20/13 19:50	1330-20-7	
Surrogates								
Toluene-d8 (S)	96 %		81-117	1		10/20/13 19:50	2037-26-5	
4-Bromofluorobenzene (S)	104 %		74-121	1		10/20/13 19:50	460-00-4	
1,2-Dichloroethane-d4 (S)	110 %		80-120	1		10/20/13 19:50	17060-07-0	
Percent Moisture		Analytical Method: ASTM D2974-87						
Percent Moisture	10.6 %		0.10	1		10/24/13 19:03		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: UPA M-061 BRADFORD

Pace Project No.: 30105103

Sample: SB-10 (6-7') **Lab ID: 30105103002** Collected: 10/07/13 17:20 Received: 10/12/13 11:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260						
Benzene	4.8	ug/kg	3.3	1		10/20/13 20:17	71-43-2	
Ethylbenzene	ND	ug/kg	3.3	1		10/20/13 20:17	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/kg	3.3	1		10/20/13 20:17	98-82-8	
Methyl-tert-butyl ether	ND	ug/kg	3.3	1		10/20/13 20:17	1634-04-4	
Naphthalene	4.2	ug/kg	3.3	1		10/20/13 20:17	91-20-3	
Toluene	4.0	ug/kg	3.3	1		10/20/13 20:17	108-88-3	
1,2,4-Trimethylbenzene	3.6	ug/kg	3.3	1		10/20/13 20:17	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	3.3	1		10/20/13 20:17	108-67-8	
Xylene (Total)	10.2	ug/kg	9.9	1		10/20/13 20:17	1330-20-7	
Surrogates								
Toluene-d8 (S)	98	%	81-117	1		10/20/13 20:17	2037-26-5	
4-Bromofluorobenzene (S)	101	%	74-121	1		10/20/13 20:17	460-00-4	
1,2-Dichloroethane-d4 (S)	102	%	80-120	1		10/20/13 20:17	17060-07-0	

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture	7.3	%	0.10	1		10/24/13 19:05		
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ANALYTICAL RESULTS

Project: UPA M-061 BRADFORD

Pace Project No.: 30105103

Sample: VP-1 (1-2') **Lab ID:** 30105103003 **Collected:** 10/08/13 08:38 **Received:** 10/12/13 11:50 **Matrix:** Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260						
Benzene	ND	ug/kg	3.2	1		10/20/13 20:44	71-43-2	
Ethylbenzene	ND	ug/kg	3.2	1		10/20/13 20:44	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/kg	3.2	1		10/20/13 20:44	98-82-8	
Methyl-tert-butyl ether	ND	ug/kg	3.2	1		10/20/13 20:44	1634-04-4	
Naphthalene	ND	ug/kg	3.2	1		10/20/13 20:44	91-20-3	
Toluene	ND	ug/kg	3.2	1		10/20/13 20:44	108-88-3	
1,2,4-Trimethylbenzene	ND	ug/kg	3.2	1		10/20/13 20:44	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	3.2	1		10/20/13 20:44	108-67-8	
Xylene (Total)	ND	ug/kg	9.7	1		10/20/13 20:44	1330-20-7	
Surrogates								
Toluene-d8 (S)	95 %		81-117	1		10/20/13 20:44	2037-26-5	
4-Bromofluorobenzene (S)	103 %		74-121	1		10/20/13 20:44	460-00-4	
1,2-Dichloroethane-d4 (S)	110 %		80-120	1		10/20/13 20:44	17060-07-0	
Percent Moisture		Analytical Method: ASTM D2974-87						
Percent Moisture	7.6 %		0.10	1		10/24/13 19:06		

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ANALYTICAL RESULTS

Project: UPA M-061 BRADFORD

Pace Project No.: 30105103

Sample: VP-2 (2-3') **Lab ID:** 30105103004 **Collected:** 10/08/13 10:35 **Received:** 10/12/13 11:50 **Matrix:** Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260						
Benzene	5.9	ug/kg	2.5	1		10/20/13 21:11	71-43-2	
Ethylbenzene	ND	ug/kg	2.5	1		10/20/13 21:11	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/kg	2.5	1		10/20/13 21:11	98-82-8	
Methyl-tert-butyl ether	ND	ug/kg	2.5	1		10/20/13 21:11	1634-04-4	
Naphthalene	ND	ug/kg	2.5	1		10/20/13 21:11	91-20-3	
Toluene	6.3	ug/kg	2.5	1		10/20/13 21:11	108-88-3	
1,2,4-Trimethylbenzene	ND	ug/kg	2.5	1		10/20/13 21:11	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	2.5	1		10/20/13 21:11	108-67-8	
Xylene (Total)	ND	ug/kg	7.5	1		10/20/13 21:11	1330-20-7	
Surrogates								
Toluene-d8 (S)	99	%	81-117	1		10/20/13 21:11	2037-26-5	
4-Bromofluorobenzene (S)	104	%	74-121	1		10/20/13 21:11	460-00-4	
1,2-Dichloroethane-d4 (S)	110	%	80-120	1		10/20/13 21:11	17060-07-0	
Percent Moisture		Analytical Method: ASTM D2974-87						
Percent Moisture	7.7	%	0.10	1		10/24/13 19:07		

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ANALYTICAL RESULTS

Project: UPA M-061 BRADFORD

Pace Project No.: 30105103

Sample: VP-3 (4-5') **Lab ID:** 30105103005 **Collected:** 10/08/13 11:50 **Received:** 10/12/13 11:50 **Matrix:** Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260						
Benzene	13.1	ug/kg	3.1	1		10/20/13 21:38	71-43-2	
Ethylbenzene	ND	ug/kg	3.1	1		10/20/13 21:38	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/kg	3.1	1		10/20/13 21:38	98-82-8	
Methyl-tert-butyl ether	ND	ug/kg	3.1	1		10/20/13 21:38	1634-04-4	
Naphthalene	ND	ug/kg	3.1	1		10/20/13 21:38	91-20-3	
Toluene	ND	ug/kg	3.1	1		10/20/13 21:38	108-88-3	
1,2,4-Trimethylbenzene	ND	ug/kg	3.1	1		10/20/13 21:38	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	3.1	1		10/20/13 21:38	108-67-8	
Xylene (Total)	ND	ug/kg	9.4	1		10/20/13 21:38	1330-20-7	
Surrogates								
Toluene-d8 (S)	97	%	81-117	1		10/20/13 21:38	2037-26-5	
4-Bromofluorobenzene (S)	107	%	74-121	1		10/20/13 21:38	460-00-4	
1,2-Dichloroethane-d4 (S)	108	%	80-120	1		10/20/13 21:38	17060-07-0	

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture	14.6	%	0.10	1		10/24/13 19:09		
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ANALYTICAL RESULTS

Project: UPA M-061 BRADFORD

Pace Project No.: 30105103

Sample: VP-4 (3-4) **Lab ID:** 30105103006 **Collected:** 10/08/13 14:35 **Received:** 10/12/13 11:50 **Matrix:** Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260						
Benzene	11.3	ug/kg	4.2	1		10/20/13 22:06	71-43-2	
Ethylbenzene	ND	ug/kg	4.2	1		10/20/13 22:06	100-41-4	
Isopropylbenzene (Cumene)	5.1	ug/kg	4.2	1		10/20/13 22:06	98-82-8	
Methyl-tert-butyl ether	ND	ug/kg	4.2	1		10/20/13 22:06	1634-04-4	
Naphthalene	127	ug/kg	4.2	1		10/20/13 22:06	91-20-3	
Toluene	ND	ug/kg	4.2	1		10/20/13 22:06	108-88-3	
1,2,4-Trimethylbenzene	ND	ug/kg	4.2	1		10/20/13 22:06	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	4.2	1		10/20/13 22:06	108-67-8	
Xylene (Total)	ND	ug/kg	12.5	1		10/20/13 22:06	1330-20-7	
Surrogates								
Toluene-d8 (S)	95	%	81-117	1		10/20/13 22:06	2037-26-5	
4-Bromofluorobenzene (S)	104	%	74-121	1		10/20/13 22:06	460-00-4	
1,2-Dichloroethane-d4 (S)	109	%	80-120	1		10/20/13 22:06	17060-07-0	

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture	27.1	%	0.10	1		10/24/13 19:10		
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ANALYTICAL RESULTS

Project: UPA M-061 BRADFORD

Pace Project No.: 30105103

Sample: **SB-9/MW-7 (10-12')** Lab ID: **30105103007** Collected: 10/09/13 08:53 Received: 10/12/13 11:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260						
Benzene	37.9	ug/kg	3.7	1		10/20/13 22:33	71-43-2	
Ethylbenzene	4.2	ug/kg	3.7	1		10/20/13 22:33	100-41-4	
Isopropylbenzene (Cumene)	8.7	ug/kg	3.7	1		10/20/13 22:33	98-82-8	
Methyl-tert-butyl ether	8.8	ug/kg	3.7	1		10/20/13 22:33	1634-04-4	
Naphthalene	ND	ug/kg	3.7	1		10/20/13 22:33	91-20-3	
Toluene	ND	ug/kg	3.7	1		10/20/13 22:33	108-88-3	
1,2,4-Trimethylbenzene	30.1	ug/kg	3.7	1		10/20/13 22:33	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	3.7	1		10/20/13 22:33	108-67-8	
Xylene (Total)	ND	ug/kg	11.0	1		10/20/13 22:33	1330-20-7	
Surrogates								
Toluene-d8 (S)	96 %		81-117	1		10/20/13 22:33	2037-26-5	
4-Bromofluorobenzene (S)	102 %		74-121	1		10/20/13 22:33	460-00-4	
1,2-Dichloroethane-d4 (S)	105 %		80-120	1		10/20/13 22:33	17060-07-0	

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture	19.1	%	0.10	1		10/24/13 19:12		
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ANALYTICAL RESULTS

Project: UPA M-061 BRADFORD

Pace Project No.: 30105103

Sample: SB-9/MW-7 (13-15') **Lab ID:** 30105103008 **Collected:** 10/09/13 08:54 **Received:** 10/12/13 11:50 **Matrix:** Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260						
Benzene	ND	ug/kg	3.1	1		10/21/13 13:30	71-43-2	
Ethylbenzene	ND	ug/kg	3.1	1		10/21/13 13:30	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/kg	3.1	1		10/21/13 13:30	98-82-8	
Methyl-tert-butyl ether	ND	ug/kg	3.1	1		10/21/13 13:30	1634-04-4	
Naphthalene	ND	ug/kg	3.1	1		10/21/13 13:30	91-20-3	
Toluene	ND	ug/kg	3.1	1		10/21/13 13:30	108-88-3	
1,2,4-Trimethylbenzene	ND	ug/kg	3.1	1		10/21/13 13:30	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	3.1	1		10/21/13 13:30	108-67-8	
Xylene (Total)	ND	ug/kg	9.2	1		10/21/13 13:30	1330-20-7	
Surrogates								
Toluene-d8 (S)	93 %		81-117	1		10/21/13 13:30	2037-26-5	
4-Bromofluorobenzene (S)	94 %		74-121	1		10/21/13 13:30	460-00-4	
1,2-Dichloroethane-d4 (S)	116 %		80-120	1		10/21/13 13:30	17060-07-0	
Percent Moisture		Analytical Method: ASTM D2974-87						
Percent Moisture	11.6 %		0.10	1		10/24/13 19:13		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: UPA M-061 BRADFORD

Pace Project No.: 30105103

Sample: SB-11 (3-4') **Lab ID: 30105103009** Collected: 10/09/13 11:25 Received: 10/12/13 11:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260						
Benzene	41.7	ug/kg	4.8	1		10/21/13 13:52	71-43-2	
Ethylbenzene	52.6	ug/kg	4.8	1		10/21/13 13:52	100-41-4	
Isopropylbenzene (Cumene)	8.3	ug/kg	4.8	1		10/21/13 13:52	98-82-8	
Methyl-tert-butyl ether	ND	ug/kg	4.8	1		10/21/13 13:52	1634-04-4	
Naphthalene	14.9	ug/kg	4.8	1		10/21/13 13:52	91-20-3	
Toluene	6.2	ug/kg	4.8	1		10/21/13 13:52	108-88-3	
1,2,4-Trimethylbenzene	244	ug/kg	4.8	1		10/21/13 13:52	95-63-6	
1,3,5-Trimethylbenzene	115	ug/kg	4.8	1		10/21/13 13:52	108-67-8	
Xylene (Total)	173	ug/kg	14.4	1		10/21/13 13:52	1330-20-7	
Surrogates								
Toluene-d8 (S)	99	%	81-117	1		10/21/13 13:52	2037-26-5	
4-Bromofluorobenzene (S)	102	%	74-121	1		10/21/13 13:52	460-00-4	
1,2-Dichloroethane-d4 (S)	111	%	80-120	1		10/21/13 13:52	17060-07-0	

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture	28.9	%	0.10	1		10/24/13 19:15		
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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: UPA M-061 BRADFORD

Pace Project No.: 30105103

QC Batch:	MSV/17695	Analysis Method:	EPA 8260
QC Batch Method:	EPA 8260	Analysis Description:	8260 MSV UST-SOIL
Associated Lab Samples:	30105103001, 30105103002, 30105103003, 30105103004, 30105103005, 30105103006, 30105103007		

METHOD BLANK: 646799 Matrix: Solid

Associated Lab Samples: 30105103001, 30105103002, 30105103003, 30105103004, 30105103005, 30105103006, 30105103007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/kg	ND	5.0	10/20/13 15:20	
1,3,5-Trimethylbenzene	ug/kg	ND	5.0	10/20/13 15:20	
Benzene	ug/kg	ND	5.0	10/20/13 15:20	
Ethylbenzene	ug/kg	ND	5.0	10/20/13 15:20	
Isopropylbenzene (Cumene)	ug/kg	ND	5.0	10/20/13 15:20	
Methyl-tert-butyl ether	ug/kg	ND	5.0	10/20/13 15:20	
Naphthalene	ug/kg	ND	5.0	10/20/13 15:20	
Toluene	ug/kg	ND	5.0	10/20/13 15:20	
Xylene (Total)	ug/kg	ND	15.0	10/20/13 15:20	
1,2-Dichloroethane-d4 (S)	%	97	80-120	10/20/13 15:20	
4-Bromofluorobenzene (S)	%	102	74-121	10/20/13 15:20	
Toluene-d8 (S)	%	98	81-117	10/20/13 15:20	

LABORATORY CONTROL SAMPLE: 646800

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/kg	20	18.0	90	62-121	
1,3,5-Trimethylbenzene	ug/kg	20	17.9	89	61-125	
Benzene	ug/kg	20	17.0	85	61-135	
Ethylbenzene	ug/kg	20	17.5	87	62-129	
Isopropylbenzene (Cumene)	ug/kg	20	19.1	95	68-131	
Methyl-tert-butyl ether	ug/kg	20	18.8	94	56-118	
Naphthalene	ug/kg	20	16.5	82	58-122	
Toluene	ug/kg	20	17.6	88	60-123	
Xylene (Total)	ug/kg	60	54.1	90	64-129	
1,2-Dichloroethane-d4 (S)	%			103	80-120	
4-Bromofluorobenzene (S)	%			96	74-121	
Toluene-d8 (S)	%			101	81-117	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: UPA M-061 BRADFORD

Pace Project No.: 30105103

QC Batch: MSV/17706

Analysis Method: EPA 8260

QC Batch Method: EPA 8260

Analysis Description: 8260 MSV UST-SOIL

Associated Lab Samples: 30105103008, 30105103009

METHOD BLANK: 646971

Matrix: Solid

Associated Lab Samples: 30105103008, 30105103009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/kg	ND	5.0	10/21/13 12:40	
1,3,5-Trimethylbenzene	ug/kg	ND	5.0	10/21/13 12:40	
Benzene	ug/kg	ND	5.0	10/21/13 12:40	
Ethylbenzene	ug/kg	ND	5.0	10/21/13 12:40	
Isopropylbenzene (Cumene)	ug/kg	ND	5.0	10/21/13 12:40	
Methyl-tert-butyl ether	ug/kg	ND	5.0	10/21/13 12:40	
Naphthalene	ug/kg	ND	5.0	10/21/13 12:40	
Toluene	ug/kg	ND	5.0	10/21/13 12:40	
1,2-Dichloroethane-d4 (S)	%	110	80-120	10/21/13 12:40	
4-Bromofluorobenzene (S)	%	95	74-121	10/21/13 12:40	
Toluene-d8 (S)	%	98	81-117	10/21/13 12:40	

LABORATORY CONTROL SAMPLE: 646972

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/kg	20	18.3	91	62-121	
1,3,5-Trimethylbenzene	ug/kg	20	18.7	93	61-125	
Benzene	ug/kg	20	18.4	92	61-135	
Ethylbenzene	ug/kg	20	18.1	90	62-129	
Isopropylbenzene (Cumene)	ug/kg	20	20.4	102	68-131	
Methyl-tert-butyl ether	ug/kg	20	19.2	96	56-118	
Naphthalene	ug/kg	20	17.8	89	58-122	
Toluene	ug/kg	20	15.1	75	60-123	
1,2-Dichloroethane-d4 (S)	%			109	80-120	
4-Bromofluorobenzene (S)	%			94	74-121	
Toluene-d8 (S)	%			97	81-117	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: UPA M-061 BRADFORD

Pace Project No.: 30105103

QC Batch:	PMST/4127	Analysis Method:	ASTM D2974-87
QC Batch Method:	ASTM D2974-87	Analysis Description:	Dry Weight/Percent Moisture
Associated Lab Samples:	30105103001, 30105103002, 30105103003, 30105103004, 30105103005, 30105103006, 30105103007, 30105103008, 30105103009		

SAMPLE DUPLICATE: 648858

Parameter	Units	30105102005 Result	Dup Result	RPD	Qualifiers
Percent Moisture	%	10.2	10.8	6	

SAMPLE DUPLICATE: 648859

Parameter	Units	30105103001 Result	Dup Result	RPD	Qualifiers
Percent Moisture	%	10.6	11.4	8	

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: UPA M-061 BRADFORD

Pace Project No.: 30105103

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

BATCH QUALIFIERS

Batch: MSV/17695

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: UPA M-061 BRADFORD

Pace Project No.: 30105103

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30105103001	SB-9/MW-7 (3-4')	EPA 8260	MSV/17695		
30105103002	SB-10 (6-7')	EPA 8260	MSV/17695		
30105103003	VP-1 (1-2')	EPA 8260	MSV/17695		
30105103004	VP-2 (2-3')	EPA 8260	MSV/17695		
30105103005	VP-3 (4-5')	EPA 8260	MSV/17695		
30105103006	VP-4 (3-4)	EPA 8260	MSV/17695		
30105103007	SB-9/MW-7 (10-12')	EPA 8260	MSV/17695		
30105103008	SB-9/MW-7 (13-15')	EPA 8260	MSV/17706		
30105103009	SB-11 (3-4')	EPA 8260	MSV/17706		
30105103001	SB-9/MW-7 (3-4')	ASTM D2974-87	PMST/4127		
30105103002	SB-10 (6-7')	ASTM D2974-87	PMST/4127		
30105103003	VP-1 (1-2')	ASTM D2974-87	PMST/4127		
30105103004	VP-2 (2-3')	ASTM D2974-87	PMST/4127		
30105103005	VP-3 (4-5')	ASTM D2974-87	PMST/4127		
30105103006	VP-4 (3-4)	ASTM D2974-87	PMST/4127		
30105103007	SB-9/MW-7 (10-12')	ASTM D2974-87	PMST/4127		
30105103008	SB-9/MW-7 (13-15')	ASTM D2974-87	PMST/4127		
30105103009	SB-11 (3-4')	ASTM D2974-87	PMST/4127		

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A

Required Client Information:

Company:	GES
Address:	301 Commerce Park Dr. Cumbury Twp, PA 16066
Email To:	
Phone:	800-267-2659
Requested Due Date/TAT:	Standard
Fax:	
Report To:	Erin Letrick
Copy To:	Joan Amodeo
Purchase Order No.:	
Project Name:	VPA M-061 BrndFrd
Project Number:	0703938

Section B

Required Project Information:

Attention:	
Company Name:	
Address:	
Pace Quote Reference:	
Pace Project Manager:	
Pace Profile #:	

Section C

Invoice Information:

Report To:	Erin Letrick
Copy To:	Joan Amodeo
Purchase Order No.:	
Project Name:	VPA M-061 BrndFrd
Project Number:	0703938

Page: 1 of 1
1663414
REGULATORY AGENCY
NPDES <input type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER
UST <input type="checkbox"/> RCRA <input type="checkbox"/> OTHER <input type="checkbox"/>
Site Location
STATE: PA

ITEM #	SAMPLE ID (A-Z, 0-9 / -)	Matrix Codes MATRIX / CODE	COLLECTED		SAMPLE TYPE (G=GRAB C=COMP)	MATRIX CODE (see valid codes to left)	# OF CONTAINERS	Preservatives	Analysis Test ↑	Y/N	Requested Analysis Filtered (Y/N)	Pace Project No./ Lab I.D.
			COMPOSITE START	COMPOSITE END/GRAB								
1	SB-9/MW-7 (3-4')	DW Drinking Water	DATE	TIME	9	SL 6	4	Unpreserved	↑	X		001
2	SB-10 (6-7')	WT Water	DATE	TIME				Na ₂ S ₂ O ₃	↑	X		002
3	VP-1 (1-2')	WW Waste Water	DATE	TIME				HCl	↑	X		003
4	VP-2 (2-3')	P Product	DATE	TIME				HNO ₃	↑	X		004
5	VP-3 (4-5')	SL Soil/Solid	DATE	TIME				H ₂ SO ₄	↑	X		005
6	VP-4 (3-4')	OL Oil	DATE	TIME				Other	↑	X		006
7	SB-9/MW-7 (10-12')	Wipe	DATE	TIME								007
8	SB-9/MW-7 (13-15')	Air	DATE	TIME								008
9	SB-11 (3-4')	Tissue	DATE	TIME								009
10		Other	DATE	TIME								
11			DATE	TIME								
12			DATE	TIME								

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Julie P. / GES	10-11-13	1915	Sample Received	10-11-13	1915	
	Julie P. / GES	10-12-13	1150		10-12-13	1150	23 y N y

SAMPLER NAME AND SIGNATURE		Temp in °C	Received on	Custody	Samples Intact
PRINT Name of SAMPLER: Judd Pierre					
SIGNATURE OF SAMPLER: Judd P.					
DATE Signed (MM/DD/YYYY): 10/11/13					

ORIGINAL



Sample Condition Upon Receipt

Client Name: GES

Project # 301050103

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☒ Client ☐ Commercial ☐ Pace Other _____

Tracking #: _____

Custody Seal on Cooler/Box Present: ☐ yes ☒ no Seals intact: ☐ yes ☐ no

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☐ None ☐ Other Foam, Ziplocks

Thermometer Used 5 6 7

Type of Ice: Wet ☐ Blue ☐ None ☒ Samples on ice, cooling process has begun

Cooler Temperature 4.9, 2.3

Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C

Comments:

Date and Initials of person examining contents: PAC 10-12-13

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix: <u>SL</u>		
All containers needing preservation have been checked.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed <u>PAC</u> Lot # of added preservative
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution:

Field Data Required?

Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review:

Rachel D. Christman

Date: 10/14/13

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

Project Number:

3

[illegible]

October 28, 2013

Mr. Joseph Skurka
Groundwater & Environmental Services
301 Commerce Park Drive
Cranberry Twp, PA 16066

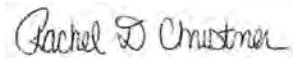
RE: Project: UPA M-061 BRADFORD
Pace Project No.: 30105102

Dear Mr. Skurka:

Enclosed are the analytical results for sample(s) received by the laboratory on October 12, 2013. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Rachel Christner

rachel.christner@pacelabs.com
Project Manager

Enclosures

cc: Ms. Joan Amodeo, Groundwater and Environmental
Services, Inc.
Ms. Jackie Jones, Groundwater & Environmental Services
Ms. Nicole Kramer, Groundwater & Environmental
Services
Ms. Erin Letrick, Groundwater & Environmental Services



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: UPA M-061 BRADFORD

Pace Project No.: 30105102

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4 Greensburg, PA 15601

ACLASS DOD-ELAP Accreditation #: ADE-1544

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California/TNI Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683

Guam/PADEP Certification

Hawaii/PADEP Certification

Idaho Certification

Illinois/PADEP Certification

Indiana/PADEP Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: 90133

Louisiana/TNI Certification #: LA080002

Louisiana/TNI Certification #: 4086

Maine Certification #: PA0091

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification

Missouri Certification #: 235

Montana Certification #: Cert 0082

Nevada Certification

New Hampshire/TNI Certification #: 2976

New Jersey/TNI Certification #: PA 051

New Mexico Certification

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Oregon/TNI Certification #: PA200002

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

South Dakota Certification

Tennessee Certification #: TN2867

Texas/TNI Certification #: T104704188

Utah/TNI Certification #: ANTE

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 460198

Washington Certification #: C868

West Virginia Certification #: 143

Wisconsin/PADEP Certification

Wyoming Certification #: 8TMS-Q

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: UPA M-061 BRADFORD

Pace Project No.: 30105102

Sample: SB-10 (8-10') **Lab ID: 30105102001** Collected: 10/09/13 16:14 Received: 10/12/13 11:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260						
Benzene	3470	ug/kg	169	50		10/24/13 12:34	71-43-2	1c,H5
Ethylbenzene	11800	ug/kg	169	50		10/24/13 12:34	100-41-4	
Isopropylbenzene (Cumene)	2080	ug/kg	169	50		10/24/13 12:34	98-82-8	
Methyl-tert-butyl ether	ND	ug/kg	169	50		10/24/13 12:34	1634-04-4	
Naphthalene	4300	ug/kg	169	50		10/24/13 12:34	91-20-3	
Toluene	349	ug/kg	169	50		10/24/13 12:34	108-88-3	
1,2,4-Trimethylbenzene	44600	ug/kg	1690	500		10/25/13 10:02	95-63-6	
1,3,5-Trimethylbenzene	19600	ug/kg	1690	500		10/25/13 10:02	108-67-8	
Xylene (Total)	87100	ug/kg	5060	500		10/25/13 10:02	1330-20-7	
Surrogates								
Toluene-d8 (S)	138	%	81-117	50		10/24/13 12:34	2037-26-5	S2
4-Bromofluorobenzene (S)	116	%	74-121	50		10/24/13 12:34	460-00-4	
1,2-Dichloroethane-d4 (S)	88	%	80-120	50		10/24/13 12:34	17060-07-0	

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture	16.1	%	0.10	1		10/24/13 18:25		
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REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: UPA M-061 BRADFORD

Pace Project No.: 30105102

Sample: SB-10 (10-12') **Lab ID: 30105102002** Collected: 10/09/13 16:18 Received: 10/12/13 11:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260						
Benzene	141	ug/kg	3.4	1		10/23/13 15:03	71-43-2	
Ethylbenzene	78.8	ug/kg	3.4	1		10/23/13 15:03	100-41-4	
Isopropylbenzene (Cumene)	8.3	ug/kg	3.4	1		10/23/13 15:03	98-82-8	
Methyl-tert-butyl ether	6.3	ug/kg	3.4	1		10/23/13 15:03	1634-04-4	
Naphthalene	74.8	ug/kg	3.4	1		10/23/13 15:03	91-20-3	
Toluene	6.3	ug/kg	3.4	1		10/23/13 15:03	108-88-3	
1,2,4-Trimethylbenzene	93.1	ug/kg	3.4	1		10/23/13 15:03	95-63-6	
1,3,5-Trimethylbenzene	36.4	ug/kg	3.4	1		10/23/13 15:03	108-67-8	
Xylene (Total)	199	ug/kg	10.1	1		10/23/13 15:03	1330-20-7	
Surrogates								
Toluene-d8 (S)	101	%	81-117	1		10/23/13 15:03	2037-26-5	
4-Bromofluorobenzene (S)	100	%	74-121	1		10/23/13 15:03	460-00-4	
1,2-Dichloroethane-d4 (S)	96	%	80-120	1		10/23/13 15:03	17060-07-0	

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture	12.7	%	0.10	1		10/24/13 18:27		
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ANALYTICAL RESULTS

Project: UPA M-061 BRADFORD

Pace Project No.: 30105102

Sample: MW-8 (3-4') **Lab ID:** 30105102003 **Collected:** 10/10/13 09:54 **Received:** 10/12/13 11:50 **Matrix:** Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260						
Benzene	ND	ug/kg	4.1	1		10/23/13 16:10	71-43-2	
Ethylbenzene	ND	ug/kg	4.1	1		10/23/13 16:10	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/kg	4.1	1		10/23/13 16:10	98-82-8	
Methyl-tert-butyl ether	ND	ug/kg	4.1	1		10/23/13 16:10	1634-04-4	
Naphthalene	5.8	ug/kg	4.1	1		10/23/13 16:10	91-20-3	
Toluene	ND	ug/kg	4.1	1		10/23/13 16:10	108-88-3	
1,2,4-Trimethylbenzene	4.2	ug/kg	4.1	1		10/23/13 16:10	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	4.1	1		10/23/13 16:10	108-67-8	
Xylene (Total)	ND	ug/kg	12.4	1		10/23/13 16:10	1330-20-7	
Surrogates								
Toluene-d8 (S)	104	%	81-117	1		10/23/13 16:10	2037-26-5	
4-Bromofluorobenzene (S)	100	%	74-121	1		10/23/13 16:10	460-00-4	
1,2-Dichloroethane-d4 (S)	98	%	80-120	1		10/23/13 16:10	17060-07-0	

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture	18.6	%	0.10	1		10/24/13 18:28		
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ANALYTICAL RESULTS

Project: UPA M-061 BRADFORD

Pace Project No.: 30105102

Sample: MW-9 (3-4') **Lab ID:** 30105102004 **Collected:** 10/10/13 11:18 **Received:** 10/12/13 11:50 **Matrix:** Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260						
Benzene	ND	ug/kg	3.7	1		10/23/13 16:32	71-43-2	
Ethylbenzene	ND	ug/kg	3.7	1		10/23/13 16:32	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/kg	3.7	1		10/23/13 16:32	98-82-8	
Methyl-tert-butyl ether	ND	ug/kg	3.7	1		10/23/13 16:32	1634-04-4	
Naphthalene	ND	ug/kg	3.7	1		10/23/13 16:32	91-20-3	
Toluene	ND	ug/kg	3.7	1		10/23/13 16:32	108-88-3	
1,2,4-Trimethylbenzene	ND	ug/kg	3.7	1		10/23/13 16:32	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	3.7	1		10/23/13 16:32	108-67-8	
Xylene (Total)	ND	ug/kg	11.1	1		10/23/13 16:32	1330-20-7	
Surrogates								
Toluene-d8 (S)	101	%	81-117	1		10/23/13 16:32	2037-26-5	
4-Bromofluorobenzene (S)	97	%	74-121	1		10/23/13 16:32	460-00-4	
1,2-Dichloroethane-d4 (S)	100	%	80-120	1		10/23/13 16:32	17060-07-0	

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture	10.3	%	0.10	1		10/24/13 18:29		
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ANALYTICAL RESULTS

Project: UPA M-061 BRADFORD

Pace Project No.: 30105102

Sample: MW-9 (13-15') **Lab ID: 30105102005** Collected: 10/10/13 13:58 Received: 10/12/13 11:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260						
Benzene	ND	ug/kg	3.5	1		10/23/13 16:54	71-43-2	
Ethylbenzene	ND	ug/kg	3.5	1		10/23/13 16:54	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/kg	3.5	1		10/23/13 16:54	98-82-8	
Methyl-tert-butyl ether	127	ug/kg	3.5	1		10/23/13 16:54	1634-04-4	
Naphthalene	ND	ug/kg	3.5	1		10/23/13 16:54	91-20-3	
Toluene	ND	ug/kg	3.5	1		10/23/13 16:54	108-88-3	
1,2,4-Trimethylbenzene	ND	ug/kg	3.5	1		10/23/13 16:54	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	3.5	1		10/23/13 16:54	108-67-8	
Xylene (Total)	ND	ug/kg	10.5	1		10/23/13 16:54	1330-20-7	
Surrogates								
Toluene-d8 (S)	99 %		81-117	1		10/23/13 16:54	2037-26-5	
4-Bromofluorobenzene (S)	98 %		74-121	1		10/23/13 16:54	460-00-4	
1,2-Dichloroethane-d4 (S)	99 %		80-120	1		10/23/13 16:54	17060-07-0	

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture	10.2 %		0.10	1		10/24/13 18:58		
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ANALYTICAL RESULTS

Project: UPA M-061 BRADFORD

Pace Project No.: 30105102

Sample: MW-9 (28-30') **Lab ID: 30105102006** Collected: 10/10/13 14:33 Received: 10/12/13 11:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260						
Benzene	ND	ug/kg	3.6	1		10/23/13 17:17	71-43-2	
Ethylbenzene	ND	ug/kg	3.6	1		10/23/13 17:17	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/kg	3.6	1		10/23/13 17:17	98-82-8	
Methyl-tert-butyl ether	ND	ug/kg	3.6	1		10/23/13 17:17	1634-04-4	
Naphthalene	ND	ug/kg	3.6	1		10/23/13 17:17	91-20-3	
Toluene	ND	ug/kg	3.6	1		10/23/13 17:17	108-88-3	
1,2,4-Trimethylbenzene	ND	ug/kg	3.6	1		10/23/13 17:17	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	3.6	1		10/23/13 17:17	108-67-8	
Xylene (Total)	ND	ug/kg	10.8	1		10/23/13 17:17	1330-20-7	
Surrogates								
Toluene-d8 (S)	102	%	81-117	1		10/23/13 17:17	2037-26-5	
4-Bromofluorobenzene (S)	94	%	74-121	1		10/23/13 17:17	460-00-4	
1,2-Dichloroethane-d4 (S)	98	%	80-120	1		10/23/13 17:17	17060-07-0	

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture	13.8	%	0.10	1		10/24/13 19:00
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ANALYTICAL RESULTS

Project: UPA M-061 BRADFORD

Pace Project No.: 30105102

Sample: MW-8 (10-12') **Lab ID: 30105102007** Collected: 10/10/13 15:32 Received: 10/12/13 11:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260						
Benzene	ND	ug/kg	3.2	1		10/23/13 17:39	71-43-2	
Ethylbenzene	ND	ug/kg	3.2	1		10/23/13 17:39	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/kg	3.2	1		10/23/13 17:39	98-82-8	
Methyl-tert-butyl ether	33.7	ug/kg	3.2	1		10/23/13 17:39	1634-04-4	
Naphthalene	ND	ug/kg	3.2	1		10/23/13 17:39	91-20-3	
Toluene	ND	ug/kg	3.2	1		10/23/13 17:39	108-88-3	
1,2,4-Trimethylbenzene	ND	ug/kg	3.2	1		10/23/13 17:39	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	3.2	1		10/23/13 17:39	108-67-8	
Xylene (Total)	ND	ug/kg	9.5	1		10/23/13 17:39	1330-20-7	
Surrogates								
Toluene-d8 (S)	101	%	81-117	1		10/23/13 17:39	2037-26-5	
4-Bromofluorobenzene (S)	98	%	74-121	1		10/23/13 17:39	460-00-4	
1,2-Dichloroethane-d4 (S)	99	%	80-120	1		10/23/13 17:39	17060-07-0	

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture	10.3	%	0.10	1		10/24/13 19:01		
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ANALYTICAL RESULTS

Project: UPA M-061 BRADFORD

Pace Project No.: 30105102

Sample: MW-8 (17-19') **Lab ID: 30105102008** Collected: 10/10/13 15:40 Received: 10/12/13 11:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260						
Benzene	ND	ug/kg	3.6	1		10/23/13 18:01	71-43-2	
Ethylbenzene	ND	ug/kg	3.6	1		10/23/13 18:01	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/kg	3.6	1		10/23/13 18:01	98-82-8	
Methyl-tert-butyl ether	6.1	ug/kg	3.6	1		10/23/13 18:01	1634-04-4	
Naphthalene	ND	ug/kg	3.6	1		10/23/13 18:01	91-20-3	
Toluene	ND	ug/kg	3.6	1		10/23/13 18:01	108-88-3	
1,2,4-Trimethylbenzene	ND	ug/kg	3.6	1		10/23/13 18:01	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	3.6	1		10/23/13 18:01	108-67-8	
Xylene (Total)	ND	ug/kg	10.7	1		10/23/13 18:01	1330-20-7	
Surrogates								
Toluene-d8 (S)	102	%	81-117	1		10/23/13 18:01	2037-26-5	
4-Bromofluorobenzene (S)	96	%	74-121	1		10/23/13 18:01	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	80-120	1		10/23/13 18:01	17060-07-0	
Percent Moisture		Analytical Method: ASTM D2974-87						
Percent Moisture	14.0	%	0.10	1		10/24/13 19:02		

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QUALITY CONTROL DATA

Project: UPA M-061 BRADFORD

Pace Project No.: 30105102

QC Batch:	MSV/17741	Analysis Method:	EPA 8260
QC Batch Method:	EPA 8260	Analysis Description:	8260 MSV UST-SOIL
Associated Lab Samples:	30105102002, 30105102003, 30105102004, 30105102005, 30105102006, 30105102007, 30105102008		

METHOD BLANK: 648249 Matrix: Solid

Associated Lab Samples: 30105102002, 30105102003, 30105102004, 30105102005, 30105102006, 30105102007, 30105102008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/kg	ND	5.0	10/23/13 10:12	
1,3,5-Trimethylbenzene	ug/kg	ND	5.0	10/23/13 10:12	
Benzene	ug/kg	ND	5.0	10/23/13 10:12	
Ethylbenzene	ug/kg	ND	5.0	10/23/13 10:12	
Isopropylbenzene (Cumene)	ug/kg	ND	5.0	10/23/13 10:12	
Methyl-tert-butyl ether	ug/kg	ND	5.0	10/23/13 10:12	
Naphthalene	ug/kg	ND	5.0	10/23/13 10:12	
Toluene	ug/kg	ND	5.0	10/23/13 10:12	
Xylene (Total)	ug/kg	ND	15.0	10/23/13 10:12	
1,2-Dichloroethane-d4 (S)	%	104	80-120	10/23/13 10:12	
4-Bromofluorobenzene (S)	%	94	74-121	10/23/13 10:12	
Toluene-d8 (S)	%	97	81-117	10/23/13 10:12	

LABORATORY CONTROL SAMPLE: 648250

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/kg	20	17.2	86	62-121	
1,3,5-Trimethylbenzene	ug/kg	20	18.2	91	61-125	
Benzene	ug/kg	20	18.2	91	61-135	
Ethylbenzene	ug/kg	20	17.9	89	62-129	
Isopropylbenzene (Cumene)	ug/kg	20	19.6	98	68-131	
Methyl-tert-butyl ether	ug/kg	20	19.5	97	56-118	
Naphthalene	ug/kg	20	16.8	84	58-122	
Toluene	ug/kg	20	14.7	73	60-123	
Xylene (Total)	ug/kg	60	52.8	88	64-129	
1,2-Dichloroethane-d4 (S)	%			105	80-120	
4-Bromofluorobenzene (S)	%			96	74-121	
Toluene-d8 (S)	%			102	81-117	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: UPA M-061 BRADFORD

Pace Project No.: 30105102

QC Batch: MSV/17754

Analysis Method: EPA 8260

QC Batch Method: EPA 8260

Analysis Description: 8260 MSV UST-SOIL

Associated Lab Samples: 30105102001

METHOD BLANK: 648627

Matrix: Solid

Associated Lab Samples: 30105102001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/kg	ND	5.0	10/24/13 10:42	
1,3,5-Trimethylbenzene	ug/kg	ND	5.0	10/24/13 10:42	
Benzene	ug/kg	ND	5.0	10/24/13 10:42	
Ethylbenzene	ug/kg	ND	5.0	10/24/13 10:42	
Isopropylbenzene (Cumene)	ug/kg	ND	5.0	10/24/13 10:42	
Methyl-tert-butyl ether	ug/kg	ND	5.0	10/24/13 10:42	
Naphthalene	ug/kg	ND	5.0	10/24/13 10:42	
Toluene	ug/kg	ND	5.0	10/24/13 10:42	
Xylene (Total)	ug/kg	ND	15.0	10/24/13 10:42	
1,2-Dichloroethane-d4 (S)	%	94	80-120	10/24/13 10:42	
4-Bromofluorobenzene (S)	%	95	74-121	10/24/13 10:42	
Toluene-d8 (S)	%	99	81-117	10/24/13 10:42	

LABORATORY CONTROL SAMPLE: 648628

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/kg	20	17.3	86	62-121	
1,3,5-Trimethylbenzene	ug/kg	20	16.9	85	61-125	
Benzene	ug/kg	20	17.6	88	61-135	
Ethylbenzene	ug/kg	20	16.7	83	62-129	
Isopropylbenzene (Cumene)	ug/kg	20	18.6	93	68-131	
Methyl-tert-butyl ether	ug/kg	20	19.3	96	56-118	
Naphthalene	ug/kg	20	17.7	88	58-122	
Toluene	ug/kg	20	14.8	74	60-123	
Xylene (Total)	ug/kg	60	49.4	82	64-129	
1,2-Dichloroethane-d4 (S)	%			94	80-120	
4-Bromofluorobenzene (S)	%			100	74-121	
Toluene-d8 (S)	%			101	81-117	

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QUALITY CONTROL DATA

Project: UPA M-061 BRADFORD

Pace Project No.: 30105102

QC Batch:	PMST/4126	Analysis Method:	ASTM D2974-87
QC Batch Method:	ASTM D2974-87	Analysis Description:	Dry Weight/Percent Moisture
Associated Lab Samples: 30105102001, 30105102002, 30105102003, 30105102004			

SAMPLE DUPLICATE: 648848

Parameter	Units	30105094001 Result	Dup Result	RPD	Qualifiers
Percent Moisture	%	ND	ND		

SAMPLE DUPLICATE: 648849

Parameter	Units	30105595006 Result	Dup Result	RPD	Qualifiers
Percent Moisture	%	23.0	22.2	3	

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QUALITY CONTROL DATA

Project: UPA M-061 BRADFORD

Pace Project No.: 30105102

QC Batch: PMST/4127 Analysis Method: ASTM D2974-87
 QC Batch Method: ASTM D2974-87 Analysis Description: Dry Weight/Percent Moisture
 Associated Lab Samples: 30105102005, 30105102006, 30105102007, 30105102008

SAMPLE DUPLICATE: 648858

Parameter	Units	30105102005 Result	Dup Result	RPD	Qualifiers
Percent Moisture	%	10.2	10.8	6	

SAMPLE DUPLICATE: 648859

Parameter	Units	30105103001 Result	Dup Result	RPD	Qualifiers
Percent Moisture	%	10.6	11.4	8	

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QUALIFIERS

Project: UPA M-061 BRADFORD

Pace Project No.: 30105102

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

BATCH QUALIFIERS

Batch: MSV/17741

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: MSV/17754

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

1c The sample was analyzed with in the specified method holding time but the data was unusable due to failure of the internal standards and surrogates because of the nature of the sample matrix.

H5 Reanalysis conducted in excess of EPA method holding time. Results confirm original analysis performed in hold time.

S2 Surrogate recovery outside laboratory control limits due to matrix interferences (confirmed by similar results from sample re-analysis).

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: UPA M-061 BRADFORD

Pace Project No.: 30105102

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30105102001	SB-10 (8-10')	EPA 8260	MSV/17754		
30105102002	SB-10 (10-12')	EPA 8260	MSV/17741		
30105102003	MW-8 (3-4')	EPA 8260	MSV/17741		
30105102004	MW-9 (3-4')	EPA 8260	MSV/17741		
30105102005	MW-9 (13-15')	EPA 8260	MSV/17741		
30105102006	MW-9 (28-30')	EPA 8260	MSV/17741		
30105102007	MW-8 (10-12')	EPA 8260	MSV/17741		
30105102008	MW-8 (17-19')	EPA 8260	MSV/17741		
30105102001	SB-10 (8-10')	ASTM D2974-87	PMST/4126		
30105102002	SB-10 (10-12')	ASTM D2974-87	PMST/4126		
30105102003	MW-8 (3-4')	ASTM D2974-87	PMST/4126		
30105102004	MW-9 (3-4')	ASTM D2974-87	PMST/4126		
30105102005	MW-9 (13-15')	ASTM D2974-87	PMST/4127		
30105102006	MW-9 (28-30')	ASTM D2974-87	PMST/4127		
30105102007	MW-8 (10-12')	ASTM D2974-87	PMST/4127		
30105102008	MW-8 (17-19')	ASTM D2974-87	PMST/4127		

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.



Section A Required Client Information: Company: 8ES Address: 301 Commerce Park Dr. Email To: Cumby Twp, Pa. 16866 Phone: 800 267-2549 Fax: Standard Requested Due Date/TAT: Standard		Section B Required Project Information: Report To: Eric Lebeck Copy To: Joan Andrews Purchase Order No.: Project Name: VPA M-061 Bradford Project Number: 0703938		Section C Invoice Information: Attention: Company Name: Address: Pace Quota Reference: Pace Project Manager: Pace Profile #:	
Page: 1 of 1 1663409		REGULATORY AGENCY <input type="checkbox"/> NPDES <input type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER <input type="checkbox"/> UST <input type="checkbox"/> RORA <input type="checkbox"/> OTHER _____			
Site Location STATE: PA					

ITEM #	Section D Required Client Information	Matrix Codes MATRIX I CODE DW WT Water WW Waste Water P Product SL Soil/Solid OL Oil WP Wipe AR Air TS Tissue OT Other	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives										Analysis Test ↑ Y/N	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
			COMPOSITE START	COMPOSITE END/GRAB			DATE	TIME	H ₂ SO ₄	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol	Other						
1	SB-10 (8-10')		DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME		
2	SB-10 (10-12')		10-9-13	1614	10-9-13	1614	4	X										001		
3	MW-8 (3-4')		10-10-13	0954	10-10-13	0954	1											002		
4	MW-9 (3-4')			1118		1118	1											003		
5	MW-9 (13-15')			1358		1358	1											004		
6	MW-9 (28-30')			1437		1437	1											005		
7	MW-8 (10-12')			1532		1532	1											006		
8	MW-8 (17-19')			1540		1540	1											007		
9																		008		
10																				
11																				
12																				

ORIGINAL

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007



Sample Condition Upon Receipt

Client Name: GES

Project # 30105062

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☒ Client ☐ Commercial ☐ Pace Other

Tracking #: _____

Custody Seal on Cooler/Box Present: ☐ yes ☒ no Seals intact: ☐ yes ☐ no

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☐ None ☐ Other

Thermometer Used 5 6 7

Type of Ice: Wet Blue ☐ None ☒ Samples on ice, cooling process has begun

Cooler Temperature 4.9, 2.3

Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C

Comments:

Date and Initials of person examining contents: PAC 10-12-13

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix: <u>SL</u>		
All containers needing preservation have been checked.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed <u>PAC</u> Lot # of added preservative
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution:

Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: Rachel S. Chomera

Date: 10/14/13

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

Client Name:

	Item No.	700
	Matrix Code	TJ
Glass Jar (120 / 250 / 500 / 1L)		
Soil Kit (2 SB, 1M, soil jar)		62
Chemistry (250 / 500 / 1L)		
Organics (1L)		
Nutrient (250 / 500)		
Phenolics (250 ml)		
TOC (40 ml / 250 ml)		
TOX (250 ml)		
Total Metals		
Dissolved Metals preserved Y N		
O & G (1L)		
TPH (1L)		
VOA (40 ml 30 ml)		
Cyanide (250 ml)		
Sulfide (500 ml)		
Bacteria (120 ml)		
Wipes / swipe/ smear/ filter		
Radchem Naigene (125 / 250 / 500 / 1L)		
Radchem Naigene (4/2 gal. / 1 gal.L)		
Cubitrainer' (500.ml / 4L)		
Ziploc		
Other		
Other		

December 19, 2013

Mr. Joseph Skurka
Groundwater & Environmental Services
301 Commerce Park Drive
Cranberry Twp, PA 16066

RE: Project: UPA M-061 Bradford
Pace Project No.: 30109000

Dear Mr. Skurka:

Enclosed are the analytical results for sample(s) received by the laboratory on December 06, 2013. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Rachel Christner

rachel.christner@pacelabs.com
Project Manager

Enclosures

cc: Ms. Joan Amodeo, Groundwater and Environmental
Services, Inc.
Ms. Jackie Jones, Groundwater & Environmental Services
Ms. Nicole Kramer, Groundwater & Environmental
Services
Ms. Erin Letrick, Groundwater & Environmental Services



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: UPA M-061 Bradford

Pace Project No.: 30109000

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4 Greensburg, PA 15601

ACLASS DOD-ELAP Accreditation #: ADE-1544

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California/TNI Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683

Guam/PADEP Certification

Hawaii/PADEP Certification

Idaho Certification

Illinois/PADEP Certification

Indiana/PADEP Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: 90133

Louisiana/TNI Certification #: LA080002

Louisiana/TNI Certification #: 4086

Maine Certification #: PA0091

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification

Missouri Certification #: 235

Montana Certification #: Cert 0082

Nevada Certification

New Hampshire/TNI Certification #: 2976

New Jersey/TNI Certification #: PA 051

New Mexico Certification

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Oregon/TNI Certification #: PA200002

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

South Dakota Certification

Tennessee Certification #: TN2867

Texas/TNI Certification #: T104704188

Utah/TNI Certification #: ANTE

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 460198

Washington Certification #: C868

West Virginia Certification #: 143

Wisconsin/PADEP Certification

Wyoming Certification #: 8TMS-Q

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: UPA M-061 Bradford

Pace Project No.: 30109000

Sample: MW-10 (2-3') **Lab ID: 30109000001** Collected: 12/04/13 16:28 Received: 12/06/13 16:10 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260						
Benzene	ND	ug/kg	142	50		12/18/13 12:50	71-43-2	
Ethylbenzene	ND	ug/kg	142	50		12/18/13 12:50	100-41-4	
Isopropylbenzene (Cumene)	179	ug/kg	142	50		12/18/13 12:50	98-82-8	
Methyl-tert-butyl ether	ND	ug/kg	142	50		12/18/13 12:50	1634-04-4	
Naphthalene	150	ug/kg	142	50		12/18/13 12:50	91-20-3	
Toluene	ND	ug/kg	142	50		12/18/13 12:50	108-88-3	
1,2,4-Trimethylbenzene	4930	ug/kg	142	50		12/18/13 12:50	95-63-6	
1,3,5-Trimethylbenzene	3870	ug/kg	142	50		12/18/13 12:50	108-67-8	
Xylene (Total)	ND	ug/kg	425	50		12/18/13 12:50	1330-20-7	
Surrogates								
Toluene-d8 (S)	102	%	81-117	50		12/18/13 12:50	2037-26-5	
4-Bromofluorobenzene (S)	104	%	74-121	50		12/18/13 12:50	460-00-4	
1,2-Dichloroethane-d4 (S)	98	%	80-120	50		12/18/13 12:50	17060-07-0	

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture	14.1	%	0.10	1		12/17/13 16:31
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REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: UPA M-061 Bradford

Pace Project No.: 30109000

Sample: MW-11 (3-4) **Lab ID: 30109000002** Collected: 12/05/13 08:15 Received: 12/06/13 16:10 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260						
Benzene	ND ug/kg		4.0	1		12/18/13 12:28	71-43-2	
Ethylbenzene	ND ug/kg		4.0	1		12/18/13 12:28	100-41-4	
Isopropylbenzene (Cumene)	ND ug/kg		4.0	1		12/18/13 12:28	98-82-8	
Methyl-tert-butyl ether	ND ug/kg		4.0	1		12/18/13 12:28	1634-04-4	
Naphthalene	ND ug/kg		4.0	1		12/18/13 12:28	91-20-3	
Toluene	ND ug/kg		4.0	1		12/18/13 12:28	108-88-3	
1,2,4-Trimethylbenzene	ND ug/kg		4.0	1		12/18/13 12:28	95-63-6	
1,3,5-Trimethylbenzene	ND ug/kg		4.0	1		12/18/13 12:28	108-67-8	
Xylene (Total)	ND ug/kg		12.0	1		12/18/13 12:28	1330-20-7	
Surrogates								
Toluene-d8 (S)	95 %		81-117	1		12/18/13 12:28	2037-26-5	
4-Bromofluorobenzene (S)	91 %		74-121	1		12/18/13 12:28	460-00-4	
1,2-Dichloroethane-d4 (S)	109 %		80-120	1		12/18/13 12:28	17060-07-0	
Percent Moisture		Analytical Method: ASTM D2974-87						
Percent Moisture	10.3 %		0.10	1		12/17/13 16:32		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: UPA M-061 Bradford

Pace Project No.: 30109000

Sample: MW-12 (4-5') **Lab ID:** 30109000003 Collected: 12/05/13 16:08 Received: 12/06/13 16:10 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260						
Benzene	ND	ug/kg	3.3	1		12/17/13 16:16	71-43-2	
Ethylbenzene	ND	ug/kg	3.3	1		12/17/13 16:16	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/kg	3.3	1		12/17/13 16:16	98-82-8	
Methyl-tert-butyl ether	ND	ug/kg	3.3	1		12/17/13 16:16	1634-04-4	
Naphthalene	ND	ug/kg	3.3	1		12/17/13 16:16	91-20-3	
Toluene	ND	ug/kg	3.3	1		12/17/13 16:16	108-88-3	
1,2,4-Trimethylbenzene	6.7	ug/kg	3.3	1		12/17/13 16:16	95-63-6	
1,3,5-Trimethylbenzene	4.2	ug/kg	3.3	1		12/17/13 16:16	108-67-8	
Xylene (Total)	ND	ug/kg	9.8	1		12/17/13 16:16	1330-20-7	
Surrogates								
Toluene-d8 (S)	98	%	81-117	1		12/17/13 16:16	2037-26-5	
4-Bromofluorobenzene (S)	93	%	74-121	1		12/17/13 16:16	460-00-4	
1,2-Dichloroethane-d4 (S)	107	%	80-120	1		12/17/13 16:16	17060-07-0	

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture	12.0	%	0.10	1		12/17/13 16:33		
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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: UPA M-061 Bradford

Pace Project No.: 30109000

QC Batch: MSV/18320

Analysis Method: EPA 8260

QC Batch Method: EPA 8260

Analysis Description: 8260 MSV UST-SOIL

Associated Lab Samples: 30109000003

METHOD BLANK: 671121

Matrix: Solid

Associated Lab Samples: 30109000003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/kg	ND	5.0	12/17/13 12:32	
1,3,5-Trimethylbenzene	ug/kg	ND	5.0	12/17/13 12:32	
Benzene	ug/kg	ND	5.0	12/17/13 12:32	
Ethylbenzene	ug/kg	ND	5.0	12/17/13 12:32	
Isopropylbenzene (Cumene)	ug/kg	ND	5.0	12/17/13 12:32	
Methyl-tert-butyl ether	ug/kg	ND	5.0	12/17/13 12:32	
Naphthalene	ug/kg	ND	5.0	12/17/13 12:32	
Toluene	ug/kg	ND	5.0	12/17/13 12:32	
Xylene (Total)	ug/kg	ND	15.0	12/17/13 12:32	
1,2-Dichloroethane-d4 (S)	%	120	80-120	12/17/13 12:32	
4-Bromofluorobenzene (S)	%	92	74-121	12/17/13 12:32	
Toluene-d8 (S)	%	88	81-117	12/17/13 12:32	

LABORATORY CONTROL SAMPLE: 671122

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/kg	20	16.4	82	62-121	
1,3,5-Trimethylbenzene	ug/kg	20	16.4	82	61-125	
Benzene	ug/kg	20	18.3	91	61-135	
Ethylbenzene	ug/kg	20	18.6	93	62-129	
Isopropylbenzene (Cumene)	ug/kg	20	17.2	86	68-131	
Methyl-tert-butyl ether	ug/kg	20	16.6	83	56-118	
Naphthalene	ug/kg	20	15.4	77	58-122	
Toluene	ug/kg	20	18.0	90	60-123	
Xylene (Total)	ug/kg	60	56.7	94	64-129	
1,2-Dichloroethane-d4 (S)	%			113	80-120	
4-Bromofluorobenzene (S)	%			91	74-121	
Toluene-d8 (S)	%			100	81-117	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: UPA M-061 Bradford

Pace Project No.: 30109000

QC Batch: MSV/18336

Analysis Method: EPA 8260

QC Batch Method: EPA 8260

Analysis Description: 8260 MSV UST-SOIL

Associated Lab Samples: 30109000001, 30109000002

METHOD BLANK: 671648

Matrix: Solid

Associated Lab Samples: 30109000001, 30109000002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/kg	ND	5.0	12/18/13 11:43	
1,3,5-Trimethylbenzene	ug/kg	ND	5.0	12/18/13 11:43	
Benzene	ug/kg	ND	5.0	12/18/13 11:43	
Ethylbenzene	ug/kg	ND	5.0	12/18/13 11:43	
Isopropylbenzene (Cumene)	ug/kg	ND	5.0	12/18/13 11:43	
Methyl-tert-butyl ether	ug/kg	ND	5.0	12/18/13 11:43	
Naphthalene	ug/kg	ND	5.0	12/18/13 11:43	
Toluene	ug/kg	ND	5.0	12/18/13 11:43	
Xylene (Total)	ug/kg	ND	15.0	12/18/13 11:43	
1,2-Dichloroethane-d4 (S)	%	102	80-120	12/18/13 11:43	
4-Bromofluorobenzene (S)	%	93	74-121	12/18/13 11:43	
Toluene-d8 (S)	%	93	81-117	12/18/13 11:43	

LABORATORY CONTROL SAMPLE: 671649

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/kg	20	17.8	89	62-121	
1,3,5-Trimethylbenzene	ug/kg	20	16.2	81	61-125	
Benzene	ug/kg	20	17.1	85	61-135	
Ethylbenzene	ug/kg	20	18.3	91	62-129	
Isopropylbenzene (Cumene)	ug/kg	20	17.1	86	68-131	
Methyl-tert-butyl ether	ug/kg	20	17.2	86	56-118	
Naphthalene	ug/kg	20	17.8	89	58-122	
Toluene	ug/kg	20	17.2	86	60-123	
Xylene (Total)	ug/kg	60	53.5	89	64-129	
1,2-Dichloroethane-d4 (S)	%			103	80-120	
4-Bromofluorobenzene (S)	%			96	74-121	
Toluene-d8 (S)	%			99	81-117	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: UPA M-061 Bradford

Pace Project No.: 30109000

QC Batch:	PMST/4250	Analysis Method:	ASTM D2974-87
QC Batch Method:	ASTM D2974-87	Analysis Description:	Dry Weight/Percent Moisture
Associated Lab Samples: 30109000001, 30109000002, 30109000003			

SAMPLE DUPLICATE: 671050

Parameter	Units	30109042001 Result	Dup Result	RPD	Qualifiers
Percent Moisture	%	16.4	15.2	8	

SAMPLE DUPLICATE: 671051

Parameter	Units	30109045008 Result	Dup Result	RPD	Qualifiers
Percent Moisture	%	11.8	12.9	8	

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: UPA M-061 Bradford

Pace Project No.: 30109000

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

BATCH QUALIFIERS

Batch: MSV/18320

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: MSV/18336

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: UPA M-061 Bradford

Pace Project No.: 30109000

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30109000001	MW-10 (2-3')	EPA 8260	MSV/18336		
30109000002	MW-11 (3-4')	EPA 8260	MSV/18336		
30109000003	MW-12 (4-5')	EPA 8260	MSV/18320		
30109000001	MW-10 (2-3')	ASTM D2974-87	PMST/4250		
30109000002	MW-11 (3-4')	ASTM D2974-87	PMST/4250		
30109000003	MW-12 (4-5')	ASTM D2974-87	PMST/4250		

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Section A Requested Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	6ES	Report To:	Einbathrick	Attention:	
Address:	301 Commerce Park Dr. Cranberry Twp., PA. 16066	Copy To:	Juan Amador	Company Name:	
Email To:		Purchase Order No.:		Address:	
Phone:		Project Name:	VPA M-061 Bondford	Pace Quote Reference:	
Fax:		Project Number:	0703978	Pace Project Manager:	
Requested Due Date/AT:	Standard			Pace Profile #:	

Page: 1 of 1
 1740794

REGULATORY AGENCY
☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location: PA
 STATE:

[illegible]



Sample Condition Upon Receipt

Client Name: GES

Project #

PAE
30109000

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☒ Pace Other _____

Tracking #: _____

Custody Seal on Cooler/Box Present: ☐ yes ☒ no Seals intact: ☐ yes ☐ no

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☐ None ☒ Other Ziploc / foam

Thermometer Used 5 6 7

Type of Ice: Wet Blue None

☒ Samples on ice, cooling process has begun

Cooler Temperature

1.7

Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C

Comments:

Date and Initials of person examining contents: THW 12-10-13

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix:	<u>SL</u>	
All containers needing preservation have been checked.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed <u>THW</u> Lot # of added preservative
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution:

Field Data Required?

Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review:

Rachel S. Chittum

Date: 12/9/13

3010900

Q349

[illegible]

December 27, 2013

Mr. Joseph Skurka
Groundwater & Environmental Services
301 Commerce Park Drive
Cranberry Twp, PA 16066

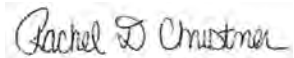
RE: Project: UPA M-061 Bradford
Pace Project No.: 30109584

Dear Mr. Skurka:

Enclosed are the analytical results for sample(s) received by the laboratory on December 13, 2013. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Rachel Christner

rachel.christner@pacelabs.com
Project Manager

Enclosures

cc: Ms. Joan Amodeo, Groundwater and Environmental
Services, Inc.
Ms. Jackie Jones, Groundwater & Environmental Services
Ms. Nicole Kramer, Groundwater & Environmental
Services
Ms. Erin Letrick, Groundwater & Environmental Services



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: UPA M-061 Bradford

Pace Project No.: 30109584

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4 Greensburg, PA 15601

ACLASS DOD-ELAP Accreditation #: ADE-1544

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California/TNI Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683

Guam/PADEP Certification

Hawaii/PADEP Certification

Idaho Certification

Illinois/PADEP Certification

Indiana/PADEP Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: 90133

Louisiana/TNI Certification #: LA080002

Louisiana/TNI Certification #: 4086

Maine Certification #: PA0091

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification

Missouri Certification #: 235

Montana Certification #: Cert 0082

Nevada Certification

New Hampshire/TNI Certification #: 2976

New Jersey/TNI Certification #: PA 051

New Mexico Certification

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Oregon/TNI Certification #: PA200002

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

South Dakota Certification

Tennessee Certification #: TN2867

Texas/TNI Certification #: T104704188

Utah/TNI Certification #: ANTE

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 460198

Washington Certification #: C868

West Virginia Certification #: 143

Wisconsin/PADEP Certification

Wyoming Certification #: 8TMS-Q

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: UPA M-061 Bradford

Pace Project No.: 30109584

Sample: MW-12 (9-11') **Lab ID:** 30109584001 **Collected:** 12/12/13 10:50 **Received:** 12/13/13 17:05 **Matrix:** Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260						
Benzene	2560	ug/kg	181	50		12/24/13 02:20	71-43-2	
Ethylbenzene	93400	ug/kg	3610	1000		12/24/13 02:42	100-41-4	
Isopropylbenzene (Cumene)	10200	ug/kg	181	50		12/24/13 02:20	98-82-8	
Methyl-tert-butyl ether	ND	ug/kg	181	50		12/24/13 02:20	1634-04-4	
Naphthalene	28500	ug/kg	3610	1000		12/24/13 02:42	91-20-3	
Toluene	104000	ug/kg	3610	1000		12/24/13 02:42	108-88-3	
1,2,4-Trimethylbenzene	445000	ug/kg	32300	5000		12/24/13 13:53	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	181	50		12/24/13 02:20	108-67-8	
Xylene (Total)	585000	ug/kg	10800	1000		12/24/13 02:42	1330-20-7	
Surrogates								
Toluene-d8 (S)	119	%	81-117	50		12/24/13 02:20	2037-26-5	S2
4-Bromofluorobenzene (S)	104	%	74-121	50		12/24/13 02:20	460-00-4	
1,2-Dichloroethane-d4 (S)	95	%	80-120	50		12/24/13 02:20	17060-07-0	

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture	22.5	%	0.10	1		12/26/13 17:37		
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REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: UPA M-061 Bradford

Pace Project No.: 30109584

Sample: MW-12 (13-15') **Lab ID:** 30109584002 **Collected:** 12/12/13 11:17 **Received:** 12/13/13 17:05 **Matrix:** Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260						
Benzene	7.0	ug/kg	4.4	1		12/24/13 01:35	71-43-2	
Ethylbenzene	156	ug/kg	4.4	1		12/24/13 01:35	100-41-4	
Isopropylbenzene (Cumene)	22.0	ug/kg	4.4	1		12/24/13 01:35	98-82-8	
Methyl-tert-butyl ether	ND	ug/kg	4.4	1		12/24/13 01:35	1634-04-4	
Naphthalene	17.3	ug/kg	4.4	1		12/24/13 01:35	91-20-3	
Toluene	158	ug/kg	4.4	1		12/24/13 01:35	108-88-3	
1,2,4-Trimethylbenzene	343	ug/kg	4.4	1		12/24/13 01:35	95-63-6	
1,3,5-Trimethylbenzene	141	ug/kg	4.4	1		12/24/13 01:35	108-67-8	
Xylene (Total)	827	ug/kg	13.2	1		12/24/13 01:35	1330-20-7	
Surrogates								
Toluene-d8 (S)	99	%	81-117	1		12/24/13 01:35	2037-26-5	
4-Bromofluorobenzene (S)	101	%	74-121	1		12/24/13 01:35	460-00-4	
1,2-Dichloroethane-d4 (S)	105	%	80-120	1		12/24/13 01:35	17060-07-0	

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture	12.3	%	0.10	1		12/26/13 17:39		
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REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: UPA M-061 Bradford

Pace Project No.: 30109584

Sample: MW-11 (30-32') **Lab ID:** 30109584003 Collected: 12/12/13 16:10 Received: 12/13/13 17:05 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260						
Benzene	ND	ug/kg	4.0	1		12/24/13 01:58	71-43-2	
Ethylbenzene	ND	ug/kg	4.0	1		12/24/13 01:58	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/kg	4.0	1		12/24/13 01:58	98-82-8	
Methyl-tert-butyl ether	ND	ug/kg	4.0	1		12/24/13 01:58	1634-04-4	
Naphthalene	ND	ug/kg	4.0	1		12/24/13 01:58	91-20-3	
Toluene	ND	ug/kg	4.0	1		12/24/13 01:58	108-88-3	
1,2,4-Trimethylbenzene	6.4	ug/kg	4.0	1		12/24/13 01:58	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	4.0	1		12/24/13 01:58	108-67-8	
Xylene (Total)	ND	ug/kg	12.0	1		12/24/13 01:58	1330-20-7	
Surrogates								
Toluene-d8 (S)	99 %		81-117	1		12/24/13 01:58	2037-26-5	
4-Bromofluorobenzene (S)	93 %		74-121	1		12/24/13 01:58	460-00-4	
1,2-Dichloroethane-d4 (S)	110 %		80-120	1		12/24/13 01:58	17060-07-0	

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture	13.3 %	0.10	1	12/26/13 17:40
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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: UPA M-061 Bradford

Pace Project No.: 30109584

QC Batch: MSV/18384

Analysis Method: EPA 8260

QC Batch Method: EPA 8260

Analysis Description: 8260 MSV UST-SOIL

Associated Lab Samples: 30109584001, 30109584002, 30109584003

METHOD BLANK: 673680

Matrix: Solid

Associated Lab Samples: 30109584001, 30109584002, 30109584003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/kg	ND	5.0	12/23/13 17:03	
1,3,5-Trimethylbenzene	ug/kg	ND	5.0	12/23/13 17:03	
Benzene	ug/kg	ND	5.0	12/23/13 17:03	
Ethylbenzene	ug/kg	ND	5.0	12/23/13 17:03	
Isopropylbenzene (Cumene)	ug/kg	ND	5.0	12/23/13 17:03	
Methyl-tert-butyl ether	ug/kg	ND	5.0	12/23/13 17:03	
Naphthalene	ug/kg	ND	5.0	12/23/13 17:03	
Toluene	ug/kg	ND	5.0	12/23/13 17:03	
Xylene (Total)	ug/kg	ND	15.0	12/23/13 17:03	
1,2-Dichloroethane-d4 (S)	%	101	80-120	12/23/13 17:03	
4-Bromofluorobenzene (S)	%	96	74-121	12/23/13 17:03	
Toluene-d8 (S)	%	100	81-117	12/23/13 17:03	

LABORATORY CONTROL SAMPLE: 673681

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/kg	20	19.4	97	62-121	
1,3,5-Trimethylbenzene	ug/kg	20	19.2	96	61-125	
Benzene	ug/kg	20	21.8	109	61-135	
Ethylbenzene	ug/kg	20	21.5	107	62-129	
Isopropylbenzene (Cumene)	ug/kg	20	20.1	100	68-131	
Methyl-tert-butyl ether	ug/kg	20	20.0	100	56-118	
Naphthalene	ug/kg	20	19.5	97	58-122	
Toluene	ug/kg	20	21.3	107	60-123	
Xylene (Total)	ug/kg	60	66.9	112	64-129	
1,2-Dichloroethane-d4 (S)	%			97	80-120	
4-Bromofluorobenzene (S)	%			88	74-121	
Toluene-d8 (S)	%			101	81-117	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: UPA M-061 Bradford

Pace Project No.: 30109584

QC Batch:	PMST/4261	Analysis Method:	ASTM D2974-87
QC Batch Method:	ASTM D2974-87	Analysis Description:	Dry Weight/Percent Moisture
Associated Lab Samples: 30109584001, 30109584002, 30109584003			

SAMPLE DUPLICATE: 674554

Parameter	Units	30109363003 Result	Dup Result	RPD	Qualifiers
Percent Moisture	%	ND	0.13		

SAMPLE DUPLICATE: 674555

Parameter	Units	30109433001 Result	Dup Result	RPD	Qualifiers
Percent Moisture	%	21.5	22.7	5	

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: UPA M-061 Bradford

Pace Project No.: 30109584

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

S2 Surrogate recovery outside laboratory control limits due to matrix interferences (confirmed by similar results from sample re-analysis).

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: UPA M-061 Bradford

Pace Project No.: 30109584

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30109584001	MW-12 (9-11')	EPA 8260	MSV/18384		
30109584002	MW-12 (13-15')	EPA 8260	MSV/18384		
30109584003	MW-11 (30-32')	EPA 8260	MSV/18384		
30109584001	MW-12 (9-11')	ASTM D2974-87	PMST/4261		
30109584002	MW-12 (13-15')	ASTM D2974-87	PMST/4261		
30109584003	MW-11 (30-32')	ASTM D2974-87	PMST/4261		

REPORT OF LABORATORY ANALYSIS

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The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Analytical
www.pacelabs.com

Section A Required Client Information: Company: <u>GES</u> Address: <u>301 Commerce Park Dr</u> <u>Cranberry Twp, PA. 16066</u> Email To: _____ Phone: <u>800-267-2545</u> Fax: _____ Requested Due Date/TAT: <u>Standard</u>		Section B Required Project Information: Report To: <u>Erin Letrick</u> Copy To: <u>John Amodeo</u> Purchase Order No.: _____ Project Name: <u>VPA M-061 Bradford</u> Project Number: <u>0703938</u>		Section C Invoice Information: Attention: _____ Company Name: _____ Address: _____ Place Quote Reference: _____ Place Project Manager: _____ Place Profile #: _____		Page: <u>1</u> of <u>1</u> 1740792	
REGULATORY AGENCY <input type="checkbox"/> NPDES <input type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER <input type="checkbox"/> UST <input type="checkbox"/> RCRA <input type="checkbox"/> OTHER _____				Site Location STATE: <u>PA</u>			

[illegible]



Sample Condition Upon Receipt

Client Name: GESProject # 30109584Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☒ Pace Other _____

Tracking #: _____

Optional

Proj. Due Date: _____

Proj. Name: _____

Custody Seal on Cooler/Box Present: ☐ yes ☒ no Seals intact: ☐ yes ☐ noPacking Material: ☐ Bubble Wrap ☐ Bubble Bags ☐ None ☒ Other FoamThermometer Used 5 6 7Type of Ice: Wet Blue None☒ Samples on ice, cooling process has begunCooler Temperature 13

Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: MFC 12-13-13

Temp should be above freezing to 6°C

Comments:

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix: <u>SL</u>		
All containers needing preservation have been checked.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed <u>MFC</u> Lot # of added preservative
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution:

Field Data Required?

Y / N

Person Contacted: _____

Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: Barrel D. ChristianDate: 12/16/13

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

301095824

579

[illegible]

January 03, 2014

Mr. Joseph Skurka
Groundwater & Environmental Services
301 Commerce Park Drive
Cranberry Twp, PA 16066

RE: Project: UPA M-061 Bradford
Pace Project No.: 30109946

Dear Mr. Skurka:

Enclosed are the analytical results for sample(s) received by the laboratory on December 19, 2013. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Rachel Christner

rachel.christner@pacelabs.com
Project Manager

Enclosures

cc: Ms. Joan Amodeo, Groundwater and Environmental
Services, Inc.
Ms. Jackie Jones, Groundwater & Environmental Services
Ms. Nicole Kramer, Groundwater & Environmental
Services
Ms. Erin Letrick, Groundwater & Environmental Services



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: UPA M-061 Bradford

Pace Project No.: 30109946

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4 Greensburg, PA 15601

ACLASS DOD-ELAP Accreditation #: ADE-1544

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California/TNI Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683

Guam/PADEP Certification

Hawaii/PADEP Certification

Idaho Certification

Illinois/PADEP Certification

Indiana/PADEP Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: 90133

Louisiana/TNI Certification #: LA080002

Louisiana/TNI Certification #: 4086

Maine Certification #: PA0091

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification

Missouri Certification #: 235

Montana Certification #: Cert 0082

Nevada Certification

New Hampshire/TNI Certification #: 2976

New Jersey/TNI Certification #: PA 051

New Mexico Certification

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Oregon/TNI Certification #: PA200002

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

South Dakota Certification

Tennessee Certification #: TN2867

Texas/TNI Certification #: T104704188

Utah/TNI Certification #: ANTE

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 460198

Washington Certification #: C868

West Virginia Certification #: 143

Wisconsin/PADEP Certification

Wyoming Certification #: 8TMS-Q

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: UPA M-061 Bradford

Pace Project No.: 30109946

Sample: MW-10 (7-9) **Lab ID: 30109946001** Collected: 12/17/13 09:22 Received: 12/19/13 13:20 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260						
Benzene	ND	ug/kg	2.9	1		12/24/13 17:15	71-43-2	
Ethylbenzene	ND	ug/kg	2.9	1		12/24/13 17:15	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/kg	2.9	1		12/24/13 17:15	98-82-8	
Methyl-tert-butyl ether	ND	ug/kg	2.9	1		12/24/13 17:15	1634-04-4	
Naphthalene	ND	ug/kg	2.9	1		12/24/13 17:15	91-20-3	
Toluene	ND	ug/kg	2.9	1		12/24/13 17:15	108-88-3	
1,2,4-Trimethylbenzene	ND	ug/kg	2.9	1		12/24/13 17:15	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	2.9	1		12/24/13 17:15	108-67-8	
Xylene (Total)	ND	ug/kg	8.6	1		12/24/13 17:15	1330-20-7	
Surrogates								
Toluene-d8 (S)	96 %		81-117	1		12/24/13 17:15	2037-26-5	
4-Bromofluorobenzene (S)	93 %		74-121	1		12/24/13 17:15	460-00-4	
1,2-Dichloroethane-d4 (S)	114 %		80-120	1		12/24/13 17:15	17060-07-0	

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture	12.3 %	0.10	1	01/02/14 12:48
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REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: UPA M-061 Bradford

Pace Project No.: 30109946

Sample: MW-10 (30-32') **Lab ID:** 30109946002 **Collected:** 12/17/13 10:28 **Received:** 12/19/13 13:20 **Matrix:** Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260						
Benzene	ND	ug/kg	3.4	1		12/24/13 17:37	71-43-2	
Ethylbenzene	ND	ug/kg	3.4	1		12/24/13 17:37	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/kg	3.4	1		12/24/13 17:37	98-82-8	
Methyl-tert-butyl ether	ND	ug/kg	3.4	1		12/24/13 17:37	1634-04-4	
Naphthalene	ND	ug/kg	3.4	1		12/24/13 17:37	91-20-3	
Toluene	ND	ug/kg	3.4	1		12/24/13 17:37	108-88-3	
1,2,4-Trimethylbenzene	ND	ug/kg	3.4	1		12/24/13 17:37	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	3.4	1		12/24/13 17:37	108-67-8	
Xylene (Total)	ND	ug/kg	10.3	1		12/24/13 17:37	1330-20-7	
Surrogates								
Toluene-d8 (S)	93 %		81-117	1		12/24/13 17:37	2037-26-5	
4-Bromofluorobenzene (S)	97 %		74-121	1		12/24/13 17:37	460-00-4	
1,2-Dichloroethane-d4 (S)	122 %		80-120	1		12/24/13 17:37	17060-07-0	S3

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture	13.0 %	0.10	1	01/02/14 12:49
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REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: UPA M-061 Bradford

Pace Project No.: 30109946

Sample: SB-1/MW-13 (21-23') **Lab ID:** 30109946003 **Collected:** 12/17/13 15:33 **Received:** 12/19/13 13:20 **Matrix:** Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260						
Benzene	5.5	ug/kg	3.7	1		12/24/13 18:00	71-43-2	
Ethylbenzene	15.8	ug/kg	3.7	1		12/24/13 18:00	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/kg	3.7	1		12/24/13 18:00	98-82-8	
Methyl-tert-butyl ether	165	ug/kg	3.7	1		12/24/13 18:00	1634-04-4	
Naphthalene	ND	ug/kg	3.7	1		12/24/13 18:00	91-20-3	
Toluene	ND	ug/kg	3.7	1		12/24/13 18:00	108-88-3	
1,2,4-Trimethylbenzene	27.3	ug/kg	3.7	1		12/24/13 18:00	95-63-6	
1,3,5-Trimethylbenzene	10.3	ug/kg	3.7	1		12/24/13 18:00	108-67-8	
Xylene (Total)	76.0	ug/kg	11.1	1		12/24/13 18:00	1330-20-7	
Surrogates								
Toluene-d8 (S)	97	%	81-117	1		12/24/13 18:00	2037-26-5	
4-Bromofluorobenzene (S)	91	%	74-121	1		12/24/13 18:00	460-00-4	
1,2-Dichloroethane-d4 (S)	111	%	80-120	1		12/24/13 18:00	17060-07-0	

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture	13.0	%	0.10	1		01/02/14 12:49		
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REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: UPA M-061 Bradford

Pace Project No.: 30109946

Sample: SB-1/MW-13 (27-29) **Lab ID:** 30109946004 Collected: 12/17/13 16:16 Received: 12/19/13 13:20 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260						
Benzene	ND	ug/kg	3.8	1		12/24/13 18:22	71-43-2	
Ethylbenzene	ND	ug/kg	3.8	1		12/24/13 18:22	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/kg	3.8	1		12/24/13 18:22	98-82-8	
Methyl-tert-butyl ether	45.2	ug/kg	3.8	1		12/24/13 18:22	1634-04-4	
Naphthalene	ND	ug/kg	3.8	1		12/24/13 18:22	91-20-3	
Toluene	ND	ug/kg	3.8	1		12/24/13 18:22	108-88-3	
1,2,4-Trimethylbenzene	ND	ug/kg	3.8	1		12/24/13 18:22	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	3.8	1		12/24/13 18:22	108-67-8	
Xylene (Total)	ND	ug/kg	11.3	1		12/24/13 18:22	1330-20-7	
Surrogates								
Toluene-d8 (S)	93	%	81-117	1		12/24/13 18:22	2037-26-5	
4-Bromofluorobenzene (S)	94	%	74-121	1		12/24/13 18:22	460-00-4	
1,2-Dichloroethane-d4 (S)	114	%	80-120	1		12/24/13 18:22	17060-07-0	

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture	14.7	%	0.10	1		01/02/14 12:50
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REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: UPA M-061 Bradford

Pace Project No.: 30109946

Sample: **SB-1/MW-13 (33-35')** Lab ID: **30109946005** Collected: 12/18/13 08:20 Received: 12/19/13 13:20 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260						
Benzene	ND	ug/kg	3.5	1		12/24/13 18:45	71-43-2	
Ethylbenzene	ND	ug/kg	3.5	1		12/24/13 18:45	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/kg	3.5	1		12/24/13 18:45	98-82-8	
Methyl-tert-butyl ether	ND	ug/kg	3.5	1		12/24/13 18:45	1634-04-4	
Naphthalene	ND	ug/kg	3.5	1		12/24/13 18:45	91-20-3	
Toluene	ND	ug/kg	3.5	1		12/24/13 18:45	108-88-3	
1,2,4-Trimethylbenzene	ND	ug/kg	3.5	1		12/24/13 18:45	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	3.5	1		12/24/13 18:45	108-67-8	
Xylene (Total)	ND	ug/kg	10.4	1		12/24/13 18:45	1330-20-7	
Surrogates								
Toluene-d8 (S)	95 %		81-117	1		12/24/13 18:45	2037-26-5	
4-Bromofluorobenzene (S)	94 %		74-121	1		12/24/13 18:45	460-00-4	
1,2-Dichloroethane-d4 (S)	117 %		80-120	1		12/24/13 18:45	17060-07-0	

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture	16.0 %	0.10	1	01/02/14 12:50
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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: UPA M-061 Bradford

Pace Project No.: 30109946

QC Batch:	MSV/18392	Analysis Method:	EPA 8260
QC Batch Method:	EPA 8260	Analysis Description:	8260 MSV UST-SOIL
Associated Lab Samples:	30109946001, 30109946002, 30109946003, 30109946004, 30109946005		

METHOD BLANK:	673906	Matrix:	Solid
Associated Lab Samples:	30109946001, 30109946002, 30109946003, 30109946004, 30109946005		

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/kg	ND	5.0	12/24/13 16:52	
1,3,5-Trimethylbenzene	ug/kg	ND	5.0	12/24/13 16:52	
Benzene	ug/kg	ND	5.0	12/24/13 16:52	
Ethylbenzene	ug/kg	ND	5.0	12/24/13 16:52	
Isopropylbenzene (Cumene)	ug/kg	ND	5.0	12/24/13 16:52	
Methyl-tert-butyl ether	ug/kg	ND	5.0	12/24/13 16:52	
Naphthalene	ug/kg	ND	5.0	12/24/13 16:52	
Toluene	ug/kg	ND	5.0	12/24/13 16:52	
Xylene (Total)	ug/kg	ND	15.0	12/24/13 16:52	
1,2-Dichloroethane-d4 (S)	%	103	80-120	12/24/13 16:52	
4-Bromofluorobenzene (S)	%	91	74-121	12/24/13 16:52	
Toluene-d8 (S)	%	94	81-117	12/24/13 16:52	

LABORATORY CONTROL SAMPLE: 673907

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/kg	20	19.8	99	62-121	
1,3,5-Trimethylbenzene	ug/kg	20	19.1	95	61-125	
Benzene	ug/kg	20	21.6	108	61-135	
Ethylbenzene	ug/kg	20	21.1	106	62-129	
Isopropylbenzene (Cumene)	ug/kg	20	19.8	99	68-131	
Methyl-tert-butyl ether	ug/kg	20	20.3	101	56-118	
Naphthalene	ug/kg	20	19.5	97	58-122	
Toluene	ug/kg	20	20.8	104	60-123	
Xylene (Total)	ug/kg	60	63.0	105	64-129	
1,2-Dichloroethane-d4 (S)	%			96	80-120	
4-Bromofluorobenzene (S)	%			90	74-121	
Toluene-d8 (S)	%			100	81-117	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: UPA M-061 Bradford

Pace Project No.: 30109946

QC Batch: PMST/4267 Analysis Method: ASTM D2974-87
QC Batch Method: ASTM D2974-87 Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 30109946001, 30109946002, 30109946003, 30109946004, 30109946005

SAMPLE DUPLICATE: 676189

Parameter	Units	30110247001 Result	Dup Result	RPD	Qualifiers
Percent Moisture	%	0.10 U	0.14		

SAMPLE DUPLICATE: 676190

Parameter	Units	30110253001 Result	Dup Result	RPD	Qualifiers
Percent Moisture	%	83.2	82.9	0	

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: UPA M-061 Bradford

Pace Project No.: 30109946

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

S3 Surrogate recovery exceeded laboratory control limits. Analyte presence below reporting limits in associated samples. Results unaffected by high bias.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

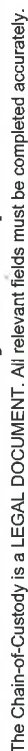
Project: UPA M-061 Bradford

Pace Project No.: 30109946

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30109946001	MW-10 (7-9')	EPA 8260	MSV/18392		
30109946002	MW-10 (30-32')	EPA 8260	MSV/18392		
30109946003	SB-1/MW-13 (21-23')	EPA 8260	MSV/18392		
30109946004	SB-1/MW-13 (27-29')	EPA 8260	MSV/18392		
30109946005	SB-1/MW-13 (33-35')	EPA 8260	MSV/18392		
30109946001	MW-10 (7-9')	ASTM D2974-87	PMST/4267		
30109946002	MW-10 (30-32')	ASTM D2974-87	PMST/4267		
30109946003	SB-1/MW-13 (21-23')	ASTM D2974-87	PMST/4267		
30109946004	SB-1/MW-13 (27-29')	ASTM D2974-87	PMST/4267		
30109946005	SB-1/MW-13 (33-35')	ASTM D2974-87	PMST/4267		

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The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	6ES	Report To:	Erin Letnick	Attention:	
Address:	3401 Commerce Park Dr. Cranberry Twp, PA. 16066	Copy To:	Jean Amodeo	Company Name:	
Email To:		Purchase Order No.:		Address:	
Phone:	800 267-2599	Project Name:	UPA M-061 Brand Fed	Pace Quote Reference:	
Fax:		Project Manager:		Pace Project Manager:	
Requested Due Date/TAT:	Standard	Project Number:	0703938	Pace Profile #:	

Page: 1 of 1

1741006

REGULATORY AGENCY
☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER _____

PA

Site Location
STATE: _____

[illegible]

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS				
							Temp In °C	Received on	Custody	Sealed Cooler	Samples Intact
ORIGINAL	John P - 16ES	12-19-13	0952	Simple Receipt	12-19-13	0950					
	John P - 16ES			John P 9:00	12-19	11:30					
	John P 9:00	12-19	1:30	John P 11:30	12-19-13	1330	41	Y	N	Y	
SAMPLER NAME AND SIGNATURE											
PRINT Name of SAMPLER: John P											
SIGNATURE of SAMPLER: John P											
DATE Signed (MM/DD/YY): 12/19/13											

Page 12 of 14



Sample Condition Upon Receipt

Client Name: LE Project # 30109946

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☒ Pace Other _____

Tracking #: _____

Custody Seal on Cooler/Box Present: ☐ yes ☒ no Seals intact: ☐ yes ☐ no

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☐ None ☒ Other Foam

Thermometer Used 5 6 (7)

Type of Ice: We Blue None ☒ Samples on ice, cooling process has begun

Cooler Temperature 4.1

Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C

Comments:

Date and Initials of person examining contents: MAC 12/19/13

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix: <u>SL</u>		
All containers needing preservation have been checked.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed <u>MAC</u> Lot # of added preservative
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution:

Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review:

Rachel S. Chittam

Date: 12/19/13

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

301099486

654

[illegible]

June 20, 2014

Ms. Erin Letrick
Groundwater & Environmental Services
301 Commerce Park Drive
Cranberry Twp, PA 16066

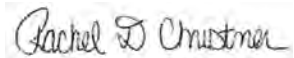
RE: Project: UPA M-061 Bradford
Pace Project No.: 30122184

Dear Ms. Letrick:

Enclosed are the analytical results for sample(s) received by the laboratory on June 06, 2014. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Rachel Christner
rachel.christner@pacelabs.com
Project Manager

Enclosures

cc: Ms. Joan Amodeo, Groundwater and Environmental
Services, Inc.
Ms. Caitlin Conte, Groundwater & Environmental Services,
Inc.



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: UPA M-061 Bradford

Pace Project No.: 30122184

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4 Greensburg, PA 15601

ACCLASS DOD-ELAP Accreditation #: ADE-1544

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California/TNI Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683

Guam/PADEP Certification

Hawaii/PADEP Certification

Idaho Certification

Illinois/PADEP Certification

Indiana/PADEP Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: 90133

Louisiana DHH/TNI Certification #: LA140008

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: PA00091

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification

Missouri Certification #: 235

Montana Certification #: Cert 0082

Nebraska Certification #: NE-05-29-14

Nevada Certification

New Hampshire/TNI Certification #: 2976

New Jersey/TNI Certification #: PA 051

New Mexico Certification

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Oregon/TNI Certification #: PA200002

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

South Dakota Certification

Tennessee Certification #: TN2867

Texas/TNI Certification #: T104704188

Utah/TNI Certification #: PA014572014-4

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 460198

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin/PADEP Certification

Wyoming Certification #: 8TMS-Q

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: UPA M-061 Bradford

Pace Project No.: 30122184

Sample: MW-15 (4-5') **Lab ID:** 30122184001 **Collected:** 06/02/14 14:13 **Received:** 06/06/14 13:25 **Matrix:** Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260B						
Benzene	ND	ug/kg	2.6	1		06/12/14 18:52	71-43-2	
Ethylbenzene	ND	ug/kg	2.6	1		06/12/14 18:52	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/kg	2.6	1		06/12/14 18:52	98-82-8	
Methyl-tert-butyl ether	ND	ug/kg	2.6	1		06/12/14 18:52	1634-04-4	
Naphthalene	ND	ug/kg	2.6	1		06/12/14 18:52	91-20-3	
Toluene	ND	ug/kg	2.6	1		06/12/14 18:52	108-88-3	
1,2,4-Trimethylbenzene	ND	ug/kg	2.6	1		06/12/14 18:52	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	2.6	1		06/12/14 18:52	108-67-8	
Xylene (Total)	ND	ug/kg	7.7	1		06/12/14 18:52	1330-20-7	
Surrogates								
Toluene-d8 (S)	97 %		81-117	1		06/12/14 18:52	2037-26-5	
4-Bromofluorobenzene (S)	103 %		74-121	1		06/12/14 18:52	460-00-4	
1,2-Dichloroethane-d4 (S)	119 %		80-120	1		06/12/14 18:52	17060-07-0	

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture	15.4 %		0.10	1		06/19/14 16:06		
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REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: UPA M-061 Bradford

Pace Project No.: 30122184

Sample: MW-16 (4-5') Lab ID: 30122184002 Collected: 06/02/14 15:18 Received: 06/06/14 13:25 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260B						
Benzene	ND	ug/kg	5.4	1		06/12/14 19:19	71-43-2	
Ethylbenzene	ND	ug/kg	5.4	1		06/12/14 19:19	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/kg	5.4	1		06/12/14 19:19	98-82-8	
Methyl-tert-butyl ether	ND	ug/kg	5.4	1		06/12/14 19:19	1634-04-4	
Naphthalene	ND	ug/kg	5.4	1		06/12/14 19:19	91-20-3	
Toluene	ND	ug/kg	5.4	1		06/12/14 19:19	108-88-3	
1,2,4-Trimethylbenzene	ND	ug/kg	5.4	1		06/12/14 19:19	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	5.4	1		06/12/14 19:19	108-67-8	
Xylene (Total)	ND	ug/kg	16.1	1		06/12/14 19:19	1330-20-7	
Surrogates								
Toluene-d8 (S)	93 %		81-117	1		06/12/14 19:19	2037-26-5	
4-Bromofluorobenzene (S)	106 %		74-121	1		06/12/14 19:19	460-00-4	
1,2-Dichloroethane-d4 (S)	114 %		80-120	1		06/12/14 19:19	17060-07-0	

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture	14.2 %	0.10	1	06/19/14 16:06
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REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: UPA M-061 Bradford

Pace Project No.: 30122184

Sample: MW-16 (9-11') **Lab ID:** 30122184003 **Collected:** 06/05/14 08:19 **Received:** 06/06/14 13:25 **Matrix:** Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260B						
Benzene	ND	ug/kg	3.9	1		06/12/14 19:46	71-43-2	
Ethylbenzene	ND	ug/kg	3.9	1		06/12/14 19:46	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/kg	3.9	1		06/12/14 19:46	98-82-8	
Methyl-tert-butyl ether	ND	ug/kg	3.9	1		06/12/14 19:46	1634-04-4	
Naphthalene	ND	ug/kg	3.9	1		06/12/14 19:46	91-20-3	
Toluene	ND	ug/kg	3.9	1		06/12/14 19:46	108-88-3	
1,2,4-Trimethylbenzene	ND	ug/kg	3.9	1		06/12/14 19:46	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	3.9	1		06/12/14 19:46	108-67-8	
Xylene (Total)	ND	ug/kg	11.6	1		06/12/14 19:46	1330-20-7	
Surrogates								
Toluene-d8 (S)	90 %		81-117	1		06/12/14 19:46	2037-26-5	
4-Bromofluorobenzene (S)	100 %		74-121	1		06/12/14 19:46	460-00-4	
1,2-Dichloroethane-d4 (S)	118 %		80-120	1		06/12/14 19:46	17060-07-0	

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture	14.4 %		0.10	1		06/19/14 16:07		
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REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: UPA M-061 Bradford

Pace Project No.: 30122184

Sample: MW-15 (9-9.5') **Lab ID:** 30122184004 **Collected:** 06/05/14 10:50 **Received:** 06/06/14 13:25 **Matrix:** Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260B						
Benzene	ND	ug/kg	3.1	1		06/12/14 20:13	71-43-2	
Ethylbenzene	ND	ug/kg	3.1	1		06/12/14 20:13	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/kg	3.1	1		06/12/14 20:13	98-82-8	
Methyl-tert-butyl ether	ND	ug/kg	3.1	1		06/12/14 20:13	1634-04-4	
Naphthalene	ND	ug/kg	3.1	1		06/12/14 20:13	91-20-3	
Toluene	ND	ug/kg	3.1	1		06/12/14 20:13	108-88-3	
1,2,4-Trimethylbenzene	ND	ug/kg	3.1	1		06/12/14 20:13	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	3.1	1		06/12/14 20:13	108-67-8	
Xylene (Total)	ND	ug/kg	9.4	1		06/12/14 20:13	1330-20-7	
Surrogates								
Toluene-d8 (S)	91	%	81-117	1		06/12/14 20:13	2037-26-5	
4-Bromofluorobenzene (S)	105	%	74-121	1		06/12/14 20:13	460-00-4	
1,2-Dichloroethane-d4 (S)	120	%	80-120	1		06/12/14 20:13	17060-07-0	

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture	9.5	%	0.10	1		06/19/14 16:08
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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: UPA M-061 Bradford

Pace Project No.: 30122184

QC Batch:	MSV/19936	Analysis Method:	EPA 8260B
QC Batch Method:	EPA 8260B	Analysis Description:	8260 MSV UST-SOIL
Associated Lab Samples:	30122184001, 30122184002, 30122184003, 30122184004		

METHOD BLANK:	742783	Matrix:	Solid
Associated Lab Samples:	30122184001, 30122184002, 30122184003, 30122184004		

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/kg	ND	5.0	06/12/14 12:33	
1,3,5-Trimethylbenzene	ug/kg	ND	5.0	06/12/14 12:33	
Benzene	ug/kg	ND	5.0	06/12/14 12:33	
Ethylbenzene	ug/kg	ND	5.0	06/12/14 12:33	
Isopropylbenzene (Cumene)	ug/kg	ND	5.0	06/12/14 12:33	
Methyl-tert-butyl ether	ug/kg	ND	5.0	06/12/14 12:33	
Naphthalene	ug/kg	ND	5.0	06/12/14 12:33	
Toluene	ug/kg	ND	5.0	06/12/14 12:33	
Xylene (Total)	ug/kg	ND	15.0	06/12/14 12:33	
1,2-Dichloroethane-d4 (S)	%	105	80-120	06/12/14 12:33	
4-Bromofluorobenzene (S)	%	102	74-121	06/12/14 12:33	
Toluene-d8 (S)	%	101	81-117	06/12/14 12:33	

LABORATORY CONTROL SAMPLE: 742784

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/kg	20	18.5	93	62-121	
1,3,5-Trimethylbenzene	ug/kg	20	19.1	96	61-125	
Benzene	ug/kg	20	16.3	81	61-135	
Ethylbenzene	ug/kg	20	17.5	87	62-129	
Isopropylbenzene (Cumene)	ug/kg	20	19.7	98	68-131	
Methyl-tert-butyl ether	ug/kg	20	17.5	88	56-118	
Naphthalene	ug/kg	20	18.0	90	58-122	
Toluene	ug/kg	20	17.2	86	60-123	
Xylene (Total)	ug/kg	60	53.4	89	64-129	
1,2-Dichloroethane-d4 (S)	%			108	80-120	
4-Bromofluorobenzene (S)	%			100	74-121	
Toluene-d8 (S)	%			103	81-117	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: UPA M-061 Bradford

Pace Project No.: 30122184

QC Batch: PMST/4575 Analysis Method: ASTM D2974-87
QC Batch Method: ASTM D2974-87 Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 30122184001, 30122184002, 30122184003, 30122184004

SAMPLE DUPLICATE: 745667

Parameter	Units	30122142003 Result	Dup Result	RPD	Qualifiers
Percent Moisture	%	36.0	37.0	3	

SAMPLE DUPLICATE: 745668

Parameter	Units	30122184004 Result	Dup Result	RPD	Qualifiers
Percent Moisture	%	9.5	10.8	13	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: UPA M-061 Bradford

Pace Project No.: 30122184

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

LOD - Limit of Detection.

LOQ - Limit of Quantitation.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

BATCH QUALIFIERS

Batch: MSV/19936

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: UPA M-061 Bradford

Pace Project No.: 30122184

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30122184001	MW-15 (4-5')	EPA 8260B	MSV/19936		
30122184002	MW-16 (4-5')	EPA 8260B	MSV/19936		
30122184003	MW-16 (9-11')	EPA 8260B	MSV/19936		
30122184004	MW-15 (9-9.5')	EPA 8260B	MSV/19936		
30122184001	MW-15 (4-5')	ASTM D2974-87	PMST/4575		
30122184002	MW-16 (4-5')	ASTM D2974-87	PMST/4575		
30122184003	MW-16 (9-11')	ASTM D2974-87	PMST/4575		
30122184004	MW-15 (9-9.5')	ASTM D2974-87	PMST/4575		

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company: GES		Report To: Eric Letwick		Attention:	
Address: 301 Commerce Park Dr.		Copy To: Joan Amadio		Company Name:	
Email To: Cranberry Twp, PA 16066		Purchase Order No.: VPA M-061 BrndFord		Address:	
Phone: 800 267-2549 Fax:		Project Name: VPA		Pace Quote Reference:	
Requested Due Date/TAT: Standard		Project Number: 0703938		Pace Project Manager:	
				Pace Profile #:	
				Site Location	
				STATE: PA	
				REGULATORY AGENCY	
				<input type="checkbox"/> NPDES <input type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER <input type="checkbox"/> UST <input type="checkbox"/> RCRA <input type="checkbox"/> OTHER	

Page: **1** of **1**

1802774

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives	W / N	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Pace Project No. / Lab I.D.
				COMPOSITE START	COMPOSITE END/GRAB							
1	MW-15 (4-5-)	DW WT WW P SL OL WP AR TS OT	G	DATE	TIME		4	Unpreserved	X			001
2	MW-16 (4-5-)		G	DATE	TIME		1	NaOH	X			002
3	MW-16 (9-11-)		G	DATE	TIME		1	HCl	X			003
4	MW-15 (9-9.5-)		G	DATE	TIME		1	HNO ₃	X			004
5								H ₂ SO ₄				
6								Other				
7												
8												
9												
10												
11												
12												

ADDITIONAL COMMENTS		RELINQUISHED BY / AFFILIATION		DATE	TIME	ACCEPTED BY / AFFILIATION		DATE	TIME	SAMPLE CONDITIONS		
		J. P. Miller		6-6-14	0900	Sample Analyzed		6-6-14	0905			
		J. P. Miller		6-6-14	1605	J. P. Miller		6-6-14	1325			
		J. P. Miller		6-6-14	1605	J. P. Miller		6-6-14	1325	Y	N	Y

SAMPLER NAME AND SIGNATURE	
PRINT Name of SAMPLER: J. P. Miller	DATE Signed (MM/DD/YY): 6-6-14
SIGNATURE of SAMPLER: <i>J. P. Miller</i>	

ORIGINAL



Sample Condition Upon Receipt

JSH

Client Name: GES

Project # 30122184

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☒ Pace Other _____

Tracking #: _____

Custody Seal on Cooler/Box Present: ☐ yes ☒ no Seals intact: ☐ yes ☐ no

Optional
Proj. Due Date:
Proj. Name:

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☐ None ☒ Other foam

Thermometer Used (6) 7 8

Type of Ice: (Wet) Blue None

☒ Samples on ice, cooling process has begun

Cooler Temperature 0.5

Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: AMC 6-6-14

Temp should be above freezing to 6°C

Comments:

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix:	<u>SL</u>	
All containers needing preservation have been checked.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
exceptions: VOA, coliform, TOC, O&G, W-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed <u>AMC</u> Lot # of added preservative
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution:

Field Data Required?

Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review:

Garner & Chatter

Date: 6/9/14

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

Project Number:

Client Name: _____

[illegible]

November 24, 2014

Ms. Erin Letrick
Groundwater & Environmental Services
301 Commerce Park Drive
Cranberry Twp, PA 16066

RE: Project: UPA-M061
Pace Project No.: 30133978

Dear Ms. Letrick:

Enclosed are the analytical results for sample(s) received by the laboratory on November 08, 2014. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Rachel Christner
rachel.christner@pacelabs.com
Project Manager

Enclosures

cc: Ms. Joan Amodeo, Groundwater and Environmental
Services, Inc.
Mr. Joe Hinkle, Groundwater & Environmental Services



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: UPA-M061

Pace Project No.: 30133978

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

ACCLASS DOD-ELAP Accreditation #: ADE-1544

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California/TNI Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683

Guam/PADEP Certification

Hawaii/PADEP Certification

Idaho Certification

Illinois/PADEP Certification

Indiana/PADEP Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: 90133

Louisiana DHH/TNI Certification #: LA140008

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: PA00091

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification

Missouri Certification #: 235

Montana Certification #: Cert 0082

Nebraska Certification #: NE-05-29-14

Nevada Certification

New Hampshire/TNI Certification #: 2976

New Jersey/TNI Certification #: PA 051

New Mexico Certification

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Oregon/TNI Certification #: PA200002

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

South Dakota Certification

Tennessee Certification #: TN2867

Texas/TNI Certification #: T104704188

Utah/TNI Certification #: PA014572014-4

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 460198

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin/PADEP Certification

Wyoming Certification #: 8TMS-Q

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: UPA-M061

Pace Project No.: 30133978

Sample: MW-21 (2-3') **Lab ID: 30133978001** Collected: 11/06/14 12:05 Received: 11/08/14 11:30 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260B						
Benzene	ND	ug/kg	4.1	1		11/19/14 14:35	71-43-2	M5
Ethylbenzene	ND	ug/kg	4.1	1		11/19/14 14:35	100-41-4	M5
Isopropylbenzene (Cumene)	ND	ug/kg	4.1	1		11/19/14 14:35	98-82-8	M5
Methyl-tert-butyl ether	ND	ug/kg	4.1	1		11/19/14 14:35	1634-04-4	M5
Naphthalene	ND	ug/kg	4.1	1		11/19/14 14:35	91-20-3	M5
Toluene	ND	ug/kg	4.1	1		11/19/14 14:35	108-88-3	M5
1,2,4-Trimethylbenzene	ND	ug/kg	4.1	1		11/19/14 14:35	95-63-6	M5
1,3,5-Trimethylbenzene	ND	ug/kg	4.1	1		11/19/14 14:35	108-67-8	M5
Xylene (Total)	ND	ug/kg	12.3	1		11/19/14 14:35	1330-20-7	M5
Surrogates								
Toluene-d8 (S)	95 %		73-124	1		11/19/14 14:35	2037-26-5	M5
4-Bromofluorobenzene (S)	105 %		71-124	1		11/19/14 14:35	460-00-4	M5
1,2-Dichloroethane-d4 (S)	112 %		83-138	1		11/19/14 14:35	17060-07-0	M5

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture	17.5 %	0.10	1	11/21/14 11:44
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REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: UPA-M061

Pace Project No.: 30133978

Sample: MW-21 (4-5') Lab ID: 30133978002 Collected: 11/06/14 12:15 Received: 11/08/14 11:30 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260B						
Benzene	ND ug/kg		4.3	1		11/19/14 15:02	71-43-2	M5
Ethylbenzene	ND ug/kg		4.3	1		11/19/14 15:02	100-41-4	M5
Isopropylbenzene (Cumene)	ND ug/kg		4.3	1		11/19/14 15:02	98-82-8	M5
Methyl-tert-butyl ether	ND ug/kg		4.3	1		11/19/14 15:02	1634-04-4	M5
Naphthalene	ND ug/kg		4.3	1		11/19/14 15:02	91-20-3	M5
Toluene	ND ug/kg		4.3	1		11/19/14 15:02	108-88-3	M5
1,2,4-Trimethylbenzene	ND ug/kg		4.3	1		11/19/14 15:02	95-63-6	M5
1,3,5-Trimethylbenzene	ND ug/kg		4.3	1		11/19/14 15:02	108-67-8	M5
Xylene (Total)	ND ug/kg		12.8	1		11/19/14 15:02	1330-20-7	M5
Surrogates								
Toluene-d8 (S)	92 %		73-124	1		11/19/14 15:02	2037-26-5	M5
4-Bromofluorobenzene (S)	107 %		71-124	1		11/19/14 15:02	460-00-4	M5
1,2-Dichloroethane-d4 (S)	106 %		83-138	1		11/19/14 15:02	17060-07-0	M5

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture	15.4 %	0.10	1	11/21/14 11:45
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REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: UPA-M061

Pace Project No.: 30133978

Sample: MW-22 (4-5') Lab ID: 30133978003 Collected: 11/06/14 11:55 Received: 11/08/14 11:30 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260B						
Benzene	54.1	ug/kg	4.6	1		11/19/14 15:29	71-43-2	M5
Ethylbenzene	ND	ug/kg	4.6	1		11/19/14 15:29	100-41-4	M5
Isopropylbenzene (Cumene)	7.0	ug/kg	4.6	1		11/19/14 15:29	98-82-8	M5
Methyl-tert-butyl ether	ND	ug/kg	4.6	1		11/19/14 15:29	1634-04-4	M5
Naphthalene	91.1	ug/kg	4.6	1		11/19/14 15:29	91-20-3	M5
Toluene	5.9	ug/kg	4.6	1		11/19/14 15:29	108-88-3	M5
1,2,4-Trimethylbenzene	19.6	ug/kg	4.6	1		11/19/14 15:29	95-63-6	M5
1,3,5-Trimethylbenzene	22.4	ug/kg	4.6	1		11/19/14 15:29	108-67-8	M5
Xylene (Total)	20.9	ug/kg	13.9	1		11/19/14 15:29	1330-20-7	M5
Surrogates								
Toluene-d8 (S)	84	%	73-124	1		11/19/14 15:29	2037-26-5	M5
4-Bromofluorobenzene (S)	95	%	71-124	1		11/19/14 15:29	460-00-4	M5
1,2-Dichloroethane-d4 (S)	109	%	83-138	1		11/19/14 15:29	17060-07-0	M5

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture	21.9	%	0.10	1		11/21/14 11:45		
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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: UPA-M061

Pace Project No.: 30133978

QC Batch: MSV/21642

Analysis Method: EPA 8260B

QC Batch Method: EPA 8260B

Analysis Description: 8260 MSV UST-SOIL

Associated Lab Samples: 30133978001, 30133978002, 30133978003

METHOD BLANK: 819275

Matrix: Solid

Associated Lab Samples: 30133978001, 30133978002, 30133978003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/kg	ND	5.0	11/19/14 12:11	M5
1,3,5-Trimethylbenzene	ug/kg	ND	5.0	11/19/14 12:11	M5
Benzene	ug/kg	ND	5.0	11/19/14 12:11	M5
Ethylbenzene	ug/kg	ND	5.0	11/19/14 12:11	M5
Isopropylbenzene (Cumene)	ug/kg	ND	5.0	11/19/14 12:11	M5
Methyl-tert-butyl ether	ug/kg	ND	5.0	11/19/14 12:11	M5
Naphthalene	ug/kg	ND	5.0	11/19/14 12:11	M5
Toluene	ug/kg	ND	5.0	11/19/14 12:11	M5
Xylene (Total)	ug/kg	ND	15.0	11/19/14 12:11	M5
1,2-Dichloroethane-d4 (S)	%	102	83-138	11/19/14 12:11	M5
4-Bromofluorobenzene (S)	%	97	71-124	11/19/14 12:11	M5
Toluene-d8 (S)	%	94	73-124	11/19/14 12:11	M5

LABORATORY CONTROL SAMPLE: 819277

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/kg	20	22.9	115	54-131	M5
1,3,5-Trimethylbenzene	ug/kg	20	23.1	116	54-131	M5
Benzene	ug/kg	20	25.1	126	52-126	M5
Ethylbenzene	ug/kg	20	22.7	113	54-128	M5
Isopropylbenzene (Cumene)	ug/kg	20	24.6	123	58-144	M5
Methyl-tert-butyl ether	ug/kg	20	21.3	107	57-129	M5
Naphthalene	ug/kg	20	19.5	97	36-152	M5
Toluene	ug/kg	20	22.2	111	53-127	M5
Xylene (Total)	ug/kg	60	67.6	113	53-127	M5
1,2-Dichloroethane-d4 (S)	%			100	83-138	M5
4-Bromofluorobenzene (S)	%			99	71-124	M5
Toluene-d8 (S)	%			97	73-124	M5

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: UPA-M061

Pace Project No.: 30133978

QC Batch: PMST/4988

Analysis Method: ASTM D2974-87

QC Batch Method: ASTM D2974-87

Analysis Description: Dry Weight/Percent Moisture

Associated Lab Samples: 30133978001, 30133978002, 30133978003

SAMPLE DUPLICATE: 820536

Parameter	Units	30132863001 Result	Dup Result	RPD	Qualifiers
Percent Moisture	%	17.4	17.5	0	

SAMPLE DUPLICATE: 820537

Parameter	Units	30133998001 Result	Dup Result	RPD	Qualifiers
Percent Moisture	%	22.8	22.2	3	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: UPA-M061

Pace Project No.: 30133978

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

BATCH QUALIFIERS

Batch: MSV/21642

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

M5 A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: UPA-M061

Pace Project No.: 30133978

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30133978001	MW-21 (2-3')	EPA 8260B	MSV/21642		
30133978002	MW-21 (4-5')	EPA 8260B	MSV/21642		
30133978003	MW-22 (4-5')	EPA 8260B	MSV/21642		
30133978001	MW-21 (2-3')	ASTM D2974-87	PMST/4988		
30133978002	MW-21 (4-5')	ASTM D2974-87	PMST/4988		
30133978003	MW-22 (4-5')	ASTM D2974-87	PMST/4988		

REPORT OF LABORATORY ANALYSIS

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6 Sheraton Drive, Suite # 2
Altoona, PA 16601
866-800-0716 / Fax 866-900-0716

FIELD CHAIN OF CUSTODY

[illegible]

Total # of Sets Collected: _____
Samples Collected By: _____

Received By: [Signature]
Date & Time: 11-8-14 1:30

Turnaround Time:

Received By: _____
Date & Time: _____

Project Name: _____
Project No.: _____

Received By: _____
Date & Time: _____

GES Contact: Erin Letrick



Sample Condition Upon Receipt

Client Name: GES

Project # 30133978

Am

Courier: ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____

Tracking #: 80446382675

Custody Seal on Cooler/Box Present: ☐ yes ☒ no Seals intact: ☐ yes ☐ no Biological Tissue is Frozen: Yes No

Packing Material: Bubble Wrap _____ Bubble Bags _____ None _____ Other foam

Thermometer Used 7 Type of Ice: Wet Blue None ☒ Samples on ice, cooling process has begun

Cooler Temp.: Observed Temp.: 0.1 °C Correction Factor: -0.1 °C Final Temp: 0.0 °C

Temp should be above freezing to 6°C

Comments:

Date and Initials of person

examining contents: Amc
11-8-14

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix: <u>SC</u>		
All containers needing preservation have been checked.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed <u>Amc</u> Lot # of added preservative
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution:

Field Data Required?

Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review:

[Signature]

Date: 11/10/14

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

30133978

Project Number:

Client Name:

GES

[illegible]

November 24, 2014

Ms. Erin Letrick
Groundwater & Environmental Services
301 Commerce Park Drive
Cranberry Twp, PA 16066

RE: Project: UPA-M061
Pace Project No.: 30133978

Dear Ms. Letrick:

Enclosed are the analytical results for sample(s) received by the laboratory on November 08, 2014. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Rachel Christner
rachel.christner@pacelabs.com
Project Manager

Enclosures

cc: Ms. Joan Amodeo, Groundwater and Environmental
Services, Inc.
Mr. Joe Hinkle, Groundwater & Environmental Services



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: UPA-M061

Pace Project No.: 30133978

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

ACCLASS DOD-ELAP Accreditation #: ADE-1544

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California/TNI Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683

Guam/PADEP Certification

Hawaii/PADEP Certification

Idaho Certification

Illinois/PADEP Certification

Indiana/PADEP Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: 90133

Louisiana DHH/TNI Certification #: LA140008

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: PA00091

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification

Missouri Certification #: 235

Montana Certification #: Cert 0082

Nebraska Certification #: NE-05-29-14

Nevada Certification

New Hampshire/TNI Certification #: 2976

New Jersey/TNI Certification #: PA 051

New Mexico Certification

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Oregon/TNI Certification #: PA200002

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

South Dakota Certification

Tennessee Certification #: TN2867

Texas/TNI Certification #: T104704188

Utah/TNI Certification #: PA014572014-4

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 460198

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin/PADEP Certification

Wyoming Certification #: 8TMS-Q

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: UPA-M061

Pace Project No.: 30133978

Sample: MW-21 (2-3') **Lab ID: 30133978001** Collected: 11/06/14 12:05 Received: 11/08/14 11:30 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260B						
Benzene	ND ug/kg		4.1	1		11/19/14 14:35	71-43-2	M5
Ethylbenzene	ND ug/kg		4.1	1		11/19/14 14:35	100-41-4	M5
Isopropylbenzene (Cumene)	ND ug/kg		4.1	1		11/19/14 14:35	98-82-8	M5
Methyl-tert-butyl ether	ND ug/kg		4.1	1		11/19/14 14:35	1634-04-4	M5
Naphthalene	ND ug/kg		4.1	1		11/19/14 14:35	91-20-3	M5
Toluene	ND ug/kg		4.1	1		11/19/14 14:35	108-88-3	M5
1,2,4-Trimethylbenzene	ND ug/kg		4.1	1		11/19/14 14:35	95-63-6	M5
1,3,5-Trimethylbenzene	ND ug/kg		4.1	1		11/19/14 14:35	108-67-8	M5
Xylene (Total)	ND ug/kg		12.3	1		11/19/14 14:35	1330-20-7	M5
Surrogates								
Toluene-d8 (S)	95 %		73-124	1		11/19/14 14:35	2037-26-5	M5
4-Bromofluorobenzene (S)	105 %		71-124	1		11/19/14 14:35	460-00-4	M5
1,2-Dichloroethane-d4 (S)	112 %		83-138	1		11/19/14 14:35	17060-07-0	M5

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture	17.5 %	0.10	1	11/21/14 11:44
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REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: UPA-M061

Pace Project No.: 30133978

Sample: MW-21 (4-5') Lab ID: 30133978002 Collected: 11/06/14 12:15 Received: 11/08/14 11:30 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260B						
Benzene	ND ug/kg		4.3	1		11/19/14 15:02	71-43-2	M5
Ethylbenzene	ND ug/kg		4.3	1		11/19/14 15:02	100-41-4	M5
Isopropylbenzene (Cumene)	ND ug/kg		4.3	1		11/19/14 15:02	98-82-8	M5
Methyl-tert-butyl ether	ND ug/kg		4.3	1		11/19/14 15:02	1634-04-4	M5
Naphthalene	ND ug/kg		4.3	1		11/19/14 15:02	91-20-3	M5
Toluene	ND ug/kg		4.3	1		11/19/14 15:02	108-88-3	M5
1,2,4-Trimethylbenzene	ND ug/kg		4.3	1		11/19/14 15:02	95-63-6	M5
1,3,5-Trimethylbenzene	ND ug/kg		4.3	1		11/19/14 15:02	108-67-8	M5
Xylene (Total)	ND ug/kg		12.8	1		11/19/14 15:02	1330-20-7	M5
Surrogates								
Toluene-d8 (S)	92 %		73-124	1		11/19/14 15:02	2037-26-5	M5
4-Bromofluorobenzene (S)	107 %		71-124	1		11/19/14 15:02	460-00-4	M5
1,2-Dichloroethane-d4 (S)	106 %		83-138	1		11/19/14 15:02	17060-07-0	M5

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture	15.4 %	0.10	1	11/21/14 11:45
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REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: UPA-M061

Pace Project No.: 30133978

Sample: MW-22 (4-5') **Lab ID: 30133978003** Collected: 11/06/14 11:55 Received: 11/08/14 11:30 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260B						
Benzene	54.1	ug/kg	4.6	1		11/19/14 15:29	71-43-2	M5
Ethylbenzene	ND	ug/kg	4.6	1		11/19/14 15:29	100-41-4	M5
Isopropylbenzene (Cumene)	7.0	ug/kg	4.6	1		11/19/14 15:29	98-82-8	M5
Methyl-tert-butyl ether	ND	ug/kg	4.6	1		11/19/14 15:29	1634-04-4	M5
Naphthalene	91.1	ug/kg	4.6	1		11/19/14 15:29	91-20-3	M5
Toluene	5.9	ug/kg	4.6	1		11/19/14 15:29	108-88-3	M5
1,2,4-Trimethylbenzene	19.6	ug/kg	4.6	1		11/19/14 15:29	95-63-6	M5
1,3,5-Trimethylbenzene	22.4	ug/kg	4.6	1		11/19/14 15:29	108-67-8	M5
Xylene (Total)	20.9	ug/kg	13.9	1		11/19/14 15:29	1330-20-7	M5
Surrogates								
Toluene-d8 (S)	84	%	73-124	1		11/19/14 15:29	2037-26-5	M5
4-Bromofluorobenzene (S)	95	%	71-124	1		11/19/14 15:29	460-00-4	M5
1,2-Dichloroethane-d4 (S)	109	%	83-138	1		11/19/14 15:29	17060-07-0	M5

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture	21.9	%	0.10	1		11/21/14 11:45		
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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: UPA-M061

Pace Project No.: 30133978

QC Batch: MSV/21642

Analysis Method: EPA 8260B

QC Batch Method: EPA 8260B

Analysis Description: 8260 MSV UST-SOIL

Associated Lab Samples: 30133978001, 30133978002, 30133978003

METHOD BLANK: 819275

Matrix: Solid

Associated Lab Samples: 30133978001, 30133978002, 30133978003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/kg	ND	5.0	11/19/14 12:11	M5
1,3,5-Trimethylbenzene	ug/kg	ND	5.0	11/19/14 12:11	M5
Benzene	ug/kg	ND	5.0	11/19/14 12:11	M5
Ethylbenzene	ug/kg	ND	5.0	11/19/14 12:11	M5
Isopropylbenzene (Cumene)	ug/kg	ND	5.0	11/19/14 12:11	M5
Methyl-tert-butyl ether	ug/kg	ND	5.0	11/19/14 12:11	M5
Naphthalene	ug/kg	ND	5.0	11/19/14 12:11	M5
Toluene	ug/kg	ND	5.0	11/19/14 12:11	M5
Xylene (Total)	ug/kg	ND	15.0	11/19/14 12:11	M5
1,2-Dichloroethane-d4 (S)	%	102	83-138	11/19/14 12:11	M5
4-Bromofluorobenzene (S)	%	97	71-124	11/19/14 12:11	M5
Toluene-d8 (S)	%	94	73-124	11/19/14 12:11	M5

LABORATORY CONTROL SAMPLE: 819277

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/kg	20	22.9	115	54-131	M5
1,3,5-Trimethylbenzene	ug/kg	20	23.1	116	54-131	M5
Benzene	ug/kg	20	25.1	126	52-126	M5
Ethylbenzene	ug/kg	20	22.7	113	54-128	M5
Isopropylbenzene (Cumene)	ug/kg	20	24.6	123	58-144	M5
Methyl-tert-butyl ether	ug/kg	20	21.3	107	57-129	M5
Naphthalene	ug/kg	20	19.5	97	36-152	M5
Toluene	ug/kg	20	22.2	111	53-127	M5
Xylene (Total)	ug/kg	60	67.6	113	53-127	M5
1,2-Dichloroethane-d4 (S)	%			100	83-138	M5
4-Bromofluorobenzene (S)	%			99	71-124	M5
Toluene-d8 (S)	%			97	73-124	M5

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QUALITY CONTROL DATA

Project: UPA-M061

Pace Project No.: 30133978

QC Batch: PMST/4988

Analysis Method: ASTM D2974-87

QC Batch Method: ASTM D2974-87

Analysis Description: Dry Weight/Percent Moisture

Associated Lab Samples: 30133978001, 30133978002, 30133978003

SAMPLE DUPLICATE: 820536

Parameter	Units	30132863001 Result	Dup Result	RPD	Qualifiers
Percent Moisture	%	17.4	17.5	0	

SAMPLE DUPLICATE: 820537

Parameter	Units	30133998001 Result	Dup Result	RPD	Qualifiers
Percent Moisture	%	22.8	22.2	3	

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: UPA-M061

Pace Project No.: 30133978

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

BATCH QUALIFIERS

Batch: MSV/21642

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

M5 A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: UPA-M061

Pace Project No.: 30133978

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30133978001	MW-21 (2-3')	EPA 8260B	MSV/21642		
30133978002	MW-21 (4-5')	EPA 8260B	MSV/21642		
30133978003	MW-22 (4-5')	EPA 8260B	MSV/21642		
30133978001	MW-21 (2-3')	ASTM D2974-87	PMST/4988		
30133978002	MW-21 (4-5')	ASTM D2974-87	PMST/4988		
30133978003	MW-22 (4-5')	ASTM D2974-87	PMST/4988		

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866-800-0716 / Fax 866-902-2187

FIELD CHAIN OF CUSTODY

[illegible]

GES Contact:

Date & Time:

Date & Time:



Sample Condition Upon Receipt

Client Name: GES

Project # 30133978

Am

Courier: ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____

Tracking #: 80446382675

Custody Seal on Cooler/Box Present: ☐ yes ☒ no Seals intact: ☐ yes ☐ no Biological Tissue is Frozen: Yes No

Packing Material: Bubble Wrap _____ Bubble Bags _____ None _____ Other foam

Thermometer Used 7 Type of Ice: Wet Blue None ☒ Samples on ice, cooling process has begun

Cooler Temp.: Observed Temp.: 0.1 °C Correction Factor: -0.1 °C Final Temp: 0.0 °C

Temp should be above freezing to 6°C

Comments:

Date and Initials of person

examining contents: Amc
11-8-14

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix: <u>SC</u>		
All containers needing preservation have been checked.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed <u>Amc</u> Lot # of added preservative
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution:

Field Data Required?

Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review:

[Signature]

Date: 11/10/14

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

30133978

Project Number:

Client Name:

GES

[illegible]

January 06, 2015

Mr. Joe Hinkle
Groundwater & Environmental Services
301 Commerce Park Drive
Cranberry Twp, PA 16066

RE: Project: UPA M-061 Bradford
Pace Project No.: 30137262

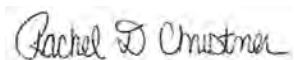
Dear Mr. Hinkle:

Enclosed are the analytical results for sample(s) received by the laboratory on December 19, 2014. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

This report was reissued on January 6, 2015 to include revised sample IDs.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Rachel Christner
rachel.christner@pacelabs.com
Project Manager

Enclosures

cc: Ms. Joan Amodeo, Groundwater and Environmental
Services, Inc.
Mr. Scott Merritt, Groundwater & Environmental Services



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: UPA M-061 Bradford

Pace Project No.: 30137262

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

ACLASS DOD-ELAP Accreditation #: ADE-1544

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California/TNI Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683

Guam/PADEP Certification

Hawaii/PADEP Certification

Idaho Certification

Illinois/PADEP Certification

Indiana/PADEP Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: 90133

Louisiana DHH/TNI Certification #: LA140008

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: PA00091

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification

Missouri Certification #: 235

Montana Certification #: Cert 0082

Nebraska Certification #: NE-05-29-14

Nevada Certification

New Hampshire/TNI Certification #: 2976

New Jersey/TNI Certification #: PA 051

New Mexico Certification

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Oregon/TNI Certification #: PA200002

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

South Dakota Certification

Tennessee Certification #: TN2867

Texas/TNI Certification #: T104704188

Utah/TNI Certification #: PA014572014-4

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 460198

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin/PADEP Certification

Wyoming Certification #: 8TMS-Q

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SAMPLE ANALYTE COUNT

Project: UPA M-061 Bradford

Pace Project No.: 30137262

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30137262001	MW-22 (7-9')	EPA 8260B	JEW	12	PASI-PA
		ASTM D2974-87	EHW	1	PASI-PA
30137262002	MW-22 (9-11')	EPA 8260B	JEW	12	PASI-PA
		ASTM D2974-87	EHW	1	PASI-PA

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: UPA M-061 Bradford

Pace Project No.: 30137262

Method: EPA 8260B

Description: 8260 MSV UST

Client: Groundwater & Environmental Services - Cranberry Twp PA

Date: January 06, 2015

General Information:

2 samples were analyzed for EPA 8260B. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MSV/22003

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

QC Batch: MSV/22046

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: UPA M-061 Bradford

Pace Project No.: 30137262

Sample: MW-22 (7-9') **Lab ID: 30137262001** Collected: 12/15/14 13:10 Received: 12/19/14 17:40 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260B						
Benzene	ND	ug/kg	194	50		12/29/14 21:06	71-43-2	M5
Ethylbenzene	ND	ug/kg	194	50		12/29/14 21:06	100-41-4	M5
Isopropylbenzene (Cumene)	ND	ug/kg	194	50		12/29/14 21:06	98-82-8	M5
Methyl-tert-butyl ether	ND	ug/kg	194	50		12/29/14 21:06	1634-04-4	M5
Naphthalene	ND	ug/kg	194	50		12/29/14 21:06	91-20-3	M5
Toluene	ND	ug/kg	194	50		12/29/14 21:06	108-88-3	M5
1,2,4-Trimethylbenzene	222	ug/kg	194	50		12/29/14 21:06	95-63-6	M5
1,3,5-Trimethylbenzene	ND	ug/kg	194	50		12/29/14 21:06	108-67-8	M5
Xylene (Total)	ND	ug/kg	581	50		12/29/14 21:06	1330-20-7	M5
Surrogates								
Toluene-d8 (S)	100	%	73-124	50		12/29/14 21:06	2037-26-5	M5
4-Bromofluorobenzene (S)	99	%	71-124	50		12/29/14 21:06	460-00-4	M5
1,2-Dichloroethane-d4 (S)	93	%	83-138	50		12/29/14 21:06	17060-07-0	M5

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture	12.6	%	0.10	1	01/05/15 18:21
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ANALYTICAL RESULTS

Project: UPA M-061 Bradford

Pace Project No.: 30137262

Sample: MW-22 (9-11') **Lab ID:** 30137262002 **Collected:** 12/15/14 13:25 **Received:** 12/19/14 17:40 **Matrix:** Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260B						
Benzene	ND ug/kg		207	50		12/29/14 21:19	71-43-2	M5
Ethylbenzene	ND ug/kg		207	50		12/29/14 21:19	100-41-4	M5
Isopropylbenzene (Cumene)	ND ug/kg		207	50		12/29/14 21:19	98-82-8	M5
Methyl-tert-butyl ether	ND ug/kg		207	50		12/29/14 21:19	1634-04-4	M5
Naphthalene	ND ug/kg		207	50		12/29/14 21:19	91-20-3	M5
Toluene	ND ug/kg		207	50		12/29/14 21:19	108-88-3	M5
1,2,4-Trimethylbenzene	ND ug/kg		207	50		12/29/14 21:19	95-63-6	M5
1,3,5-Trimethylbenzene	ND ug/kg		207	50		12/29/14 21:19	108-67-8	M5
Xylene (Total)	ND ug/kg		622	50		12/29/14 21:19	1330-20-7	M5
Surrogates								
Toluene-d8 (S)	98 %		73-124	50		12/29/14 21:19	2037-26-5	M5
4-Bromofluorobenzene (S)	99 %		71-124	50		12/29/14 21:19	460-00-4	M5
1,2-Dichloroethane-d4 (S)	106 %		83-138	50		12/29/14 21:19	17060-07-0	M5

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture	12.0 %	0.10	1	01/05/15 18:22
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QUALITY CONTROL DATA

Project: UPA M-061 Bradford

Pace Project No.: 30137262

QC Batch: MSV/22003

Analysis Method: EPA 8260B

QC Batch Method: EPA 8260B

Analysis Description: 8260 MSV UST-SOIL

Associated Lab Samples: 30137262002

METHOD BLANK: 835263

Matrix: Solid

Associated Lab Samples: 30137262002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/kg	ND	5.0	12/29/14 17:44	M5
1,3,5-Trimethylbenzene	ug/kg	ND	5.0	12/29/14 17:44	M5
Benzene	ug/kg	ND	5.0	12/29/14 17:44	M5
Ethylbenzene	ug/kg	ND	5.0	12/29/14 17:44	M5
Isopropylbenzene (Cumene)	ug/kg	ND	5.0	12/29/14 17:44	M5
Methyl-tert-butyl ether	ug/kg	ND	5.0	12/29/14 17:44	M5
Naphthalene	ug/kg	ND	5.0	12/29/14 17:44	M5
Toluene	ug/kg	ND	5.0	12/29/14 17:44	M5
Xylene (Total)	ug/kg	ND	15.0	12/29/14 17:44	M5
1,2-Dichloroethane-d4 (S)	%	108	83-138	12/29/14 17:44	M5
4-Bromofluorobenzene (S)	%	95	71-124	12/29/14 17:44	M5
Toluene-d8 (S)	%	102	73-124	12/29/14 17:44	M5

LABORATORY CONTROL SAMPLE: 835264

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/kg	20	22.8	114	54-131	M5
1,3,5-Trimethylbenzene	ug/kg	20	23.1	116	54-131	M5
Benzene	ug/kg	20	23.0	115	52-126	M5
Ethylbenzene	ug/kg	20	23.0	115	54-128	M5
Isopropylbenzene (Cumene)	ug/kg	20	24.3	121	58-144	M5
Methyl-tert-butyl ether	ug/kg	20	21.5	107	57-129	M5
Naphthalene	ug/kg	20	20.2	101	36-152	M5
Toluene	ug/kg	20	22.6	113	53-127	M5
Xylene (Total)	ug/kg	60	66.0	110	53-127	M5
1,2-Dichloroethane-d4 (S)	%			110	83-138	M5
4-Bromofluorobenzene (S)	%			100	71-124	M5
Toluene-d8 (S)	%			98	73-124	M5

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: UPA M-061 Bradford
Pace Project No.: 30137262

QC Batch:	MSV/22046	Analysis Method:	EPA 8260B
QC Batch Method:	EPA 8260B	Analysis Description:	8260 MSV UST-SOIL
Associated Lab Samples:	30137262001		

METHOD BLANK: 837049 Matrix: Solid
Associated Lab Samples: 30137262001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/kg	ND	5.0	12/29/14 17:57	M5
1,3,5-Trimethylbenzene	ug/kg	ND	5.0	12/29/14 17:57	M5
Benzene	ug/kg	ND	5.0	12/29/14 17:57	M5
Ethylbenzene	ug/kg	ND	5.0	12/29/14 17:57	M5
Isopropylbenzene (Cumene)	ug/kg	ND	5.0	12/29/14 17:57	M5
Methyl-tert-butyl ether	ug/kg	ND	5.0	12/29/14 17:57	M5
Naphthalene	ug/kg	ND	5.0	12/29/14 17:57	M5
Toluene	ug/kg	ND	5.0	12/29/14 17:57	M5
Xylene (Total)	ug/kg	ND	15.0	12/29/14 17:57	M5
1,2-Dichloroethane-d4 (S)	%	100	83-138	12/29/14 17:57	M5
4-Bromofluorobenzene (S)	%	99	71-124	12/29/14 17:57	M5
Toluene-d8 (S)	%	99	73-124	12/29/14 17:57	M5

LABORATORY CONTROL SAMPLE: 837050

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/kg	20	23.3	116	54-131	M5
1,3,5-Trimethylbenzene	ug/kg	20	23.6	118	54-131	M5
Benzene	ug/kg	20	23.4	117	52-126	M5
Ethylbenzene	ug/kg	20	23.2	116	54-128	M5
Isopropylbenzene (Cumene)	ug/kg	20	25.3	127	58-144	M5
Methyl-tert-butyl ether	ug/kg	20	21.0	105	57-129	M5
Naphthalene	ug/kg	20	19.9	100	36-152	M5
Toluene	ug/kg	20	22.8	114	53-127	M5
Xylene (Total)	ug/kg	60	67.9	113	53-127	M5
1,2-Dichloroethane-d4 (S)	%			96	83-138	M5
4-Bromofluorobenzene (S)	%			100	71-124	M5
Toluene-d8 (S)	%			97	73-124	M5

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: UPA M-061 Bradford

Pace Project No.: 30137262

QC Batch:	PMST/5063	Analysis Method:	ASTM D2974-87
QC Batch Method:	ASTM D2974-87	Analysis Description:	Dry Weight/Percent Moisture
Associated Lab Samples: 30137262001, 30137262002			

SAMPLE DUPLICATE: 838554

Parameter	Units	30137196001 Result	Dup Result	RPD	Qualifiers
Percent Moisture	%	79.2	81.1	2	

SAMPLE DUPLICATE: 838555

Parameter	Units	30137206001 Result	Dup Result	RPD	Qualifiers
Percent Moisture	%	13.1	14.4	9	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: UPA M-061 Bradford
Pace Project No.: 30137262

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

BATCH QUALIFIERS

Batch: MSV/22003

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: MSV/22046

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

M5 A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: UPA M-061 Bradford

Pace Project No.: 30137262

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30137262001	MW-22 (7-9')	EPA 8260B	MSV/22046		
30137262002	MW-22 (9-11')	EPA 8260B	MSV/22003		
30137262001	MW-22 (7-9')	ASTM D2974-87	PMST/5063		
30137262002	MW-22 (9-11')	ASTM D2974-87	PMST/5063		

REPORT OF LABORATORY ANALYSIS

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Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:		
Company:	6ES	Report To:	Joe Hinkle	Attention:		
Address:	301 Commerce Park Dr. Cranberry Twp., PA 16866	Copy To:	Joan Amadio	Company Name:		
Email To:		Purchase Order No.:		Address:		
Phone:	800 267-2549	Project Name:	VPA M-061 Brawford	Pace Quote Reference:		
Requested Due Date/TAT:	Standard	Project Number:	0704231	Pace Project Manager:		
				Pace Profile #:		
				REGULATORY AGENCY		
				<input type="checkbox"/> NPDES	<input type="checkbox"/> GROUND WATER	<input type="checkbox"/> DRINKING WATER
				<input type="checkbox"/> UST	<input type="checkbox"/> RCRA	<input type="checkbox"/> OTHER
				Site Location		
				STATE:		PA

[illegible]



Sample Condition Upon Receipt

Client Name: GES

Project #

30137262

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☒ Pace Other _____

Tracking #: _____

Custody Seal on Cooler/Box Present: ☐ yes ☒ no Seals intact: ☐ yes ☐ no Biological Tissue is Frozen: Yes No

Packing Material: Bubble Wrap _____ Bubble Bags ☒ None _____ Other foam

Thermometer Used #6 Type of Ice: ☒ Wet ☐ Blue ☐ None ☒ Samples on ice, cooling process has begun

Cooler Temp.: Observed Temp.: 4.1 °C Correction Factor: 0.0 °C Final Temp: 4.1 °C

Temp should be above freezing to 6°C

Comments:

Date and Initials of person

examining contents: SRA 12-A-4

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix: <u>SI</u>		
All containers needing preservation have been checked.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed <u>SRA</u> Lot # of added preservative
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution:

Field Data Required?

Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review:

Gomez

Date:

6/22/14

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

Project Number:

Client Name:

33

[illegible]



APPENDIX E

Geotechnical Laboratory Reports, 2013

UNIT WEIGHT WITH POROSITY

ASTM D7263-09



Client	GROUNWATER & ENVIRONMENTAL	Boring No.	SB-10
Client Project	UPA M-061 BRADFORD 0703938	Depth (ft.)	10.5-10.9
Project No.	2013-479-001	Sample No.	NA
Lab ID No.	2013-479-001-001		

Specific Gravity 2.65 Measured

Visual Description: BROWN SANDY CLAY

MOISTURE CONTENT:

Tare Number	203
Wt. of Tare & WS (gm.)	315.94
Wt. of Tare & DS (gm.)	280.24
Wt. of Tare (gm.)	98.79
Wt. of Water (gm.)	35.70
Wt. of DS (gm.)	181.45

Moisture Content (%) **19.7**

SPECIMEN: Undisturbed

Wt. of Mold/Tube & WS (gm.)	636.66
Wt. of Mold/Tube (gm.)	0.00
Wt. of WS (gm.)	636.66
Length 1 (in.)	3.186
Length 2 (in.)	2.988
Length 3 (in.)	3.005
Top Diameter (in.)	2.823
Middle Diameter (in.)	2.829
Bottom Diameter (in.)	2.835

Average Length (in.)	3.06
Average Area (in. ²)	6.29
Sample Volume (cm ³)	315.16
Unit Wet Wt. (gm./cm ³)	2.02
Unit Wet Wt. (pcf)	126.1
Unit Dry Wt. (pcf)	105.4
Unit Dry Wt. (gm./cm ³)	1.69
Void Ratio, e	0.57
Porosity, n	0.36
Pore Volume (cm ³)	114.4

Tested By: TRE

Date: 10/22/13

Checked By:

Date: 10-29-13

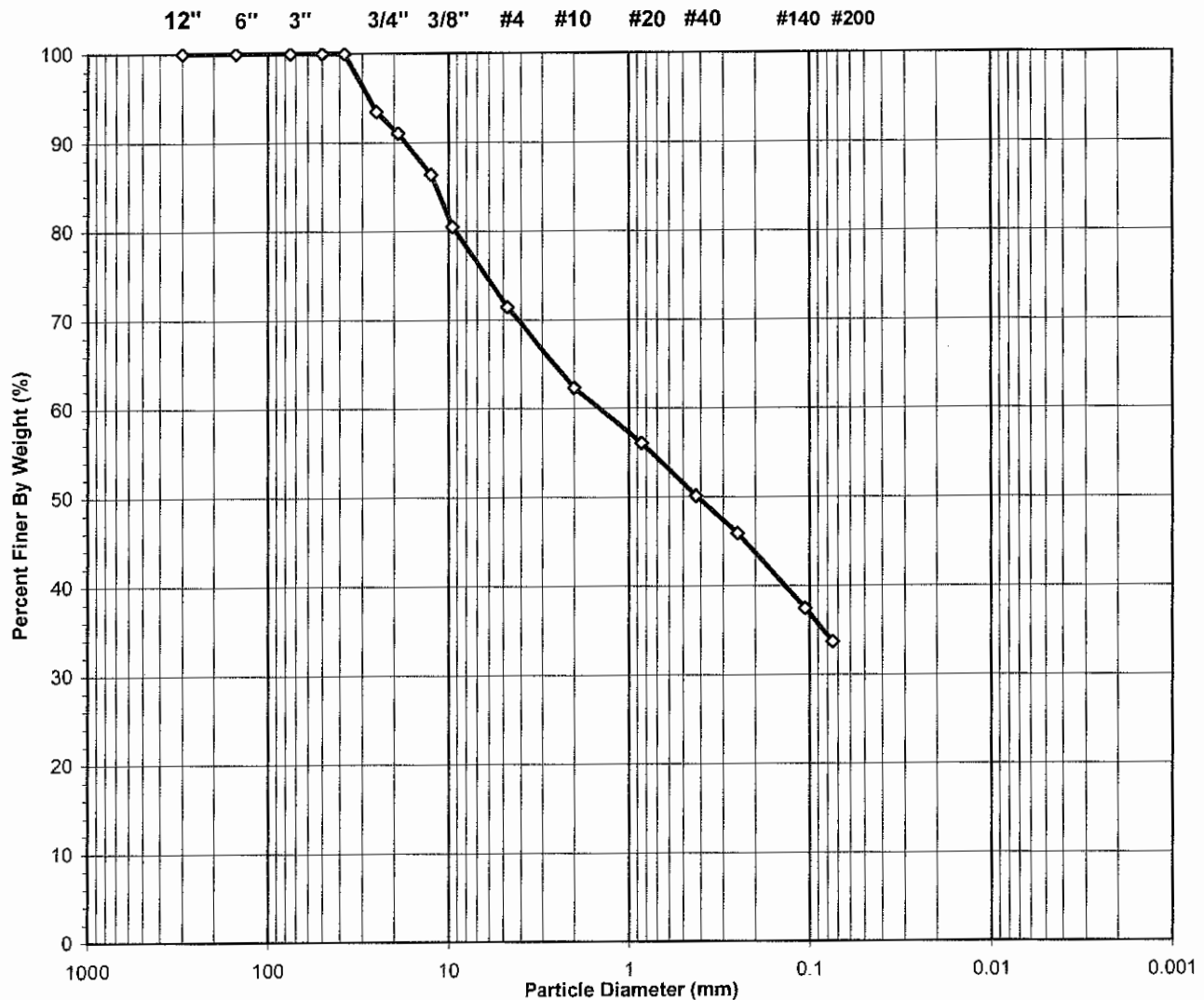
DCN: CT-S37A DATE: 3/12/12 REVISION: 03 server\data drive\Kelly C:\PRINT Q:\Groundwater & Environmental\2013-478-001\UNIT WGT & POR\2013-478-001-001 UNIT WGT.XLS\Sheet1

SIEVE ANALYSIS
ASTM D 422-63 (2007)

Client: Groundwater & Environmental
Client Reference: UPA M-061 Bradford 0703938
Project No.: 2013-479-001
Lab ID: 2013-479-001-001

Boring No.: SB-10
Depth (ft): 10.1-11.0
Sample No.: NA
Soil Color: BROWN

USCS	SIEVE ANALYSIS		HYDROMETER
	gravel	sand	silt and clay



USCS Symbol: *sc, ASSUMED*

USCS Classification: *CLAYEY SAND WITH GRAVEL*

Tested By PC Date 10/24/13 Checked By KC Date 10/24/13

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client: Groundwater & Environmental
 Client Reference: UPA M-061 Bradford 0703938
 Project No.: 2013-479-001
 Lab ID: 2013-479-001-001

Boring No.: SB-10
 Depth (ft): 10.1-11.0
 Sample No.: NA
 Soil Color: BROWN

Moisture Content of Passing 3/4" Sample		Water Content of Retained 3/4" Sample	
Tare No.	964	Tare No.	NA
Wt. of Tare & Wet Sample (g)	856.85	Weight of Tare & Wet Sample (g)	NA
Wt. of Tare & Dry Sample (g)	745.30	Weight of Tare & Dry Sample (g)	NA
Weight of Tare (g)	101.52	Weight of Tare (g)	NA
Weight of Water (g)	111.55	Weight of Water (g)	NA
Weight of Dry Sample (g)	643.78	Weight of Dry Sample (g)	NA
Moisture Content (%)	17.3	Moisture Content (%)	NA

Wet Weight of -3/4" Sample (g)	NA	Weight of the Dry Sample (g)	643.78
Dry Weight of - 3/4" Sample (g)	368.9	Weight of - #200 Sample (g)	217.09
Wet Weight of +3/4" Sample (g)	NA	Weight of + #200 Sample (g)	426.69
Dry Weight of + 3/4" Sample (g)	57.82		
Total Dry Weight of Sample (g)	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00	0.00	0.00	100.00	100.00
6"	150	0.00	0.00	0.00	100.00	100.00
3"	75	0.00	0.00	0.00	100.00	100.00
2"	50	0.00	0.00	0.00	100.00	100.00
1 1/2"	37.5	0.00	0.00	0.00	100.00	100.00
1"	25.0	42.02	6.53	6.53	93.47	93.47
3/4"	19.0	15.80	2.45	8.98	91.02	91.02
1/2"	12.50	29.90	4.64	13.63	86.37	86.37
3/8"	9.50	37.76	5.87	19.49	80.51	80.51
#4	4.75	58.15	9.03	28.52	71.48	71.48
#10	2.00	58.92	9.15	37.68	62.32	62.32
#20	0.850	40.30	6.26	43.94	56.06	56.06
#40	0.425	38.20	5.93	49.87	50.13	50.13
#60	0.250	27.19	4.22	54.09	45.91	45.91
#140	0.106	54.20	8.42	62.51	37.49	37.49
#200	0.075	24.25	3.77	66.28	33.72	33.72
Pan	-	217.09	33.72	100.00	-	-

Tested By PC Date 10/24/13 Checked By KC Date 10/24/13

SPECIFIC GRAVITY

ASTM D 854-10

Client:	Groundwater & Environmental	Boring No.:	SB-10
Client Reference:	UPA M-061 Bradford 0703938	Depth (ft):	9-11
Project No.:	2013-479-001	Sample No.:	NA
Lab ID:	2013-479-001-001	Visual Description:	BROWN SANDY CLAY

(Minus No.4 sieve material, oven dried)

Replicate Number	1	2
Pycnometer ID	G 1255	G 1403
Weight of Pycnometer + Soil + Water (g)	720.41	710.26
Temperature (°C)	24.8	24.2
Weight of Pycnometer + Water (g)	685.13	675.50
Tare Number	979	702
Weight of Tare + Dry Soil (g)	154.97	151.35
Weight of Tare (g)	98.38	95.34
Weight of Dry Soil (g)	56.59	56.01
Specific Gravity of Soil @ Measured Temperature	2.655	2.636
Specific Gravity of Water @ Measured Temperature	0.99710	0.99725
Conversion Factor for Measured Temperature	0.99889	0.99905
Specific Gravity @ 20° Celsius	2.658	2.638

Average Specific Gravity @ 20° Celsius	2.65
--	------

Tested By	TO	Date	10/23/13	Checked By	KC	Date	10/24/13
-----------	----	------	----------	------------	----	------	----------

DCN: CT-S5 Date: 9/22/13 Revision: 19

Gravity.xls

Moisture, Ash, and Organic Matter (Loss on Ignition)

ASTM D 2974-07a

Client GROUNDWATER & ENVIRONMENTAL
Client Reference UPA M-061 BRADFORD 0703938
Project No. 2013-479-001

Moisture Content (Oven Dried, minus #10 Sieve Material)

Lab ID	001
Boring No.	SB-10
Depth(ft)	10.1-11.0
Sample No.	NA

Tare Number	12+X
Wt. Tare & WS (g)	109.97
Wt. Tare & DS (g)	109.23
Wt. Tare (g)	38.15
Wt. Water (g)	0.74
Wt. DS (g)	71.08

Moisture Content	1.0%
------------------	------

Ash Content, Organic Matter

Furnace Temperature ° C 440

Wt. Tare & Ash (g)	107.37
Wt. Volatiles (g)	1.86
Wt. Ash (g)	69.22

Ash Content	97.4%
Organic Matter	2.6%

Tested By PC Date 10/24/13 Checked By *TS* Date 10-29-13



APPENDIX F

Groundwater Laboratory Analytical Reports, 2013-2015

June 26, 2013

Mr. Joseph Skurka
Groundwater & Environmental Services
301 Commerce Park Drive
Cranberry Twp, PA 16066

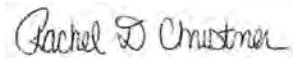
RE: Project: UPA Bradford M-061
Pace Project No.: 3096544

Dear Mr. Skurka:

Enclosed are the analytical results for sample(s) received by the laboratory on June 13, 2013. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Rachel Christner

rachel.christner@pacelabs.com
Project Manager

Enclosures

cc: Ms. Joan Amodeo, Groundwater and Environmental
Services, Inc.
Ms. Jackie Jones, Groundwater & Environmental Services
Ms. Nicole Kramer, Groundwater & Environmental
Services
Ms. Erin Letrick, Groundwater & Environmental Services



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: UPA Bradford M-061

Pace Project No.: 3096544

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4 Greensburg, PA 15601

ACLASS DOD-ELAP Accreditation #: ADE-1544

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California/TNI Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683

Guam/PADEP Certification

Hawaii/PADEP Certification

Idaho Certification

Illinois/PADEP Certification

Indiana/PADEP Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: 90133

Louisiana/TNI Certification #: LA080002

Louisiana/TNI Certification #: 4086

Maine Certification #: PA0091

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification

Missouri Certification #: 235

Montana Certification #: Cert 0082

Nevada Certification

New Hampshire/TNI Certification #: 2976

New Jersey/TNI Certification #: PA 051

New Mexico Certification

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Oregon/TNI Certification #: PA200002

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

South Dakota Certification

Tennessee Certification #: TN2867

Texas/TNI Certification #: T104704188

Utah/TNI Certification #: ANTE

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 460198

Washington Certification #: C868

West Virginia Certification #: 143

Wisconsin/PADEP Certification

Wyoming Certification #: 8TMS-Q

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 3096544

Sample: MW-1R		Lab ID: 3096544001	Collected: 06/12/13 11:20	Received: 06/13/13 13:40	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260						
Benzene	118 ug/L		5.0	1		06/21/13 17:50	71-43-2	
Ethylbenzene	13.8 ug/L		5.0	1		06/21/13 17:50	100-41-4	
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		06/21/13 17:50	98-82-8	
Methyl-tert-butyl ether	5.5 ug/L		5.0	1		06/21/13 17:50	1634-04-4	
Naphthalene	10 ug/L		5.0	1		06/21/13 17:50	91-20-3	
Toluene	14.7 ug/L		5.0	1		06/21/13 17:50	108-88-3	
1,2,4-Trimethylbenzene	94.3 ug/L		5.0	1		06/21/13 17:50	95-63-6	
1,3,5-Trimethylbenzene	35.8 ug/L		5.0	1		06/21/13 17:50	108-67-8	
Xylene (Total)	186 ug/L		5.0	1		06/21/13 17:50	1330-20-7	
Surrogates								
Toluene-d8 (S)	103 %		85-115	1		06/21/13 17:50	2037-26-5	
4-Bromofluorobenzene (S)	112 %		85-115	1		06/21/13 17:50	460-00-4	
1,2-Dichloroethane-d4 (S)	100 %		77-119	1		06/21/13 17:50	17060-07-0	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 3096544

Sample: MW-4		Lab ID: 3096544002		Collected: 06/12/13 11:00		Received: 06/13/13 13:40		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV PA UST		Analytical Method: EPA 8260							
Benzene	190	ug/L	5.0	1		06/21/13 18:15	71-43-2		
Ethylbenzene	162	ug/L	5.0	1		06/21/13 18:15	100-41-4		
Isopropylbenzene (Cumene)	28.4	ug/L	5.0	1		06/21/13 18:15	98-82-8		
Methyl-tert-butyl ether	10.5	ug/L	5.0	1		06/21/13 18:15	1634-04-4		
Naphthalene	43.0	ug/L	5.0	1		06/21/13 18:15	91-20-3		
Toluene	14.5	ug/L	5.0	1		06/21/13 18:15	108-88-3		
1,2,4-Trimethylbenzene	203	ug/L	5.0	1		06/21/13 18:15	95-63-6		
1,3,5-Trimethylbenzene	128	ug/L	5.0	1		06/21/13 18:15	108-67-8		
Xylene (Total)	459	ug/L	5.0	1		06/21/13 18:15	1330-20-7		
Surrogates									
Toluene-d8 (S)	101	%	85-115	1		06/21/13 18:15	2037-26-5		
4-Bromofluorobenzene (S)	107	%	85-115	1		06/21/13 18:15	460-00-4		
1,2-Dichloroethane-d4 (S)	105	%	77-119	1		06/21/13 18:15	17060-07-0		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 3096544

Sample: MW-5		Lab ID: 3096544003	Collected: 06/12/13 12:00	Received: 06/13/13 13:40	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260						
Benzene	ND ug/L		5.0	1		06/21/13 18:40	71-43-2	
Ethylbenzene	ND ug/L		5.0	1		06/21/13 18:40	100-41-4	
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		06/21/13 18:40	98-82-8	
Methyl-tert-butyl ether	ND ug/L		5.0	1		06/21/13 18:40	1634-04-4	
Naphthalene	ND ug/L		5.0	1		06/21/13 18:40	91-20-3	
Toluene	ND ug/L		5.0	1		06/21/13 18:40	108-88-3	
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		06/21/13 18:40	95-63-6	
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		06/21/13 18:40	108-67-8	
Xylene (Total)	ND ug/L		5.0	1		06/21/13 18:40	1330-20-7	
Surrogates								
Toluene-d8 (S)	106 %		85-115	1		06/21/13 18:40	2037-26-5	
4-Bromofluorobenzene (S)	103 %		85-115	1		06/21/13 18:40	460-00-4	
1,2-Dichloroethane-d4 (S)	104 %		77-119	1		06/21/13 18:40	17060-07-0	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 3096544

Sample: MW-6		Lab ID: 3096544004		Collected: 06/12/13 11:40		Received: 06/13/13 13:40		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV PA UST		Analytical Method: EPA 8260							
Benzene	135	ug/L	5.0	1		06/21/13 19:05	71-43-2		
Ethylbenzene	22.6	ug/L	5.0	1		06/21/13 19:05	100-41-4		
Isopropylbenzene (Cumene)	7.0	ug/L	5.0	1		06/21/13 19:05	98-82-8		
Methyl-tert-butyl ether	12.4	ug/L	5.0	1		06/21/13 19:05	1634-04-4		
Naphthalene	38.2	ug/L	5.0	1		06/21/13 19:05	91-20-3		
Toluene	76.0	ug/L	5.0	1		06/21/13 19:05	108-88-3		
1,2,4-Trimethylbenzene	88.4	ug/L	5.0	1		06/21/13 19:05	95-63-6		
1,3,5-Trimethylbenzene	43.8	ug/L	5.0	1		06/21/13 19:05	108-67-8		
Xylene (Total)	104	ug/L	5.0	1		06/21/13 19:05	1330-20-7		
Surrogates									
Toluene-d8 (S)	101	%	85-115	1		06/21/13 19:05	2037-26-5		
4-Bromofluorobenzene (S)	110	%	85-115	1		06/21/13 19:05	460-00-4		
1,2-Dichloroethane-d4 (S)	96	%	77-119	1		06/21/13 19:05	17060-07-0		

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 3096544

Sample: SB-8		Lab ID: 3096544005	Collected: 06/12/13 12:30	Received: 06/13/13 13:40	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260						
Benzene	ND ug/L		5.0	1		06/21/13 19:29	71-43-2	
Ethylbenzene	ND ug/L		5.0	1		06/21/13 19:29	100-41-4	
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		06/21/13 19:29	98-82-8	
Methyl-tert-butyl ether	ND ug/L		5.0	1		06/21/13 19:29	1634-04-4	
Naphthalene	ND ug/L		5.0	1		06/21/13 19:29	91-20-3	
Toluene	ND ug/L		5.0	1		06/21/13 19:29	108-88-3	
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		06/21/13 19:29	95-63-6	
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		06/21/13 19:29	108-67-8	
Xylene (Total)	ND ug/L		5.0	1		06/21/13 19:29	1330-20-7	
Surrogates								
Toluene-d8 (S)	103 %		85-115	1		06/21/13 19:29	2037-26-5	
4-Bromofluorobenzene (S)	109 %		85-115	1		06/21/13 19:29	460-00-4	
1,2-Dichloroethane-d4 (S)	95 %		77-119	1		06/21/13 19:29	17060-07-0	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: UPA Bradford M-061

Pace Project No.: 3096544

QC Batch:	MSV/16515	Analysis Method:	EPA 8260
QC Batch Method:	EPA 8260	Analysis Description:	8260 MSV UST-WATER
Associated Lab Samples:	3096544001, 3096544002, 3096544003, 3096544004, 3096544005		

METHOD BLANK: 597794 Matrix: Water

Associated Lab Samples: 3096544001, 3096544002, 3096544003, 3096544004, 3096544005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	ND	1.0	06/21/13 15:22	
1,3,5-Trimethylbenzene	ug/L	ND	1.0	06/21/13 15:22	
Benzene	ug/L	ND	1.0	06/21/13 15:22	
Ethylbenzene	ug/L	ND	1.0	06/21/13 15:22	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	06/21/13 15:22	
Methyl-tert-butyl ether	ug/L	ND	1.0	06/21/13 15:22	
Naphthalene	ug/L	ND	2.0	06/21/13 15:22	
Toluene	ug/L	ND	1.0	06/21/13 15:22	
Xylene (Total)	ug/L	ND	3.0	06/21/13 15:22	
1,2-Dichloroethane-d4 (S)	%	105	77-119	06/21/13 15:22	
4-Bromofluorobenzene (S)	%	108	85-115	06/21/13 15:22	
Toluene-d8 (S)	%	100	85-115	06/21/13 15:22	

LABORATORY CONTROL SAMPLE: 597795

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/L	20	20.7	103	64-116	
1,3,5-Trimethylbenzene	ug/L	20	21.1	105	61-114	
Benzene	ug/L	20	22.7	113	66-122	
Ethylbenzene	ug/L	20	23.0	115	69-119	
Isopropylbenzene (Cumene)	ug/L	20	24.5	123	68-126	
Methyl-tert-butyl ether	ug/L	20	21.4	107	58-131	
Naphthalene	ug/L	20	24.2	121	51-123	
Toluene	ug/L	20	22.5	112	72-115	
Xylene (Total)	ug/L	60	66.8	111	70-123	
1,2-Dichloroethane-d4 (S)	%			96	77-119	
4-Bromofluorobenzene (S)	%			107	85-115	
Toluene-d8 (S)	%			100	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 597801 597802

Parameter	Units	3096602001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
1,2,4-Trimethylbenzene	ug/L	ND	20	20	20.6	19.6	103	98	64-116	5	
1,3,5-Trimethylbenzene	ug/L	ND	20	20	20.8	20.5	104	103	61-114	2	
Benzene	ug/L	ND	20	20	22.7	23.3	114	117	66-122	3	
Ethylbenzene	ug/L	ND	20	20	24.5	23.6	122	118	69-119	4	M0
Isopropylbenzene (Cumene)	ug/L	ND	20	20	24.7	23.6	123	118	68-126	5	
Methyl-tert-butyl ether	ug/L	5.2	20	20	23.0	25.0	89	99	58-131	8	
Naphthalene	ug/L	ND	20	20	18.3	19.6	91	98	51-123	7	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: UPA Bradford M-061

Pace Project No.: 3096544

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 597801 597802											
Parameter	Units	3096602001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Toluene	ug/L	ND	20	20	23.8	23.3	119	116	72-115	2	M0
Xylene (Total)	ug/L	ND	60	60	68.8	66.4	115	111	70-123	3	
1,2-Dichloroethane-d4 (S)	%						95	100	77-119		
4-Bromofluorobenzene (S)	%						113	111	85-115		
Toluene-d8 (S)	%						105	103	85-115		

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: UPA Bradford M-061

Pace Project No.: 3096544

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

M0 Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: UPA Bradford M-061

Pace Project No.: 3096544

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
3096544001	MW-1R	EPA 8260	MSV/16515		
3096544002	MW-4	EPA 8260	MSV/16515		
3096544003	MW-5	EPA 8260	MSV/16515		
3096544004	MW-6	EPA 8260	MSV/16515		
3096544005	SB-8	EPA 8260	MSV/16515		

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A		Section B		Section C	
Required Client Information:		Required Project Information:		Invoice Information:	
Company:	Groundwater & Environmental Services	Report To:	Erin Letrick	Attention:	Erin Letrick
Address:	301 Commerce Park Drive Cranberry Twp, PA 16066	Copy To:	Joan Amodeo	Company Name:	Groundwater & Environmental Services
Email To:	eletrick@gesonline.com	Purchase Order No:	UPA Bradford M-061	Address:	301 Commerce Park Drive, Cranberry Twp, PA 16066
Phone:	800-267-2549 Fax: 724-779-4617	Client Project ID:	UPA Bradford M-061	Pace Quote Reference:	
Requested Due Date/FAT:	10 Day (Default)	Container Order Number:		Pace Project Manager:	Christher, Rachel
				Pace Profile #:	

ITEM#	MATRIX	CODE	COLLECTED				SAMPLE TYPE (G=GRAB C=COMP)	MATRIX CODE (see valid codes to left)	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	Residual Chlorine (Y/N)	30916544
			MATRIX	Drinking Water	Waste Water	Product										
1	MW-1R	DW					WT G	WT								001
2	MW-4	WT					WT G	WT								002
3	MW-5	WW					WT G	WT								003
4	MW-6	P					WT G	WT								004
5	SB-8	SL					WT G	WT								005
6		OL														
7		WP														
8		AR														
9		OT														
10		TS														
11																
12																

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
UPAM061Bradford-lab report no.24067.EQEDD.zip	Joan Amodeo / GES	6/13/13	0630	Joan Amodeo / GES	6/13/13	0630				
Email to: ges@gesonline.com	Joan Amodeo / GES	6/13/13	1140	Joan Amodeo / GES	6/13/13	1140				
	Joan Amodeo / GES	6/13/13	1230	Joan Amodeo / GES	6/13/13	1230				

SAMPLER NAME AND SIGNATURE	
PRINT Name of SAMPLER:	DATE Signed: 6/12/13
SIGNATURE of SAMPLER:	



Sample Condition Upon Receipt

RAC

Client Name: Groundwater & Environmental Services

Project # 3096544

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☒ Pace Other _____

Tracking #: _____

Custody Seal on Cooler/Box Present: ☒ yes ☐ no Seals intact: ☒ yes ☐ no

Packing Material: ☒ Bubble Wrap ☐ Bubble Bags ☐ None ☐ Other Ziplock

Thermometer Used 5 6 7

Type of Ice: Wet Blue None ☒ Samples on ice, cooling process has begun

Cooler Temperature 2.6

Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C

Comments:

Date and Initials of person examining contents: RAC 6/13/13

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix: <u>WIT</u>		
All containers needing preservation have been checked.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
exceptions: <u>VOA</u> coliform, TOC, O&G, WI-DRO (water)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Initial when completed <u>RAC</u> Lot # of added preservative
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	15.
Trip Blank Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution:

Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: Rachel D. Mustina

Date: 6/16/13

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

Project Number:

3096544

Client Name:

[illegible]

November 08, 2013

Mr. Joseph Skurka
Groundwater & Environmental Services
301 Commerce Park Drive
Cranberry Twp, PA 16066

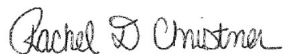
RE: Project: UPA Bradford M-061
Pace Project No.: 30106527

Dear Mr. Skurka:

Enclosed are the analytical results for sample(s) received by the laboratory on November 02, 2013. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Rachel Christner

rachel.christner@pacelabs.com
Project Manager

Enclosures

cc: Ms. Joan Amodeo, Groundwater and Environmental
Services, Inc.
Ms. Jackie Jones, Groundwater & Environmental Services
Ms. Nicole Kramer, Groundwater & Environmental
Services
Ms. Erin Letrick, Groundwater & Environmental Services



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: UPA Bradford M-061

Pace Project No.: 30106527

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4 Greensburg, PA 15601

ACLASS DOD-ELAP Accreditation #: ADE-1544

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California/TNI Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683

Guam/PADEP Certification

Hawaii/PADEP Certification

Idaho Certification

Illinois/PADEP Certification

Indiana/PADEP Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: 90133

Louisiana/TNI Certification #: LA080002

Louisiana/TNI Certification #: 4086

Maine Certification #: PA0091

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification

Missouri Certification #: 235

Montana Certification #: Cert 0082

Nevada Certification

New Hampshire/TNI Certification #: 2976

New Jersey/TNI Certification #: PA 051

New Mexico Certification

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Oregon/TNI Certification #: PA200002

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

South Dakota Certification

Tennessee Certification #: TN2867

Texas/TNI Certification #: T104704188

Utah/TNI Certification #: ANTE

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 460198

Washington Certification #: C868

West Virginia Certification #: 143

Wisconsin/PADEP Certification

Wyoming Certification #: 8TMS-Q

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30106527

Sample: MW-1R		Lab ID: 30106527001		Collected: 11/01/13 10:50		Received: 11/02/13 09:30		Matrix: Water	
Parameters		Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260							
Benzene		820 ug/L		50.0	10		11/06/13 20:54	71-43-2	
Ethylbenzene		21.2 ug/L		5.0	1		11/06/13 05:09	100-41-4	
Isopropylbenzene (Cumene)		12.2 ug/L		5.0	1		11/06/13 05:09	98-82-8	
Methyl-tert-butyl ether		5.4 ug/L		5.0	1		11/06/13 05:09	1634-04-4	
Naphthalene		6.7 ug/L		5.0	1		11/06/13 05:09	91-20-3	
Toluene		7.7 ug/L		5.0	1		11/06/13 05:09	108-88-3	
1,2,4-Trimethylbenzene		40.1 ug/L		5.0	1		11/06/13 05:09	95-63-6	
1,3,5-Trimethylbenzene		17.9 ug/L		5.0	1		11/06/13 05:09	108-67-8	
Xylene (Total)		81.8 ug/L		5.0	1		11/06/13 05:09	1330-20-7	
Surrogates									
Toluene-d8 (S)		97 %		85-115	1		11/06/13 05:09	2037-26-5	
4-Bromofluorobenzene (S)		90 %		85-115	1		11/06/13 05:09	460-00-4	
1,2-Dichloroethane-d4 (S)		92 %		77-119	1		11/06/13 05:09	17060-07-0	

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30106527

Sample: MW-3R		Lab ID: 30106527002		Collected: 11/01/13 12:10		Received: 11/02/13 09:30		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV PA UST		Analytical Method: EPA 8260							
Benzene	ND ug/L		5.0	1		11/06/13 05:35	71-43-2		
Ethylbenzene	ND ug/L		5.0	1		11/06/13 05:35	100-41-4		
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		11/06/13 05:35	98-82-8		
Methyl-tert-butyl ether	ND ug/L		5.0	1		11/06/13 05:35	1634-04-4		
Naphthalene	ND ug/L		5.0	1		11/06/13 05:35	91-20-3		
Toluene	ND ug/L		5.0	1		11/06/13 05:35	108-88-3		
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		11/06/13 05:35	95-63-6		
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		11/06/13 05:35	108-67-8		
Xylene (Total)	ND ug/L		5.0	1		11/06/13 05:35	1330-20-7		
Surrogates									
Toluene-d8 (S)	99 %		85-115	1		11/06/13 05:35	2037-26-5		
4-Bromofluorobenzene (S)	93 %		85-115	1		11/06/13 05:35	460-00-4		
1,2-Dichloroethane-d4 (S)	95 %		77-119	1		11/06/13 05:35	17060-07-0		

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30106527

Sample: MW-4		Lab ID: 30106527003		Collected: 11/01/13 10:30		Received: 11/02/13 09:30		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV PA UST		Analytical Method: EPA 8260							
Benzene	774	ug/L	25.0	5		11/06/13 21:19	71-43-2		
Ethylbenzene	28.1	ug/L	5.0	1		11/06/13 06:00	100-41-4		
Isopropylbenzene (Cumene)	13.8	ug/L	5.0	1		11/06/13 06:00	98-82-8		
Methyl-tert-butyl ether	ND	ug/L	5.0	1		11/06/13 06:00	1634-04-4		
Naphthalene	11.0	ug/L	5.0	1		11/06/13 06:00	91-20-3		
Toluene	12.6	ug/L	5.0	1		11/06/13 06:00	108-88-3		
1,2,4-Trimethylbenzene	64.7	ug/L	5.0	1		11/06/13 06:00	95-63-6		
1,3,5-Trimethylbenzene	18.2	ug/L	5.0	1		11/06/13 06:00	108-67-8		
Xylene (Total)	82.1	ug/L	5.0	1		11/06/13 06:00	1330-20-7		
Surrogates									
Toluene-d8 (S)	96	%	85-115	1		11/06/13 06:00	2037-26-5		
4-Bromofluorobenzene (S)	89	%	85-115	1		11/06/13 06:00	460-00-4		
1,2-Dichloroethane-d4 (S)	94	%	77-119	1		11/06/13 06:00	17060-07-0		

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30106527

Sample: MW-5		Lab ID: 30106527004		Collected: 11/01/13 11:50		Received: 11/02/13 09:30		Matrix: Water	
Parameters		Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260							
Benzene		ND ug/L		5.0	1		11/06/13 06:25	71-43-2	
Ethylbenzene		ND ug/L		5.0	1		11/06/13 06:25	100-41-4	
Isopropylbenzene (Cumene)		ND ug/L		5.0	1		11/06/13 06:25	98-82-8	
Methyl-tert-butyl ether		ND ug/L		5.0	1		11/06/13 06:25	1634-04-4	
Naphthalene		ND ug/L		5.0	1		11/06/13 06:25	91-20-3	
Toluene		ND ug/L		5.0	1		11/06/13 06:25	108-88-3	
1,2,4-Trimethylbenzene		ND ug/L		5.0	1		11/06/13 06:25	95-63-6	
1,3,5-Trimethylbenzene		ND ug/L		5.0	1		11/06/13 06:25	108-67-8	
Xylene (Total)		ND ug/L		5.0	1		11/06/13 06:25	1330-20-7	
Surrogates									
Toluene-d8 (S)		100 %		85-115	1		11/06/13 06:25	2037-26-5	
4-Bromofluorobenzene (S)		93 %		85-115	1		11/06/13 06:25	460-00-4	
1,2-Dichloroethane-d4 (S)		96 %		77-119	1		11/06/13 06:25	17060-07-0	

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30106527

Sample: MW-6		Lab ID: 30106527005	Collected: 11/01/13 11:10	Received: 11/02/13 09:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260						
Benzene	561 ug/L		25.0	5		11/06/13 21:45	71-43-2	
Ethylbenzene	22.8 ug/L		5.0	1		11/06/13 06:50	100-41-4	
Isopropylbenzene (Cumene)	15.0 ug/L		5.0	1		11/06/13 06:50	98-82-8	
Methyl-tert-butyl ether	9.1 ug/L		5.0	1		11/06/13 06:50	1634-04-4	
Naphthalene	33.9 ug/L		5.0	1		11/06/13 06:50	91-20-3	
Toluene	9.8 ug/L		5.0	1		11/06/13 06:50	108-88-3	
1,2,4-Trimethylbenzene	25.6 ug/L		5.0	1		11/06/13 06:50	95-63-6	
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		11/06/13 06:50	108-67-8	
Xylene (Total)	28.3 ug/L		5.0	1		11/06/13 06:50	1330-20-7	
Surrogates								
Toluene-d8 (S)	96 %		85-115	1		11/06/13 06:50	2037-26-5	
4-Bromofluorobenzene (S)	93 %		85-115	1		11/06/13 06:50	460-00-4	
1,2-Dichloroethane-d4 (S)	94 %		77-119	1		11/06/13 06:50	17060-07-0	

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30106527

Sample: MW-7		Lab ID: 30106527006		Collected: 11/01/13 11:30		Received: 11/02/13 09:30		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV PA UST		Analytical Method: EPA 8260							
Benzene	135 ug/L		5.0	1		11/06/13 08:37	71-43-2		
Ethylbenzene	ND ug/L		5.0	1		11/06/13 08:37	100-41-4		
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		11/06/13 08:37	98-82-8		
Methyl-tert-butyl ether	ND ug/L		5.0	1		11/06/13 08:37	1634-04-4		
Naphthalene	ND ug/L		5.0	1		11/06/13 08:37	91-20-3		
Toluene	ND ug/L		5.0	1		11/06/13 08:37	108-88-3		
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		11/06/13 08:37	95-63-6		
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		11/06/13 08:37	108-67-8		
Xylene (Total)	ND ug/L		5.0	1		11/06/13 08:37	1330-20-7		
Surrogates									
Toluene-d8 (S)	101 %		85-115	1		11/06/13 08:37	2037-26-5		
4-Bromofluorobenzene (S)	93 %		85-115	1		11/06/13 08:37	460-00-4		
1,2-Dichloroethane-d4 (S)	94 %		77-119	1		11/06/13 08:37	17060-07-0		

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30106527

Sample: MW-8		Lab ID: 30106527007		Collected: 11/01/13 10:00		Received: 11/02/13 09:30		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV PA UST		Analytical Method: EPA 8260							
Benzene	ND ug/L		5.0	1		11/06/13 09:02	71-43-2		
Ethylbenzene	ND ug/L		5.0	1		11/06/13 09:02	100-41-4		
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		11/06/13 09:02	98-82-8		
Methyl-tert-butyl ether	626 ug/L		25.0	5		11/06/13 22:10	1634-04-4		
Naphthalene	ND ug/L		5.0	1		11/06/13 09:02	91-20-3		
Toluene	ND ug/L		5.0	1		11/06/13 09:02	108-88-3		
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		11/06/13 09:02	95-63-6		
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		11/06/13 09:02	108-67-8		
Xylene (Total)	ND ug/L		5.0	1		11/06/13 09:02	1330-20-7		
Surrogates									
Toluene-d8 (S)	98 %		85-115	1		11/06/13 09:02	2037-26-5		
4-Bromofluorobenzene (S)	93 %		85-115	1		11/06/13 09:02	460-00-4		
1,2-Dichloroethane-d4 (S)	97 %		77-119	1		11/06/13 09:02	17060-07-0		

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30106527

Sample: MW-9		Lab ID: 30106527008	Collected: 11/01/13 09:45	Received: 11/02/13 09:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260						
Benzene	ND ug/L		5.0	1		11/06/13 09:15	71-43-2	
Ethylbenzene	ND ug/L		5.0	1		11/06/13 09:15	100-41-4	
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		11/06/13 09:15	98-82-8	
Methyl-tert-butyl ether	2310 ug/L		100	20		11/07/13 16:30	1634-04-4	
Naphthalene	ND ug/L		5.0	1		11/06/13 09:15	91-20-3	
Toluene	ND ug/L		5.0	1		11/06/13 09:15	108-88-3	
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		11/06/13 09:15	95-63-6	
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		11/06/13 09:15	108-67-8	
Xylene (Total)	ND ug/L		5.0	1		11/06/13 09:15	1330-20-7	
Surrogates								
Toluene-d8 (S)	100 %		85-115	1		11/06/13 09:15	2037-26-5	
4-Bromofluorobenzene (S)	95 %		85-115	1		11/06/13 09:15	460-00-4	
1,2-Dichloroethane-d4 (S)	98 %		77-119	1		11/06/13 09:15	17060-07-0	

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30106527

Sample: SB-8		Lab ID: 30106527009		Collected: 11/01/13 09:30		Received: 11/02/13 09:30		Matrix: Water	
Parameters		Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260							
Benzene		ND ug/L		5.0	1		11/06/13 08:50	71-43-2	
Ethylbenzene		ND ug/L		5.0	1		11/06/13 08:50	100-41-4	
Isopropylbenzene (Cumene)		ND ug/L		5.0	1		11/06/13 08:50	98-82-8	
Methyl-tert-butyl ether		ND ug/L		5.0	1		11/06/13 08:50	1634-04-4	
Naphthalene		ND ug/L		5.0	1		11/06/13 08:50	91-20-3	
Toluene		ND ug/L		5.0	1		11/06/13 08:50	108-88-3	
1,2,4-Trimethylbenzene		ND ug/L		5.0	1		11/06/13 08:50	95-63-6	
1,3,5-Trimethylbenzene		ND ug/L		5.0	1		11/06/13 08:50	108-67-8	
Xylene (Total)		ND ug/L		5.0	1		11/06/13 08:50	1330-20-7	
Surrogates									
Toluene-d8 (S)		98 %		85-115	1		11/06/13 08:50	2037-26-5	
4-Bromofluorobenzene (S)		98 %		85-115	1		11/06/13 08:50	460-00-4	
1,2-Dichloroethane-d4 (S)		97 %		77-119	1		11/06/13 08:50	17060-07-0	

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QUALITY CONTROL DATA

Project: UPA Bradford M-061

Pace Project No.: 30106527

QC Batch: MSV/17900

Analysis Method: EPA 8260

QC Batch Method: EPA 8260

Analysis Description: 8260 MSV UST-WATER

Associated Lab Samples: 30106527008, 30106527009

METHOD BLANK: 653420

Matrix: Water

Associated Lab Samples: 30106527008, 30106527009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	ND	1.0	11/05/13 23:31	
1,3,5-Trimethylbenzene	ug/L	ND	1.0	11/05/13 23:31	
Benzene	ug/L	ND	1.0	11/05/13 23:31	
Ethylbenzene	ug/L	ND	1.0	11/05/13 23:31	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	11/05/13 23:31	
Methyl-tert-butyl ether	ug/L	ND	1.0	11/05/13 23:31	
Naphthalene	ug/L	ND	2.0	11/05/13 23:31	
Toluene	ug/L	ND	1.0	11/05/13 23:31	
Xylene (Total)	ug/L	ND	3.0	11/05/13 23:31	
1,2-Dichloroethane-d4 (S)	%	91	77-119	11/05/13 23:31	
4-Bromofluorobenzene (S)	%	98	85-115	11/05/13 23:31	
Toluene-d8 (S)	%	102	85-115	11/05/13 23:31	

LABORATORY CONTROL SAMPLE: 653421

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/L	20	17.3	87	64-116	
1,3,5-Trimethylbenzene	ug/L	20	17.5	88	61-114	
Benzene	ug/L	20	19.5	97	66-122	
Ethylbenzene	ug/L	20	19.1	95	69-119	
Isopropylbenzene (Cumene)	ug/L	20	19.5	98	68-126	
Methyl-tert-butyl ether	ug/L	20	18.5	93	58-131	
Naphthalene	ug/L	20	18.6	93	51-123	
Toluene	ug/L	20	19.0	95	72-115	
Xylene (Total)	ug/L	60	54.7	91	70-123	
1,2-Dichloroethane-d4 (S)	%			91	77-119	
4-Bromofluorobenzene (S)	%			98	85-115	
Toluene-d8 (S)	%			99	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 653422

653423

Parameter	Units	30106127004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
1,2,4-Trimethylbenzene	ug/L	ND	20	20	17.0	18.8	85	94	64-116	10	
1,3,5-Trimethylbenzene	ug/L	ND	20	20	17.1	18.5	85	93	61-114	8	
Benzene	ug/L	ND	20	20	17.8	19.2	89	96	66-122	7	
Ethylbenzene	ug/L	ND	20	20	17.1	18.2	85	91	69-119	6	
Isopropylbenzene (Cumene)	ug/L	ND	20	20	19.3	21.2	96	106	68-126	10	
Methyl-tert-butyl ether	ug/L	ND	20	20	16.7	15.4	83	77	58-131	8	
Naphthalene	ug/L	ND	20	20	13.1	14.5	65	72	51-123	10	

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QUALITY CONTROL DATA

Project: UPA Bradford M-061

Pace Project No.: 30106527

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 653422 653423											
Parameter	Units	30106127004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Toluene	ug/L	ND	20	20	17.6	18.4	88	92	72-115	4	
Xylene (Total)	ug/L	ND	60	60	50.4	53.5	84	89	70-123	6	
1,2-Dichloroethane-d4 (S)	%						105	103	77-119		
4-Bromofluorobenzene (S)	%						92	93	85-115		
Toluene-d8 (S)	%						96	97	85-115		

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QUALITY CONTROL DATA

Project: UPA Bradford M-061

Pace Project No.: 30106527

QC Batch:	MSV/17901	Analysis Method:	EPA 8260
QC Batch Method:	EPA 8260	Analysis Description:	8260 MSV UST-WATER
Associated Lab Samples:	30106527001, 30106527002, 30106527003, 30106527004, 30106527005, 30106527006, 30106527007		
METHOD BLANK:	653424	Matrix:	Water
Associated Lab Samples:	30106527001, 30106527002, 30106527003, 30106527004, 30106527005, 30106527006, 30106527007		

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	ND	1.0	11/05/13 23:43	
1,3,5-Trimethylbenzene	ug/L	ND	1.0	11/05/13 23:43	
Benzene	ug/L	ND	1.0	11/05/13 23:43	
Ethylbenzene	ug/L	ND	1.0	11/05/13 23:43	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	11/05/13 23:43	
Methyl-tert-butyl ether	ug/L	ND	1.0	11/05/13 23:43	
Naphthalene	ug/L	ND	2.0	11/05/13 23:43	
Toluene	ug/L	ND	1.0	11/05/13 23:43	
Xylene (Total)	ug/L	ND	3.0	11/05/13 23:43	
1,2-Dichloroethane-d4 (S)	%	92	77-119	11/05/13 23:43	
4-Bromofluorobenzene (S)	%	98	85-115	11/05/13 23:43	
Toluene-d8 (S)	%	100	85-115	11/05/13 23:43	

LABORATORY CONTROL SAMPLE: 653425

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/L	20	16.6	83	64-116	
1,3,5-Trimethylbenzene	ug/L	20	16.3	81	61-114	
Benzene	ug/L	20	18.2	91	66-122	
Ethylbenzene	ug/L	20	17.8	89	69-119	
Isopropylbenzene (Cumene)	ug/L	20	18.2	91	68-126	
Methyl-tert-butyl ether	ug/L	20	16.4	82	58-131	
Naphthalene	ug/L	20	16.6	83	51-123	
Toluene	ug/L	20	17.8	89	72-115	
Xylene (Total)	ug/L	60	51.7	86	70-123	
1,2-Dichloroethane-d4 (S)	%			92	77-119	
4-Bromofluorobenzene (S)	%			96	85-115	
Toluene-d8 (S)	%			99	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 653426 653427

Parameter	Units	30106174001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
1,2,4-Trimethylbenzene	ug/L	ND	20	20	18.6	17.4	93	87	64-116	7	
1,3,5-Trimethylbenzene	ug/L	ND	20	20	18.9	17.3	94	87	61-114	9	
Benzene	ug/L	ND	20	20	18.7	18.1	93	90	66-122	3	
Ethylbenzene	ug/L	ND	20	20	18.6	17.7	93	89	69-119	5	
Isopropylbenzene (Cumene)	ug/L	ND	20	20	20.7	19.7	104	98	68-126	5	
Methyl-tert-butyl ether	ug/L	ND	20	20	16.3	16.3	82	81	58-131	0	
Naphthalene	ug/L	ND	20	20	14.6	14.8	73	74	51-123	1	

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QUALITY CONTROL DATA

Project: UPA Bradford M-061

Pace Project No.: 30106527

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 653426 653427											
Parameter	Units	30106174001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Toluene	ug/L	ND	20	20	18.3	17.6	92	88	72-115	4	
Xylene (Total)	ug/L	ND	60	60	53.6	51.2	89	85	70-123	5	
1,2-Dichloroethane-d4 (S)	%						103	101	77-119		
4-Bromofluorobenzene (S)	%						92	90	85-115		
Toluene-d8 (S)	%						94	96	85-115		

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QUALIFIERS

Project: UPA Bradford M-061

Pace Project No.: 30106527

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: UPA Bradford M-061

Pace Project No.: 30106527

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30106527001	MW-1R	EPA 8260	MSV/17901		
30106527002	MW-3R	EPA 8260	MSV/17901		
30106527003	MW-4	EPA 8260	MSV/17901		
30106527004	MW-5	EPA 8260	MSV/17901		
30106527005	MW-6	EPA 8260	MSV/17901		
30106527006	MW-7	EPA 8260	MSV/17901		
30106527007	MW-8	EPA 8260	MSV/17901		
30106527008	MW-9	EPA 8260	MSV/17900		
30106527009	SB-8	EPA 8260	MSV/17900		

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Groundwater & Environmental Services	Report To:	Erin Letrick	Attention:	Erin Letrick
Address:	301 Commerce Park Drive	Copy To:	Joan Amodeo	Company Name:	Groundwater & Environmental Services
	Cranberry Twp, PA 16066		301 Commerce Park Drive, Cranberry Twp, PA 16066	Address:	301 Commerce Park Drive, Cranberry Twp, PA 16066
Email To:	elétrick@gesonline.com	Purchase Order No.	UPA Bradford M-061	Pace Quote Reference:	
Phone:	800-267-2549 Fax: 724-779-4617	Client Project ID:	UPA Bradford M-061	Pace Project Manager:	Christner, Rachel
Requested Due Date/TAT:	10 Day (Default)	Container Order Number:		Pace Profile #:	

Page: 1 Of 1

Regulatory Agency	
UST - Underground Storage Tank	
State/Location	
Pennsylvania	

ITEM#	MATRIX	CODE	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives							Analyses Test	Y/N	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)
				START	END			Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other			
				DATE	TIME	DATE	TIME											
1	MW-1R	Drinking Water	WT G	11-1-13	10:50			3			X					X		30106527
2	MW-3R	Water	WT G		12:10			3			X					X		001
3	MW-4	Waste Water	WT G		10:30			3			X					X		003
4	MW-5	Product	WT G		11:50			3			X					X		004
5	MW-6	Soil/Solid	WT G		11:10			3			X					X		005
6	MW-7	Oil	WT G		11:30			3			X					X		006
7	MW-8	Wipe	WT G		10:00			3			X					X		007
8	MW-9	Air	WT G		09:45			3			X					X		008
9	SB-8	Other	WT G	✓	09:30			3			X					X		009
10	SB-11	Tissue	WT G					3			X					X		
11																		
12																		

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS	
	James R. Alesworth	11-1-13	1600	To Fed X	11-1-13	1600	Received on Ice	(Y/N)
					11-2-13	0430	Custody Sealed	(Y/N)
							TEMP in C	4.6
								Y
								N

UPAM061Bradford-lab report no.24067.EQEDD.zip	
Email to: ges@equisonline.com	
SAMPLER NAME AND SIGNATURE	
PRINT Name of SAMPLER:	James R. Alesworth
SIGNATURE of SAMPLER:	[Signature]
DATE Signed:	11-1-13



Sample Condition Upon Receipt

Client Name: GES

Project # 30166527

Courier: ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____

Tracking #: 8066 9531 5845

Custody Seal on Cooler/Box Present: ☐ yes ☒ no Seals intact: ☐ yes ☐ no

Packing Material: ☒ Bubble Wrap ☐ Bubble Bags ☐ None ☐ Other _____

Thermometer Used 5 6 7

Type of Ice: Wet Blue None ☒ Samples on ice, cooling process has begun

Cooler Temperature

4.6

Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C

Comments:

Date and Initials of person examining contents: PAC 11-2-13

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix: <u>WT</u>		
All containers needing preservation have been checked.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
exceptions: <u>VOA</u> , coliform, TOC, O&G, WI-DRO (water)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Initial when completed <u>PAC</u> Lot # of added preservative
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	15.
Trip Blank Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution:

Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: Pace & Christina

Date: 11/4/13

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

Client Name: GES

[illegible]

January 14, 2014

Mr. Joseph Skurka
Groundwater & Environmental Services
301 Commerce Park Drive
Cranberry Twp, PA 16066

RE: Project: UPA Bradford M-061
Pace Project No.: 30111181

Dear Mr. Skurka:

Enclosed are the analytical results for sample(s) received by the laboratory on January 10, 2014. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Rachel Christner

rachel.christner@pacelabs.com
Project Manager

Enclosures

cc: Ms. Joan Amodeo, Groundwater and Environmental
Services, Inc.
Ms. Jackie Jones, Groundwater & Environmental Services
Ms. Nicole Kramer, Groundwater & Environmental
Services
Ms. Erin Letrick, Groundwater & Environmental Services



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: UPA Bradford M-061

Pace Project No.: 30111181

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4 Greensburg, PA 15601

ACCLASS DOD-ELAP Accreditation #: ADE-1544

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California/TNI Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683

Guam/PADEP Certification

Hawaii/PADEP Certification

Idaho Certification

Illinois/PADEP Certification

Indiana/PADEP Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: 90133

Louisiana/TNI Certification #: LA080002

Louisiana/TNI Certification #: 4086

Maine Certification #: PA0091

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification

Missouri Certification #: 235

Montana Certification #: Cert 0082

Nevada Certification

New Hampshire/TNI Certification #: 2976

New Jersey/TNI Certification #: PA 051

New Mexico Certification

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Oregon/TNI Certification #: PA200002

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

South Dakota Certification

Tennessee Certification #: TN2867

Texas/TNI Certification #: T104704188

Utah/TNI Certification #: ANTE

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 460198

Washington Certification #: C868

West Virginia Certification #: 143

Wisconsin/PADEP Certification

Wyoming Certification #: 8TMS-Q

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30111181

Sample: MW-1R		Lab ID: 30111181001	Collected: 01/09/14 07:30	Received: 01/10/14 17:35	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260						
Benzene	398	ug/L	5.0	1		01/13/14 16:19	71-43-2	
Ethylbenzene	13.2	ug/L	5.0	1		01/13/14 16:19	100-41-4	
Isopropylbenzene (Cumene)	10.3	ug/L	5.0	1		01/13/14 16:19	98-82-8	
Methyl-tert-butyl ether	7.3	ug/L	5.0	1		01/13/14 16:19	1634-04-4	
Naphthalene	13.4	ug/L	5.0	1		01/13/14 16:19	91-20-3	
Toluene	5.3	ug/L	5.0	1		01/13/14 16:19	108-88-3	
1,2,4-Trimethylbenzene	43.5	ug/L	5.0	1		01/13/14 16:19	95-63-6	
1,3,5-Trimethylbenzene	14.9	ug/L	5.0	1		01/13/14 16:19	108-67-8	
Xylene (Total)	36.3	ug/L	5.0	1		01/13/14 16:19	1330-20-7	
Surrogates								
Toluene-d8 (S)	100	%	85-115	1		01/13/14 16:19	2037-26-5	
4-Bromofluorobenzene (S)	99	%	85-115	1		01/13/14 16:19	460-00-4	
1,2-Dichloroethane-d4 (S)	93	%	77-119	1		01/13/14 16:19	17060-07-0	

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30111181

Sample: MW-3R		Lab ID: 30111181002		Collected: 01/09/14 10:30		Received: 01/10/14 17:35		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV PA UST		Analytical Method: EPA 8260							
Benzene	ND ug/L		5.0	1		01/13/14 12:33	71-43-2		
Ethylbenzene	ND ug/L		5.0	1		01/13/14 12:33	100-41-4		
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		01/13/14 12:33	98-82-8		
Methyl-tert-butyl ether	ND ug/L		5.0	1		01/13/14 12:33	1634-04-4		
Naphthalene	ND ug/L		5.0	1		01/13/14 12:33	91-20-3		
Toluene	ND ug/L		5.0	1		01/13/14 12:33	108-88-3		
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		01/13/14 12:33	95-63-6		
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		01/13/14 12:33	108-67-8		
Xylene (Total)	ND ug/L		5.0	1		01/13/14 12:33	1330-20-7		
Surrogates									
Toluene-d8 (S)	100 %		85-115	1		01/13/14 12:33	2037-26-5		
4-Bromofluorobenzene (S)	96 %		85-115	1		01/13/14 12:33	460-00-4		
1,2-Dichloroethane-d4 (S)	100 %		77-119	1		01/13/14 12:33	17060-07-0		

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30111181

Sample: MW-4		Lab ID: 30111181003	Collected: 01/09/14 10:50	Received: 01/10/14 17:35	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260						
Benzene	422 ug/L		50.0	10		01/13/14 17:34	71-43-2	
Ethylbenzene	57.1 ug/L		5.0	1		01/13/14 17:09	100-41-4	
Isopropylbenzene (Cumene)	17.5 ug/L		5.0	1		01/13/14 17:09	98-82-8	
Methyl-tert-butyl ether	ND ug/L		5.0	1		01/13/14 17:09	1634-04-4	
Naphthalene	17.4 ug/L		5.0	1		01/13/14 17:09	91-20-3	
Toluene	7.9 ug/L		5.0	1		01/13/14 17:09	108-88-3	
1,2,4-Trimethylbenzene	179 ug/L		5.0	1		01/13/14 17:09	95-63-6	
1,3,5-Trimethylbenzene	34.6 ug/L		5.0	1		01/13/14 17:09	108-67-8	
Xylene (Total)	128 ug/L		5.0	1		01/13/14 17:09	1330-20-7	
Surrogates								
Toluene-d8 (S)	102 %		85-115	1		01/13/14 17:09	2037-26-5	
4-Bromofluorobenzene (S)	101 %		85-115	1		01/13/14 17:09	460-00-4	
1,2-Dichloroethane-d4 (S)	93 %		77-119	1		01/13/14 17:09	17060-07-0	

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30111181

Sample: MW-5		Lab ID: 30111181004		Collected: 01/09/14 10:10		Received: 01/10/14 17:35		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV PA UST		Analytical Method: EPA 8260							
Benzene	ND ug/L		5.0	1		01/13/14 12:08	71-43-2		
Ethylbenzene	ND ug/L		5.0	1		01/13/14 12:08	100-41-4		
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		01/13/14 12:08	98-82-8		
Methyl-tert-butyl ether	ND ug/L		5.0	1		01/13/14 12:08	1634-04-4		
Naphthalene	ND ug/L		5.0	1		01/13/14 12:08	91-20-3		
Toluene	ND ug/L		5.0	1		01/13/14 12:08	108-88-3		
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		01/13/14 12:08	95-63-6		
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		01/13/14 12:08	108-67-8		
Xylene (Total)	ND ug/L		5.0	1		01/13/14 12:08	1330-20-7		
Surrogates									
Toluene-d8 (S)	96 %		85-115	1		01/13/14 12:08	2037-26-5		
4-Bromofluorobenzene (S)	94 %		85-115	1		01/13/14 12:08	460-00-4		
1,2-Dichloroethane-d4 (S)	97 %		77-119	1		01/13/14 12:08	17060-07-0		

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30111181

Sample: MW-6		Lab ID: 30111181005	Collected: 01/09/14 08:30	Received: 01/10/14 17:35	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260						
Benzene	446 ug/L		50.0	10		01/13/14 18:24	71-43-2	
Ethylbenzene	17.5 ug/L		5.0	1		01/13/14 17:59	100-41-4	
Isopropylbenzene (Cumene)	16.7 ug/L		5.0	1		01/13/14 17:59	98-82-8	
Methyl-tert-butyl ether	6.8 ug/L		5.0	1		01/13/14 17:59	1634-04-4	
Naphthalene	11.8 ug/L		5.0	1		01/13/14 17:59	91-20-3	
Toluene	6.5 ug/L		5.0	1		01/13/14 17:59	108-88-3	
1,2,4-Trimethylbenzene	15.5 ug/L		5.0	1		01/13/14 17:59	95-63-6	
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		01/13/14 17:59	108-67-8	
Xylene (Total)	15.7 ug/L		5.0	1		01/13/14 17:59	1330-20-7	
Surrogates								
Toluene-d8 (S)	99 %		85-115	1		01/13/14 17:59	2037-26-5	
4-Bromofluorobenzene (S)	101 %		85-115	1		01/13/14 17:59	460-00-4	
1,2-Dichloroethane-d4 (S)	93 %		77-119	1		01/13/14 17:59	17060-07-0	

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30111181

Sample: MW-7		Lab ID: 30111181006	Collected: 01/09/14 09:30	Received: 01/10/14 17:35	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260						
Benzene	44.6 ug/L		5.0	1		01/13/14 13:23	71-43-2	
Ethylbenzene	ND ug/L		5.0	1		01/13/14 13:23	100-41-4	
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		01/13/14 13:23	98-82-8	
Methyl-tert-butyl ether	ND ug/L		5.0	1		01/13/14 13:23	1634-04-4	
Naphthalene	ND ug/L		5.0	1		01/13/14 13:23	91-20-3	
Toluene	ND ug/L		5.0	1		01/13/14 13:23	108-88-3	
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		01/13/14 13:23	95-63-6	
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		01/13/14 13:23	108-67-8	
Xylene (Total)	ND ug/L		5.0	1		01/13/14 13:23	1330-20-7	
Surrogates								
Toluene-d8 (S)	100 %		85-115	1		01/13/14 13:23	2037-26-5	
4-Bromofluorobenzene (S)	95 %		85-115	1		01/13/14 13:23	460-00-4	
1,2-Dichloroethane-d4 (S)	94 %		77-119	1		01/13/14 13:23	17060-07-0	

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30111181

Sample: MW-8		Lab ID: 30111181007	Collected: 01/09/14 11:50	Received: 01/10/14 17:35	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260						
Benzene	ND ug/L		5.0	1		01/13/14 18:50	71-43-2	
Ethylbenzene	ND ug/L		5.0	1		01/13/14 18:50	100-41-4	
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		01/13/14 18:50	98-82-8	
Methyl-tert-butyl ether	406 ug/L		50.0	10		01/13/14 19:15	1634-04-4	
Naphthalene	ND ug/L		5.0	1		01/13/14 18:50	91-20-3	
Toluene	ND ug/L		5.0	1		01/13/14 18:50	108-88-3	
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		01/13/14 18:50	95-63-6	
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		01/13/14 18:50	108-67-8	
Xylene (Total)	ND ug/L		5.0	1		01/13/14 18:50	1330-20-7	
Surrogates								
Toluene-d8 (S)	99 %		85-115	1		01/13/14 18:50	2037-26-5	
4-Bromofluorobenzene (S)	96 %		85-115	1		01/13/14 18:50	460-00-4	
1,2-Dichloroethane-d4 (S)	93 %		77-119	1		01/13/14 18:50	17060-07-0	

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30111181

Sample: MW-9		Lab ID: 30111181008	Collected: 01/09/14 12:10	Received: 01/10/14 17:35	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260						
Benzene	ND ug/L		5.0	1		01/13/14 19:40	71-43-2	
Ethylbenzene	ND ug/L		5.0	1		01/13/14 19:40	100-41-4	
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		01/13/14 19:40	98-82-8	
Methyl-tert-butyl ether	3330 ug/L		100	20		01/13/14 20:05	1634-04-4	
Naphthalene	ND ug/L		5.0	1		01/13/14 19:40	91-20-3	
Toluene	ND ug/L		5.0	1		01/13/14 19:40	108-88-3	
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		01/13/14 19:40	95-63-6	
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		01/13/14 19:40	108-67-8	
Xylene (Total)	ND ug/L		5.0	1		01/13/14 19:40	1330-20-7	
Surrogates								
Toluene-d8 (S)	100 %		85-115	1		01/13/14 19:40	2037-26-5	
4-Bromofluorobenzene (S)	96 %		85-115	1		01/13/14 19:40	460-00-4	
1,2-Dichloroethane-d4 (S)	96 %		77-119	1		01/13/14 19:40	17060-07-0	

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30111181

Sample: MW-10		Lab ID: 30111181009	Collected: 01/09/14 12:30	Received: 01/10/14 17:35	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260						
Benzene	ND ug/L		5.0	1		01/13/14 13:49	71-43-2	
Ethylbenzene	ND ug/L		5.0	1		01/13/14 13:49	100-41-4	
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		01/13/14 13:49	98-82-8	
Methyl-tert-butyl ether	27.0 ug/L		5.0	1		01/13/14 13:49	1634-04-4	
Naphthalene	ND ug/L		5.0	1		01/13/14 13:49	91-20-3	
Toluene	ND ug/L		5.0	1		01/13/14 13:49	108-88-3	
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		01/13/14 13:49	95-63-6	
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		01/13/14 13:49	108-67-8	
Xylene (Total)	ND ug/L		5.0	1		01/13/14 13:49	1330-20-7	
Surrogates								
Toluene-d8 (S)	99 %		85-115	1		01/13/14 13:49	2037-26-5	
4-Bromofluorobenzene (S)	93 %		85-115	1		01/13/14 13:49	460-00-4	
1,2-Dichloroethane-d4 (S)	95 %		77-119	1		01/13/14 13:49	17060-07-0	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30111181

Sample: MW-11		Lab ID: 30111181010		Collected: 01/09/14 12:50		Received: 01/10/14 17:35		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV PA UST		Analytical Method: EPA 8260							
Benzene	ND ug/L		5.0	1		01/13/14 15:29	71-43-2		
Ethylbenzene	ND ug/L		5.0	1		01/13/14 15:29	100-41-4		
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		01/13/14 15:29	98-82-8		
Methyl-tert-butyl ether	914 ug/L		50.0	10		01/13/14 21:45	1634-04-4		
Naphthalene	ND ug/L		5.0	1		01/13/14 15:29	91-20-3		
Toluene	ND ug/L		5.0	1		01/13/14 15:29	108-88-3		
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		01/13/14 15:29	95-63-6		
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		01/13/14 15:29	108-67-8		
Xylene (Total)	ND ug/L		5.0	1		01/13/14 15:29	1330-20-7		
Surrogates									
Toluene-d8 (S)	99 %		85-115	1		01/13/14 15:29	2037-26-5		
4-Bromofluorobenzene (S)	96 %		85-115	1		01/13/14 15:29	460-00-4		
1,2-Dichloroethane-d4 (S)	93 %		77-119	1		01/13/14 15:29	17060-07-0		

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30111181

Sample: MW-12		Lab ID: 30111181011	Collected: 01/09/14 09:50	Received: 01/10/14 17:35	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260						
Benzene	ND	ug/L	5.0	1		01/13/14 15:04	71-43-2	
Ethylbenzene	18.3	ug/L	5.0	1		01/13/14 15:04	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		01/13/14 15:04	98-82-8	
Methyl-tert-butyl ether	ND	ug/L	5.0	1		01/13/14 15:04	1634-04-4	
Naphthalene	ND	ug/L	5.0	1		01/13/14 15:04	91-20-3	
Toluene	48.8	ug/L	5.0	1		01/13/14 15:04	108-88-3	
1,2,4-Trimethylbenzene	36.6	ug/L	5.0	1		01/13/14 15:04	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	5.0	1		01/13/14 15:04	108-67-8	
Xylene (Total)	126	ug/L	5.0	1		01/13/14 15:04	1330-20-7	
Surrogates								
Toluene-d8 (S)	100	%	85-115	1		01/13/14 15:04	2037-26-5	
4-Bromofluorobenzene (S)	95	%	85-115	1		01/13/14 15:04	460-00-4	
1,2-Dichloroethane-d4 (S)	96	%	77-119	1		01/13/14 15:04	17060-07-0	

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30111181

Sample: MW-13		Lab ID: 30111181012	Collected: 01/09/14 08:00	Received: 01/10/14 17:35	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260						
Benzene	ND ug/L		5.0	1		01/13/14 14:14	71-43-2	
Ethylbenzene	ND ug/L		5.0	1		01/13/14 14:14	100-41-4	
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		01/13/14 14:14	98-82-8	
Methyl-tert-butyl ether	115 ug/L		5.0	1		01/13/14 14:14	1634-04-4	
Naphthalene	ND ug/L		5.0	1		01/13/14 14:14	91-20-3	
Toluene	ND ug/L		5.0	1		01/13/14 14:14	108-88-3	
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		01/13/14 14:14	95-63-6	
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		01/13/14 14:14	108-67-8	
Xylene (Total)	ND ug/L		5.0	1		01/13/14 14:14	1330-20-7	
Surrogates								
Toluene-d8 (S)	98 %		85-115	1		01/13/14 14:14	2037-26-5	
4-Bromofluorobenzene (S)	93 %		85-115	1		01/13/14 14:14	460-00-4	
1,2-Dichloroethane-d4 (S)	97 %		77-119	1		01/13/14 14:14	17060-07-0	

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30111181

Sample: MW-14		Lab ID: 30111181013	Collected: 01/09/14 09:00	Received: 01/10/14 17:35	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260						
Benzene	511 ug/L		25.0	5		01/14/14 12:48	71-43-2	
Ethylbenzene	77.2 ug/L		5.0	1		01/13/14 15:54	100-41-4	
Isopropylbenzene (Cumene)	23.1 ug/L		5.0	1		01/13/14 15:54	98-82-8	
Methyl-tert-butyl ether	11.7 ug/L		5.0	1		01/13/14 15:54	1634-04-4	
Naphthalene	33.3 ug/L		5.0	1		01/13/14 15:54	91-20-3	
Toluene	15.7 ug/L		5.0	1		01/13/14 15:54	108-88-3	
1,2,4-Trimethylbenzene	233 ug/L		5.0	1		01/13/14 15:54	95-63-6	
1,3,5-Trimethylbenzene	94.5 ug/L		5.0	1		01/13/14 15:54	108-67-8	
Xylene (Total)	712 ug/L		5.0	1		01/13/14 15:54	1330-20-7	
Surrogates								
Toluene-d8 (S)	100 %		85-115	1		01/13/14 15:54	2037-26-5	
4-Bromofluorobenzene (S)	101 %		85-115	1		01/13/14 15:54	460-00-4	
1,2-Dichloroethane-d4 (S)	92 %		77-119	1		01/13/14 15:54	17060-07-0	

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30111181

Sample: SB-8		Lab ID: 30111181014		Collected: 01/09/14 11:10		Received: 01/10/14 17:35		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV PA UST		Analytical Method: EPA 8260							
Benzene	ND ug/L		5.0	1		01/13/14 12:58	71-43-2		
Ethylbenzene	ND ug/L		5.0	1		01/13/14 12:58	100-41-4		
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		01/13/14 12:58	98-82-8		
Methyl-tert-butyl ether	ND ug/L		5.0	1		01/13/14 12:58	1634-04-4		
Naphthalene	ND ug/L		5.0	1		01/13/14 12:58	91-20-3		
Toluene	ND ug/L		5.0	1		01/13/14 12:58	108-88-3		
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		01/13/14 12:58	95-63-6		
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		01/13/14 12:58	108-67-8		
Xylene (Total)	ND ug/L		5.0	1		01/13/14 12:58	1330-20-7		
Surrogates									
Toluene-d8 (S)	98 %		85-115	1		01/13/14 12:58	2037-26-5		
4-Bromofluorobenzene (S)	97 %		85-115	1		01/13/14 12:58	460-00-4		
1,2-Dichloroethane-d4 (S)	100 %		77-119	1		01/13/14 12:58	17060-07-0		

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30111181

Sample: SB-11		Lab ID: 30111181015		Collected: 01/09/14 11:20		Received: 01/10/14 17:35		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV PA UST		Analytical Method: EPA 8260							
Benzene	ND ug/L		5.0	1		01/13/14 14:39	71-43-2		
Ethylbenzene	ND ug/L		5.0	1		01/13/14 14:39	100-41-4		
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		01/13/14 14:39	98-82-8		
Methyl-tert-butyl ether	ND ug/L		5.0	1		01/13/14 14:39	1634-04-4		
Naphthalene	ND ug/L		5.0	1		01/13/14 14:39	91-20-3		
Toluene	ND ug/L		5.0	1		01/13/14 14:39	108-88-3		
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		01/13/14 14:39	95-63-6		
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		01/13/14 14:39	108-67-8		
Xylene (Total)	ND ug/L		5.0	1		01/13/14 14:39	1330-20-7		
Surrogates									
Toluene-d8 (S)	97 %		85-115	1		01/13/14 14:39	2037-26-5		
4-Bromofluorobenzene (S)	96 %		85-115	1		01/13/14 14:39	460-00-4		
1,2-Dichloroethane-d4 (S)	102 %		77-119	1		01/13/14 14:39	17060-07-0		

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QUALITY CONTROL DATA

Project: UPA Bradford M-061

Pace Project No.: 3011181

QC Batch:	MSV/18514	Analysis Method:	EPA 8260
QC Batch Method:	EPA 8260	Analysis Description:	8260 MSV UST-WATER
Associated Lab Samples:	3011181001, 3011181002, 3011181003, 3011181004, 3011181005, 3011181006, 3011181007, 3011181008, 3011181009, 3011181010, 3011181011, 3011181012, 3011181013, 3011181014, 3011181015		

METHOD BLANK: 678923

Matrix: Water

Associated Lab Samples: 3011181001, 3011181002, 3011181003, 3011181004, 3011181005, 3011181006, 3011181007, 3011181008, 3011181009, 3011181010, 3011181011, 3011181012, 3011181013, 3011181014, 3011181015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	ND	1.0	01/13/14 11:43	
1,3,5-Trimethylbenzene	ug/L	ND	1.0	01/13/14 11:43	
Benzene	ug/L	ND	1.0	01/13/14 11:43	
Ethylbenzene	ug/L	ND	1.0	01/13/14 11:43	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	01/13/14 11:43	
Methyl-tert-butyl ether	ug/L	ND	1.0	01/13/14 11:43	
Naphthalene	ug/L	ND	2.0	01/13/14 11:43	
Toluene	ug/L	ND	1.0	01/13/14 11:43	
Xylene (Total)	ug/L	ND	3.0	01/13/14 11:43	
1,2-Dichloroethane-d4 (S)	%	98	77-119	01/13/14 11:43	
4-Bromofluorobenzene (S)	%	96	85-115	01/13/14 11:43	
Toluene-d8 (S)	%	97	85-115	01/13/14 11:43	

LABORATORY CONTROL SAMPLE: 678924

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/L	20	18.7	94	64-116	
1,3,5-Trimethylbenzene	ug/L	20	17.7	88	61-114	
Benzene	ug/L	20	18.9	94	66-122	
Ethylbenzene	ug/L	20	17.8	89	69-119	
Isopropylbenzene (Cumene)	ug/L	20	19.7	99	68-126	
Methyl-tert-butyl ether	ug/L	20	18.5	93	58-131	
Naphthalene	ug/L	20	19.6	98	51-123	
Toluene	ug/L	20	18.5	93	72-115	
Xylene (Total)	ug/L	60	54.7	91	70-123	
1,2-Dichloroethane-d4 (S)	%			94	77-119	
4-Bromofluorobenzene (S)	%			98	85-115	
Toluene-d8 (S)	%			100	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 678925 678926

Parameter	Units	3011181004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
1,2,4-Trimethylbenzene	ug/L	ND	20	20	18.5	19.1	93	96	64-116	3	
1,3,5-Trimethylbenzene	ug/L	ND	20	20	17.4	18.4	87	92	61-114	5	
Benzene	ug/L	ND	20	20	19.9	20.2	99	101	66-122	1	
Ethylbenzene	ug/L	ND	20	20	17.5	17.8	88	89	69-119	2	
Isopropylbenzene (Cumene)	ug/L	ND	20	20	19.7	20.4	99	102	68-126	3	

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QUALITY CONTROL DATA

Project: UPA Bradford M-061

Pace Project No.: 30111181

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 678925 678926											
Parameter	Units	30111181004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Methyl-tert-butyl ether	ug/L	ND	20	20	18.5	17.7	93	89	58-131	4	
Naphthalene	ug/L	ND	20	20	13.9	16.1	70	81	51-123	15	
Toluene	ug/L	ND	20	20	18.9	19.1	94	96	72-115	1	
Xylene (Total)	ug/L	ND	60	60	55.5	57.0	92	95	70-123	3	
1,2-Dichloroethane-d4 (S)	%						96	95	77-119		
4-Bromofluorobenzene (S)	%						97	98	85-115		
Toluene-d8 (S)	%						97	98	85-115		

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QUALIFIERS

Project: UPA Bradford M-061

Pace Project No.: 30111181

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: UPA Bradford M-061

Pace Project No.: 30111181

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30111181001	MW-1R	EPA 8260	MSV/18514		
30111181002	MW-3R	EPA 8260	MSV/18514		
30111181003	MW-4	EPA 8260	MSV/18514		
30111181004	MW-5	EPA 8260	MSV/18514		
30111181005	MW-6	EPA 8260	MSV/18514		
30111181006	MW-7	EPA 8260	MSV/18514		
30111181007	MW-8	EPA 8260	MSV/18514		
30111181008	MW-9	EPA 8260	MSV/18514		
30111181009	MW-10	EPA 8260	MSV/18514		
30111181010	MW-11	EPA 8260	MSV/18514		
30111181011	MW-12	EPA 8260	MSV/18514		
30111181012	MW-13	EPA 8260	MSV/18514		
30111181013	MW-14	EPA 8260	MSV/18514		
30111181014	SB-8	EPA 8260	MSV/18514		
30111181015	SB-11	EPA 8260	MSV/18514		

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A		Section B		Section C	
Required Client Information:		Required Project Information:		Invoice Information:	
Company:	Groundwater & Environmental Services	Report To:	Erin Letrick	Attention:	Erin Letrick
Address:	301 Commerce Park Drive	Copy To:	Joan Amodeo	Company Name:	Groundwater & Environmental Services
Cranberry Twp, PA 16066				Address:	301 Commerce Park Drive, Cranberry Twp, PA 16066
Email To:	elctrick@gesonline.com	Purchase Order No.	UPA Bradford M-061	Pace Quote Reference:	
Phone:	800-267-2549 Fax: 724-779-4617	Client Project ID:	UPA Bradford M-061	Pace Project Manager:	Christher, Rachel
Requested Due Date/TAT:	10 Day (Default)	Container Order Number:		Pace Profile #:	

Section B		Section C	
Required Project Information:		Requested Analysis Filtered (Y/N)	
Company:	Groundwater & Environmental Services		
Address:	301 Commerce Park Drive		
Cranberry Twp, PA 16066			
Email To:	elctrick@gesonline.com		
Phone:	800-267-2549 Fax: 724-779-4617		
Requested Due Date/TAT:	10 Day (Default)		

ITEM#	MATRIX	CODE	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives						Analyses Test	Y/N	8260B (NEW Unleaded Shortlist)	Residual Chlorine (Y/N)
				START	END			H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol				
1	MW-1R	DW	WT G	DATE	TIME	DATE	TIME										
2	MW-3R	WT	WT G	DATE	TIME	DATE	TIME										
3	MW-4	WT	WT G	DATE	TIME	DATE	TIME										
4	MW-5	WT	WT G	DATE	TIME	DATE	TIME										
5	MW-6	WT	WT G	DATE	TIME	DATE	TIME										
6	MW-7	WT	WT G	DATE	TIME	DATE	TIME										
7	MW-8	WT	WT G	DATE	TIME	DATE	TIME										
8	MW-9	WT	WT G	DATE	TIME	DATE	TIME										
9	MW-10	WT	WT G	DATE	TIME	DATE	TIME										
10	MW-11	WT	WT G	DATE	TIME	DATE	TIME										
11																	
12																	

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
3 Day TAT	UPA Bradford M-061	10-14	0830	To GES EquiLab	10-14	0830	
UPAM061Bradford-lab report no.24067.EQEDD.zip	UPA Bradford M-061	1-10	1735	Plm	1-10	1735	Y N Y

Email to: ges@equisonline.com		SAMPLER NAME AND SIGNATURE		TEMP in C		Received on Ice (Y/N)		Custody Sealed (Y/N)		Samples Intact (Y/N)	
		PRINT Name of SAMPLER:		DATE Signed:							
		SIGNATURE of SAMPLER:									



CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A	Section B	Section C
Required Client Information:	Required Project Information:	Invoice Information:
Company: Groundwater & Environmental Services	Report To: Erin Letrick	Attention: Erin Letrick
Address: 301 Commerce Park Drive	Copy To: Joan Amodeo	Company Name: Groundwater & Environmental Services
Cranberry Twp, PA 16066	301 Commerce Park Drive, Cranberry Twp, PA 16066	Address: 301 Commerce Park Drive, Cranberry Twp, PA 16066
Email To: eletrick@gesonline.com	Purchase Order No. UPA Bradford M-061	Pace Quote Reference:
Phone: 800-267-2549 Fax: 724-779-4617	Client Project ID: UPA Bradford M-061	Pace Project Manager: Christner, Rachel
Requested Due Date/TAT: 10-01-2014	Container Order Number:	Pace Profile #:

Requested Analysis Filtered (Y/N)	Requested Analysis Filtered (Y/N)
Regulatory Agency	Regulatory Agency
UST - Underground Storage Tank	UST - Underground Storage Tank
State / Location	State / Location
Pennsylvania	Pennsylvania

ITEM #	MATRIX	CODE	COLLECTED		SAMPLE TYPE (G=GRAB C=COMP)	MATRIX CODE (see valid codes to left)	DATE		TIME	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
			START	END			DATE	TIME							
1	MW-12	DW			WT	G	1-9-14	0930	3						
2	MW-13	WT			WT	G	1-9-14	0930	3						
3	MW-14	WW			WT	G	1-9-14	0930	3						
4	SB-8	P			WT	G	1-9-14	1110	3						
5	SB-11	SL			WT	G	1-9-14	1130	3						
6		OL													
7		WP													
8		AR													
9		OT													
10		TS													
11															
12															

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
3 Day TAT	GES	1-9-14	0630	To 665 Superficial	1-10-14	0630	
	GES	1-10-14	0630	CP/MS PQ & C	1-10-14	3:05	
	GES	1-10-14	5:35	CP/MS PQ & C	1-10-14	1735	Y
UPAM061Bradford-lab report no.24067.EQEDD.zip							WY

TEMP in C	Received on Ice (Y/N)	Custody Sealed (Y/N)	Samples Intact (Y/N)
SAMPLER NAME AND SIGNATURE			
PRINT Name of SAMPLER: James R. Letrick			
SIGNATURE of SAMPLER: [Signature]			
DATE Signed: 1-9-14			



Sample Condition Upon Receipt

Client Name: GESProject # 3011161Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☒ Pace Other _____

Tracking #: _____

Optional

Proj. Due Date:

Proj. Name:

Custody Seal on Cooler/Box Present: ☐ yes ☒ no Seals intact: ☐ yes ☐ noPacking Material: ☒ Bubble Wrap ☐ Bubble Bags ☐ None ☐ Other Ziplock BagThermometer Used (5) 6 7Type of Ice: Wet Blue None☒ Samples on ice, cooling process has begunCooler Temperature 4.3

Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: RAC 1-10-14

Temp should be above freezing to 6°C

Comments:

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix: <u>WT</u>		
All containers needing preservation have been checked.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
exceptions: <u>VOA</u> , coliform, TOC, O&G, WI-DRO (water)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Initial when completed <u>RAC</u> Lot # of added preservative
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	15.
Trip Blank Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution:

Field Data Required?

Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review:

Carol D. Christman

Date:

1/13/14

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

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F-ALL-C003-6 SCURF front 2April2012.xls

301151

Client Name:

[illegible]

June 24, 2014

Ms. Erin Letrick
Groundwater & Environmental Services
301 Commerce Park Drive
Cranberry Twp, PA 16066

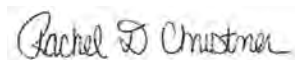
RE: Project: UPA Bradford M-061
Pace Project No.: 30123134

Dear Ms. Letrick:

Enclosed are the analytical results for sample(s) received by the laboratory on June 19, 2014. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Rachel Christner
rachel.christner@pacelabs.com
Project Manager

Enclosures

cc: Ms. Joan Amodeo, Groundwater and Environmental
Services, Inc.
Ms. Caitlin Conte, Groundwater & Environmental Services,
Inc.



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: UPA Bradford M-061

Pace Project No.: 30123134

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4 Greensburg, PA 15601

ACCLASS DOD-ELAP Accreditation #: ADE-1544

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California/TNI Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683

Guam/PADEP Certification

Hawaii/PADEP Certification

Idaho Certification

Illinois/PADEP Certification

Indiana/PADEP Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: 90133

Louisiana DHH/TNI Certification #: LA140008

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: PA00091

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification

Missouri Certification #: 235

Montana Certification #: Cert 0082

Nebraska Certification #: NE-05-29-14

Nevada Certification

New Hampshire/TNI Certification #: 2976

New Jersey/TNI Certification #: PA 051

New Mexico Certification

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Oregon/TNI Certification #: PA200002

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

South Dakota Certification

Tennessee Certification #: TN2867

Texas/TNI Certification #: T104704188

Utah/TNI Certification #: PA014572014-4

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 460198

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin/PADEP Certification

Wyoming Certification #: 8TMS-Q

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30123134

Sample: MW-1R		Lab ID: 30123134001	Collected: 06/17/14 14:35	Received: 06/19/14 14:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260B						
Benzene	261	ug/L	5.0	1		06/21/14 13:15	71-43-2	
Ethylbenzene	19.9	ug/L	5.0	1		06/21/14 13:15	100-41-4	
Isopropylbenzene (Cumene)	18.4	ug/L	5.0	1		06/21/14 13:15	98-82-8	
Methyl-tert-butyl ether	ND	ug/L	5.0	1		06/21/14 13:15	1634-04-4	
Naphthalene	17.9	ug/L	5.0	1		06/21/14 13:15	91-20-3	
Toluene	14.8	ug/L	5.0	1		06/21/14 13:15	108-88-3	
1,2,4-Trimethylbenzene	130	ug/L	5.0	1		06/21/14 13:15	95-63-6	
1,3,5-Trimethylbenzene	24.8	ug/L	5.0	1		06/21/14 13:15	108-67-8	
Xylene (Total)	37.6	ug/L	5.0	1		06/21/14 13:15	1330-20-7	
Surrogates								
Toluene-d8 (S)	89	%	85-115	1		06/21/14 13:15	2037-26-5	
4-Bromofluorobenzene (S)	100	%	85-115	1		06/21/14 13:15	460-00-4	
1,2-Dichloroethane-d4 (S)	105	%	77-119	1		06/21/14 13:15	17060-07-0	

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30123134

Sample: MW-3R		Lab ID: 30123134002	Collected: 06/17/14 12:00	Received: 06/19/14 14:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260B						
Benzene	ND ug/L		5.0	1		06/21/14 14:05	71-43-2	
Ethylbenzene	ND ug/L		5.0	1		06/21/14 14:05	100-41-4	
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		06/21/14 14:05	98-82-8	
Methyl-tert-butyl ether	ND ug/L		5.0	1		06/21/14 14:05	1634-04-4	
Naphthalene	7.3 ug/L		5.0	1		06/21/14 14:05	91-20-3	
Toluene	ND ug/L		5.0	1		06/21/14 14:05	108-88-3	
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		06/21/14 14:05	95-63-6	
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		06/21/14 14:05	108-67-8	
Xylene (Total)	ND ug/L		5.0	1		06/21/14 14:05	1330-20-7	
Surrogates								
Toluene-d8 (S)	91 %		85-115	1		06/21/14 14:05	2037-26-5	
4-Bromofluorobenzene (S)	99 %		85-115	1		06/21/14 14:05	460-00-4	
1,2-Dichloroethane-d4 (S)	99 %		77-119	1		06/21/14 14:05	17060-07-0	

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30123134

Sample: MW-4		Lab ID: 30123134003	Collected: 06/17/14 11:00	Received: 06/19/14 14:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260B						
Benzene	212	ug/L	5.0	1		06/21/14 14:29	71-43-2	
Ethylbenzene	25.8	ug/L	5.0	1		06/21/14 14:29	100-41-4	
Isopropylbenzene (Cumene)	15.6	ug/L	5.0	1		06/21/14 14:29	98-82-8	
Methyl-tert-butyl ether	ND	ug/L	5.0	1		06/21/14 14:29	1634-04-4	
Naphthalene	7.9	ug/L	5.0	1		06/21/14 14:29	91-20-3	
Toluene	9.2	ug/L	5.0	1		06/21/14 14:29	108-88-3	
1,2,4-Trimethylbenzene	173	ug/L	5.0	1		06/21/14 14:29	95-63-6	
1,3,5-Trimethylbenzene	17.0	ug/L	5.0	1		06/21/14 14:29	108-67-8	
Xylene (Total)	24.5	ug/L	5.0	1		06/21/14 14:29	1330-20-7	
Surrogates								
Toluene-d8 (S)	90	%	85-115	1		06/21/14 14:29	2037-26-5	
4-Bromofluorobenzene (S)	104	%	85-115	1		06/21/14 14:29	460-00-4	
1,2-Dichloroethane-d4 (S)	103	%	77-119	1		06/21/14 14:29	17060-07-0	

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30123134

Sample: MW-5		Lab ID: 30123134004		Collected: 06/17/14 11:30		Received: 06/19/14 14:30		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV PA UST		Analytical Method: EPA 8260B							
Benzene	ND ug/L		5.0	1		06/21/14 11:11	71-43-2		
Ethylbenzene	ND ug/L		5.0	1		06/21/14 11:11	100-41-4		
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		06/21/14 11:11	98-82-8		
Methyl-tert-butyl ether	ND ug/L		5.0	1		06/21/14 11:11	1634-04-4		
Naphthalene	ND ug/L		5.0	1		06/21/14 11:11	91-20-3		
Toluene	ND ug/L		5.0	1		06/21/14 11:11	108-88-3		
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		06/21/14 11:11	95-63-6		
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		06/21/14 11:11	108-67-8		
Xylene (Total)	ND ug/L		5.0	1		06/21/14 11:11	1330-20-7		
Surrogates									
Toluene-d8 (S)	92 %		85-115	1		06/21/14 11:11	2037-26-5		
4-Bromofluorobenzene (S)	102 %		85-115	1		06/21/14 11:11	460-00-4		
1,2-Dichloroethane-d4 (S)	101 %		77-119	1		06/21/14 11:11	17060-07-0		

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30123134

Sample: MW-6		Lab ID: 30123134005	Collected: 06/17/14 15:20	Received: 06/19/14 14:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260B						
Benzene	201 ug/L		5.0	1		06/21/14 15:19	71-43-2	
Ethylbenzene	24.5 ug/L		5.0	1		06/21/14 15:19	100-41-4	
Isopropylbenzene (Cumene)	15.0 ug/L		5.0	1		06/21/14 15:19	98-82-8	
Methyl-tert-butyl ether	7.8 ug/L		5.0	1		06/21/14 15:19	1634-04-4	
Naphthalene	11.7 ug/L		5.0	1		06/21/14 15:19	91-20-3	
Toluene	8.7 ug/L		5.0	1		06/21/14 15:19	108-88-3	
1,2,4-Trimethylbenzene	22.8 ug/L		5.0	1		06/21/14 15:19	95-63-6	
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		06/21/14 15:19	108-67-8	
Xylene (Total)	15.8 ug/L		5.0	1		06/21/14 15:19	1330-20-7	
Surrogates								
Toluene-d8 (S)	84 %		85-115	1		06/21/14 15:19	2037-26-5	S2
4-Bromofluorobenzene (S)	102 %		85-115	1		06/21/14 15:19	460-00-4	
1,2-Dichloroethane-d4 (S)	103 %		77-119	1		06/21/14 15:19	17060-07-0	

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30123134

Sample: MW-7		Lab ID: 30123134006	Collected: 06/17/14 16:00	Received: 06/19/14 14:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260B						
Benzene	49.4 ug/L		5.0	1		06/21/14 16:09	71-43-2	
Ethylbenzene	ND ug/L		5.0	1		06/21/14 16:09	100-41-4	
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		06/21/14 16:09	98-82-8	
Methyl-tert-butyl ether	ND ug/L		5.0	1		06/21/14 16:09	1634-04-4	
Naphthalene	ND ug/L		5.0	1		06/21/14 16:09	91-20-3	
Toluene	ND ug/L		5.0	1		06/21/14 16:09	108-88-3	
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		06/21/14 16:09	95-63-6	
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		06/21/14 16:09	108-67-8	
Xylene (Total)	ND ug/L		5.0	1		06/21/14 16:09	1330-20-7	
Surrogates								
Toluene-d8 (S)	94 %		85-115	1		06/21/14 16:09	2037-26-5	
4-Bromofluorobenzene (S)	101 %		85-115	1		06/21/14 16:09	460-00-4	
1,2-Dichloroethane-d4 (S)	100 %		77-119	1		06/21/14 16:09	17060-07-0	

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30123134

Sample: MW-8		Lab ID: 30123134007		Collected: 06/17/14 17:20		Received: 06/19/14 14:30		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV PA UST		Analytical Method: EPA 8260B							
Benzene	ND ug/L		5.0	1		06/21/14 16:33	71-43-2		
Ethylbenzene	ND ug/L		5.0	1		06/21/14 16:33	100-41-4		
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		06/21/14 16:33	98-82-8		
Methyl-tert-butyl ether	289 ug/L		5.0	1		06/21/14 16:33	1634-04-4		
Naphthalene	ND ug/L		5.0	1		06/21/14 16:33	91-20-3		
Toluene	ND ug/L		5.0	1		06/21/14 16:33	108-88-3		
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		06/21/14 16:33	95-63-6		
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		06/21/14 16:33	108-67-8		
Xylene (Total)	ND ug/L		5.0	1		06/21/14 16:33	1330-20-7		
Surrogates									
Toluene-d8 (S)	92 %		85-115	1		06/21/14 16:33	2037-26-5		
4-Bromofluorobenzene (S)	107 %		85-115	1		06/21/14 16:33	460-00-4		
1,2-Dichloroethane-d4 (S)	100 %		77-119	1		06/21/14 16:33	17060-07-0		

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30123134

Sample: MW-9		Lab ID: 30123134008	Collected: 06/17/14 17:40	Received: 06/19/14 14:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260B						
Benzene	ND ug/L		5.0	1		06/21/14 17:23	71-43-2	
Ethylbenzene	ND ug/L		5.0	1		06/21/14 17:23	100-41-4	
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		06/21/14 17:23	98-82-8	
Methyl-tert-butyl ether	2870 ug/L		100	20		06/21/14 17:48	1634-04-4	
Naphthalene	ND ug/L		5.0	1		06/21/14 17:23	91-20-3	
Toluene	ND ug/L		5.0	1		06/21/14 17:23	108-88-3	
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		06/21/14 17:23	95-63-6	
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		06/21/14 17:23	108-67-8	
Xylene (Total)	ND ug/L		5.0	1		06/21/14 17:23	1330-20-7	
Surrogates								
Toluene-d8 (S)	90 %		85-115	1		06/21/14 17:23	2037-26-5	
4-Bromofluorobenzene (S)	103 %		85-115	1		06/21/14 17:23	460-00-4	
1,2-Dichloroethane-d4 (S)	100 %		77-119	1		06/21/14 17:23	17060-07-0	

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30123134

Sample: MW-10		Lab ID: 30123134009	Collected: 06/17/14 18:00	Received: 06/19/14 14:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260B						
Benzene	ND ug/L		5.0	1		06/21/14 18:13	71-43-2	
Ethylbenzene	ND ug/L		5.0	1		06/21/14 18:13	100-41-4	
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		06/21/14 18:13	98-82-8	
Methyl-tert-butyl ether	392 ug/L		5.0	1		06/21/14 18:13	1634-04-4	
Naphthalene	ND ug/L		5.0	1		06/21/14 18:13	91-20-3	
Toluene	ND ug/L		5.0	1		06/21/14 18:13	108-88-3	
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		06/21/14 18:13	95-63-6	
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		06/21/14 18:13	108-67-8	
Xylene (Total)	ND ug/L		5.0	1		06/21/14 18:13	1330-20-7	
Surrogates								
Toluene-d8 (S)	91 %		85-115	1		06/21/14 18:13	2037-26-5	
4-Bromofluorobenzene (S)	108 %		85-115	1		06/21/14 18:13	460-00-4	
1,2-Dichloroethane-d4 (S)	101 %		77-119	1		06/21/14 18:13	17060-07-0	

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30123134

Sample: MW-11		Lab ID: 30123134010	Collected: 06/17/14 17:00	Received: 06/19/14 14:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260B						
Benzene	8.6 ug/L		5.0	1		06/21/14 18:38	71-43-2	
Ethylbenzene	5.3 ug/L		5.0	1		06/21/14 18:38	100-41-4	
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		06/21/14 18:38	98-82-8	
Methyl-tert-butyl ether	1360 ug/L		50.0	10		06/21/14 19:02	1634-04-4	
Naphthalene	ND ug/L		5.0	1		06/21/14 18:38	91-20-3	
Toluene	ND ug/L		5.0	1		06/21/14 18:38	108-88-3	
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		06/21/14 18:38	95-63-6	
1,3,5-Trimethylbenzene	5.0 ug/L		5.0	1		06/21/14 18:38	108-67-8	
Xylene (Total)	ND ug/L		5.0	1		06/21/14 18:38	1330-20-7	
Surrogates								
Toluene-d8 (S)	90 %		85-115	1		06/21/14 18:38	2037-26-5	
4-Bromofluorobenzene (S)	105 %		85-115	1		06/21/14 18:38	460-00-4	
1,2-Dichloroethane-d4 (S)	103 %		77-119	1		06/21/14 18:38	17060-07-0	

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30123134

Sample: MW-12		Lab ID: 30123134011		Collected: 06/17/14 16:20		Received: 06/19/14 14:30		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV PA UST		Analytical Method: EPA 8260B							
Benzene	ND ug/L		5.0	1		06/21/14 19:27	71-43-2		
Ethylbenzene	ND ug/L		5.0	1		06/21/14 19:27	100-41-4		
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		06/21/14 19:27	98-82-8		
Methyl-tert-butyl ether	ND ug/L		5.0	1		06/21/14 19:27	1634-04-4		
Naphthalene	ND ug/L		5.0	1		06/21/14 19:27	91-20-3		
Toluene	ND ug/L		5.0	1		06/21/14 19:27	108-88-3		
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		06/21/14 19:27	95-63-6		
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		06/21/14 19:27	108-67-8		
Xylene (Total)	5.1 ug/L		5.0	1		06/21/14 19:27	1330-20-7		
Surrogates									
Toluene-d8 (S)	88 %		85-115	1		06/21/14 19:27	2037-26-5		
4-Bromofluorobenzene (S)	99 %		85-115	1		06/21/14 19:27	460-00-4		
1,2-Dichloroethane-d4 (S)	104 %		77-119	1		06/21/14 19:27	17060-07-0		

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30123134

Sample: MW-13		Lab ID: 30123134012	Collected: 06/17/14 15:00	Received: 06/19/14 14:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260B						
Benzene	ND ug/L		5.0	1		06/21/14 19:52	71-43-2	
Ethylbenzene	ND ug/L		5.0	1		06/21/14 19:52	100-41-4	
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		06/21/14 19:52	98-82-8	
Methyl-tert-butyl ether	1350 ug/L		50.0	10		06/23/14 12:49	1634-04-4	
Naphthalene	ND ug/L		5.0	1		06/21/14 19:52	91-20-3	
Toluene	ND ug/L		5.0	1		06/21/14 19:52	108-88-3	
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		06/21/14 19:52	95-63-6	
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		06/21/14 19:52	108-67-8	
Xylene (Total)	ND ug/L		5.0	1		06/21/14 19:52	1330-20-7	
Surrogates								
Toluene-d8 (S)	91 %		85-115	1		06/21/14 19:52	2037-26-5	
4-Bromofluorobenzene (S)	108 %		85-115	1		06/21/14 19:52	460-00-4	
1,2-Dichloroethane-d4 (S)	99 %		77-119	1		06/21/14 19:52	17060-07-0	

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30123134

Sample: MW-14		Lab ID: 30123134013	Collected: 06/17/14 15:40	Received: 06/19/14 14:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260B						
Benzene	274	ug/L	5.0	1		06/21/14 23:35	71-43-2	
Ethylbenzene	33.8	ug/L	5.0	1		06/21/14 23:35	100-41-4	
Isopropylbenzene (Cumene)	7.4	ug/L	5.0	1		06/21/14 23:35	98-82-8	
Methyl-tert-butyl ether	6.0	ug/L	5.0	1		06/21/14 23:35	1634-04-4	
Naphthalene	10.1	ug/L	5.0	1		06/21/14 23:35	91-20-3	
Toluene	13.0	ug/L	5.0	1		06/21/14 23:35	108-88-3	
1,2,4-Trimethylbenzene	41.5	ug/L	5.0	1		06/21/14 23:35	95-63-6	
1,3,5-Trimethylbenzene	20.6	ug/L	5.0	1		06/21/14 23:35	108-67-8	
Xylene (Total)	66.1	ug/L	5.0	1		06/21/14 23:35	1330-20-7	
Surrogates								
Toluene-d8 (S)	89	%	85-115	1		06/21/14 23:35	2037-26-5	
4-Bromofluorobenzene (S)	98	%	85-115	1		06/21/14 23:35	460-00-4	
1,2-Dichloroethane-d4 (S)	100	%	77-119	1		06/21/14 23:35	17060-07-0	

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30123134

Sample: MW-15		Lab ID: 30123134014	Collected: 06/17/14 16:40	Received: 06/19/14 14:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST		Analytical Method: EPA 8260B						
Benzene	12.5 ug/L		5.0	1		06/21/14 20:17	71-43-2	
Ethylbenzene	ND ug/L		5.0	1		06/21/14 20:17	100-41-4	
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		06/21/14 20:17	98-82-8	
Methyl-tert-butyl ether	ND ug/L		5.0	1		06/21/14 20:17	1634-04-4	
Naphthalene	ND ug/L		5.0	1		06/21/14 20:17	91-20-3	
Toluene	6.8 ug/L		5.0	1		06/21/14 20:17	108-88-3	
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		06/21/14 20:17	95-63-6	
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		06/21/14 20:17	108-67-8	
Xylene (Total)	7.4 ug/L		5.0	1		06/21/14 20:17	1330-20-7	
Surrogates								
Toluene-d8 (S)	90 %		85-115	1		06/21/14 20:17	2037-26-5	
4-Bromofluorobenzene (S)	99 %		85-115	1		06/21/14 20:17	460-00-4	
1,2-Dichloroethane-d4 (S)	102 %		77-119	1		06/21/14 20:17	17060-07-0	

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30123134

Sample: MW-17		Lab ID: 30123134015		Collected: 06/17/14 18:40		Received: 06/19/14 14:30		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV PA UST		Analytical Method: EPA 8260B							
Benzene	ND ug/L		5.0	1		06/22/14 00:25	71-43-2		
Ethylbenzene	ND ug/L		5.0	1		06/22/14 00:25	100-41-4		
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		06/22/14 00:25	98-82-8		
Methyl-tert-butyl ether	ND ug/L		5.0	1		06/22/14 00:25	1634-04-4		
Naphthalene	ND ug/L		5.0	1		06/22/14 00:25	91-20-3		
Toluene	ND ug/L		5.0	1		06/22/14 00:25	108-88-3		
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		06/22/14 00:25	95-63-6		
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		06/22/14 00:25	108-67-8		
Xylene (Total)	ND ug/L		5.0	1		06/22/14 00:25	1330-20-7		
Surrogates									
Toluene-d8 (S)	89 %		85-115	1		06/22/14 00:25	2037-26-5		
4-Bromofluorobenzene (S)	102 %		85-115	1		06/22/14 00:25	460-00-4		
1,2-Dichloroethane-d4 (S)	101 %		77-119	1		06/22/14 00:25	17060-07-0		

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30123134

Sample: MW-18		Lab ID: 30123134016		Collected: 06/17/14 18:20		Received: 06/19/14 14:30		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV PA UST		Analytical Method: EPA 8260B							
Benzene	ND ug/L		5.0	1		06/22/14 00:50	71-43-2		
Ethylbenzene	ND ug/L		5.0	1		06/22/14 00:50	100-41-4		
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		06/22/14 00:50	98-82-8		
Methyl-tert-butyl ether	ND ug/L		5.0	1		06/22/14 00:50	1634-04-4		
Naphthalene	ND ug/L		5.0	1		06/22/14 00:50	91-20-3		
Toluene	ND ug/L		5.0	1		06/22/14 00:50	108-88-3		
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		06/22/14 00:50	95-63-6		
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		06/22/14 00:50	108-67-8		
Xylene (Total)	ND ug/L		5.0	1		06/22/14 00:50	1330-20-7		
Surrogates									
Toluene-d8 (S)	92 %		85-115	1		06/22/14 00:50	2037-26-5		
4-Bromofluorobenzene (S)	103 %		85-115	1		06/22/14 00:50	460-00-4		
1,2-Dichloroethane-d4 (S)	102 %		77-119	1		06/22/14 00:50	17060-07-0		

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30123134

Sample: MW-19		Lab ID: 30123134017		Collected: 06/17/14 19:00		Received: 06/19/14 14:30		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV PA UST		Analytical Method: EPA 8260B							
Benzene	ND ug/L		5.0	1		06/22/14 01:15	71-43-2		
Ethylbenzene	ND ug/L		5.0	1		06/22/14 01:15	100-41-4		
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		06/22/14 01:15	98-82-8		
Methyl-tert-butyl ether	525 ug/L		50.0	10		06/23/14 14:54	1634-04-4		
Naphthalene	ND ug/L		5.0	1		06/22/14 01:15	91-20-3		
Toluene	ND ug/L		5.0	1		06/22/14 01:15	108-88-3		
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		06/22/14 01:15	95-63-6		
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		06/22/14 01:15	108-67-8		
Xylene (Total)	ND ug/L		5.0	1		06/22/14 01:15	1330-20-7		
Surrogates									
Toluene-d8 (S)	86 %		85-115	1		06/22/14 01:15	2037-26-5		
4-Bromofluorobenzene (S)	101 %		85-115	1		06/22/14 01:15	460-00-4		
1,2-Dichloroethane-d4 (S)	107 %		77-119	1		06/22/14 01:15	17060-07-0		

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QUALITY CONTROL DATA

Project: UPA Bradford M-061

Pace Project No.: 30123134

QC Batch:	MSV/20024	Analysis Method:	EPA 8260B
QC Batch Method:	EPA 8260B	Analysis Description:	8260 MSV UST-WATER
Associated Lab Samples:	30123134001, 30123134002, 30123134003, 30123134004, 30123134005, 30123134006, 30123134007, 30123134008, 30123134009, 30123134010, 30123134011, 30123134012, 30123134014		

METHOD BLANK: 746764

Matrix: Water

Associated Lab Samples: 30123134001, 30123134002, 30123134003, 30123134004, 30123134005, 30123134006, 30123134007, 30123134008, 30123134009, 30123134010, 30123134011, 30123134012, 30123134014

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	ND	5.0	06/21/14 10:46	
1,3,5-Trimethylbenzene	ug/L	ND	5.0	06/21/14 10:46	
Benzene	ug/L	ND	1.0	06/21/14 10:46	
Ethylbenzene	ug/L	ND	1.0	06/21/14 10:46	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	06/21/14 10:46	
Methyl-tert-butyl ether	ug/L	ND	1.0	06/21/14 10:46	
Naphthalene	ug/L	ND	2.0	06/21/14 10:46	
Toluene	ug/L	ND	1.0	06/21/14 10:46	
Xylene (Total)	ug/L	ND	3.0	06/21/14 10:46	
1,2-Dichloroethane-d4 (S)	%	102	77-119	06/21/14 10:46	
4-Bromofluorobenzene (S)	%	101	85-115	06/21/14 10:46	
Toluene-d8 (S)	%	89	85-115	06/21/14 10:46	

LABORATORY CONTROL SAMPLE: 746765

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/L	20	22.3	112	64-116	
1,3,5-Trimethylbenzene	ug/L	20	22.2	111	61-114	
Benzene	ug/L	20	18.4	92	66-122	
Ethylbenzene	ug/L	20	19.7	98	69-119	
Isopropylbenzene (Cumene)	ug/L	20	22.9	114	68-126	
Methyl-tert-butyl ether	ug/L	20	21.6	108	58-131	
Naphthalene	ug/L	20	20.8	104	51-123	
Toluene	ug/L	20	18.8	94	72-115	
Xylene (Total)	ug/L	60	58.7	98	70-123	
1,2-Dichloroethane-d4 (S)	%			103	77-119	
4-Bromofluorobenzene (S)	%			102	85-115	
Toluene-d8 (S)	%			88	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 746766

746767

Parameter	Units	30123134004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
1,2,4-Trimethylbenzene	ug/L	ND	20	20	22.9	22.2	112	108	64-116	3	
1,3,5-Trimethylbenzene	ug/L	ND	20	20	22.5	22.1	113	111	61-114	2	
Benzene	ug/L	ND	20	20	19.9	18.8	95	90	66-122	5	
Ethylbenzene	ug/L	ND	20	20	20.6	19.9	102	99	69-119	4	

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QUALITY CONTROL DATA

Project: UPA Bradford M-061

Pace Project No.: 30123134

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 746766 746767											
Parameter	Units	30123134004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Isopropylbenzene (Cumene)	ug/L	ND	20	20	23.3	23.0	117	115	68-126	1	
Methyl-tert-butyl ether	ug/L	ND	20	20	21.1	22.3	99	105	58-131	6	
Naphthalene	ug/L	ND	20	20	22.0	22.2	105	105	51-123	1	
Toluene	ug/L	ND	20	20	19.9	19.2	98	94	72-115	4	
Xylene (Total)	ug/L	ND	60	60	63.0	60.5	101	97	70-123	4	
1,2-Dichloroethane-d4 (S)	%						106	105	77-119		
4-Bromofluorobenzene (S)	%						98	100	85-115		
Toluene-d8 (S)	%						86	84	85-115		S0

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QUALITY CONTROL DATA

Project: UPA Bradford M-061

Pace Project No.: 30123134

QC Batch:	MSV/20025	Analysis Method:	EPA 8260B
QC Batch Method:	EPA 8260B	Analysis Description:	8260 MSV UST-WATER
Associated Lab Samples:	30123134013, 30123134015, 30123134016, 30123134017		

METHOD BLANK: 746825 Matrix: Water
Associated Lab Samples: 30123134013, 30123134015, 30123134016, 30123134017

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	ND	5.0	06/21/14 22:46	
1,3,5-Trimethylbenzene	ug/L	ND	5.0	06/21/14 22:46	
Benzene	ug/L	ND	1.0	06/21/14 22:46	
Ethylbenzene	ug/L	ND	1.0	06/21/14 22:46	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	06/21/14 22:46	
Methyl-tert-butyl ether	ug/L	ND	1.0	06/21/14 22:46	
Naphthalene	ug/L	ND	2.0	06/21/14 22:46	
Toluene	ug/L	ND	1.0	06/21/14 22:46	
Xylene (Total)	ug/L	ND	3.0	06/21/14 22:46	
1,2-Dichloroethane-d4 (S)	%	99	77-119	06/21/14 22:46	
4-Bromofluorobenzene (S)	%	100	85-115	06/21/14 22:46	
Toluene-d8 (S)	%	87	85-115	06/21/14 22:46	

LABORATORY CONTROL SAMPLE: 746826

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/L	20	21.6	108	64-116	
1,3,5-Trimethylbenzene	ug/L	20	21.9	109	61-114	
Benzene	ug/L	20	19.2	96	66-122	
Ethylbenzene	ug/L	20	20.6	103	69-119	
Isopropylbenzene (Cumene)	ug/L	20	22.1	110	68-126	
Methyl-tert-butyl ether	ug/L	20	22.4	112	58-131	
Naphthalene	ug/L	20	20.8	104	51-123	
Toluene	ug/L	20	19.6	98	72-115	
Xylene (Total)	ug/L	60	60.3	100	70-123	
1,2-Dichloroethane-d4 (S)	%			106	77-119	
4-Bromofluorobenzene (S)	%			98	85-115	
Toluene-d8 (S)	%			89	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 746827 746828

Parameter	Units	30123148001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
1,2,4-Trimethylbenzene	ug/L	ND	20	20	23.2	23.8	116	119	64-116	2	M0
1,3,5-Trimethylbenzene	ug/L	ND	20	20	23.4	24.2	117	121	61-114	3	M0
Benzene	ug/L	ND	20	20	20.3	20.4	102	102	66-122	1	
Ethylbenzene	ug/L	ND	20	20	22.0	22.6	110	113	69-119	3	
Isopropylbenzene (Cumene)	ug/L	ND	20	20	24.9	25.2	125	126	68-126	1	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: UPA Bradford M-061

Pace Project No.: 30123134

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 746827 746828											
Parameter	Units	30123148001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Methyl-tert-butyl ether	ug/L	12.4	20	20	35.0	34.1	113	109	58-131	2	
Naphthalene	ug/L	ND	20	20	21.2	22.6	106	113	51-123	7	
Toluene	ug/L	ND	20	20	20.8	21.2	104	106	72-115	2	
Xylene (Total)	ug/L	ND	60	60	64.8	66.6	108	111	70-123	3	
1,2-Dichloroethane-d4 (S)	%						103	106	77-119		
4-Bromofluorobenzene (S)	%						103	101	85-115		
Toluene-d8 (S)	%						88	85	85-115		

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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QUALIFIERS

Project: UPA Bradford M-061

Pace Project No.: 30123134

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

LOD - Limit of Detection.

LOQ - Limit of Quantitation.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

M0 Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

S0 Surrogate recovery outside laboratory control limits.

S2 Surrogate recovery outside laboratory control limits due to matrix interferences (confirmed by similar results from sample re-analysis).

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: UPA Bradford M-061

Pace Project No.: 30123134

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30123134001	MW-1R	EPA 8260B	MSV/20024		
30123134002	MW-3R	EPA 8260B	MSV/20024		
30123134003	MW-4	EPA 8260B	MSV/20024		
30123134004	MW-5	EPA 8260B	MSV/20024		
30123134005	MW-6	EPA 8260B	MSV/20024		
30123134006	MW-7	EPA 8260B	MSV/20024		
30123134007	MW-8	EPA 8260B	MSV/20024		
30123134008	MW-9	EPA 8260B	MSV/20024		
30123134009	MW-10	EPA 8260B	MSV/20024		
30123134010	MW-11	EPA 8260B	MSV/20024		
30123134011	MW-12	EPA 8260B	MSV/20024		
30123134012	MW-13	EPA 8260B	MSV/20024		
30123134013	MW-14	EPA 8260B	MSV/20025		
30123134014	MW-15	EPA 8260B	MSV/20024		
30123134015	MW-17	EPA 8260B	MSV/20025		
30123134016	MW-18	EPA 8260B	MSV/20025		
30123134017	MW-19	EPA 8260B	MSV/20025		

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A		Section B		Section C		Page : 1 Of 2	
Required Client Information:		Required Project Information:		Invoice Information:			
Company:	Groundwater & Environmental Services	Report To:	Erin Letrick	Attention:	Erin Letrick		
Address:	301 Commerce Park Drive	Copy To:	Joan Amodeo	Company Name:	Groundwater & Environmental Services		
	Cranberry Twp, PA 15066		301 Commerce Park Drive, Cranberry Twp, PA 15066	Address:	301 Commerce Park Drive, Cranberry Twp, PA 15066		
Email To:	elctrick@gesonline.com	Purchase Order No.	UFA Bradford M-061	Pace Quote Reference:			
Phone:	800-267-2549	Client Project ID:	UFA Bradford M-061	Pace Project Manager:	Christmer, Rachel		
Requested Due Date/TAT:	16 Day Default	Container Order Number:		Pace Profile #:			
						Regulatory Agency	
						UST - Underground Storage Tank	
						State / Location	
						Pennsylvania	

[illegible][illegible]

5-DAY TAT

SAMPLER NAME AND SIGNATURE	Walter Kotyba	DATE SIGNED:	06/19/14
PRINT Name of SAMPLER:	Walter Kotyba		
SIGNATURE of SAMPLER:	Walter Kotyba		
TEMP IN C		Received on Ice (Y/N)	Cooler (Y/N)
			Samples Intact (Y/N)

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A		Section B		Section C		Page : 2	Of 2
Required Client Information:		Required Project Information:		Invoice Information:			
Company:	Groundwater & Environmental Services	Report To:	Erin Letrick	Attention:	Erin Letrick		
Address:	301 Commerce Park Drive	Copy To:	Joan Amodeo	Company Name:	Groundwater & Environmental Services		
	Cranberry Twp, PA 16066		301 Commerce Park Drive, Cranberry Twp, PA 16066	Address:	301 Commerce Park Drive, Cranberry Twp, PA 16066		
Email:	eletrick@gesonline.com	Purchase Order No.	UFA Bradford M-061	Pace Quote Reference:			
Phone:	800-267-2549	Client Project ID	UFA Bradford M-061	Pace Project Manager:	Christner, Rachel		
Requested Due Date/AT	10/24/2024	Container Order Number:		Pace Profile #:			
						Regulatory Agency	
						UST - Underground Storage Tank	
						State / Location	
						Pennsylvania	

[illegible]

S- Day TAT											
UPAM061Bradford-lab report no.24067.EQEDD.zip											
Email to: ges@equisonline.com											
SAMPLER NAME AND SIGNATURE						TEMP IN C					
PRINT Name of SAMPLER:						DATE Signed:					
SIGNATURE of SAMPLER:											
Walter Kotula /GES	06/19/14	0840	Sample Receiving /GES	06/19/14	0840						
Walter Kotula /GES			Walter Kotula	06/19/14	1105	-					
Bryce Pugh	06/19/14	2:30	Alyssa Kuchonczak	06/19/14	1430	2A	Y	Y	Y	Y	Y

5-Day TAT



Sample Condition Upon Receipt

Client Name: GES

Project 30123134

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☒ Pace Other _____

Tracking #: _____

Custody Seal on Cooler/Box Present: ☐ yes ☒ no Seals intact: ☐ yes ☐ no Biological Tissue is Frozen: Yes No

Packing Material: Bubble Wrap ☒ Bubble Bags _____ None ☒ Other ziploc bags

Thermometer Used 8 Type of Ice: ☒ Wet ☐ Blue ☐ None ☐ Samples on ice, cooling process has begun

Cooler Temp.: Observed Temp.: 2.3 °C Correction Factor: +0.1 °C Final Temp: 2.4 °C

Date and Initials of person
examining contents: 6/19/14
ARU

Temp should be above freezing to 6°C

Comments:

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix:	<u>WT</u>	
All containers needing preservation have been checked.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
exceptions: <u>VOA</u> , coliform, TOC, O&G, WI-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed: <u>ARU</u> Lot # of added preservative: _____
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	15.
Trip Blank Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution:

Field Data Required?

Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review:

Rachel D. Chomley

Date:

6/20/14

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

[illegible]

January 12, 2015

Mr. Joe Hinkle
Groundwater & Environmental Services
301 Commerce Park Drive
Cranberry Twp, PA 16066

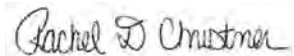
RE: Project: UPA Bradford M-061
Pace Project No.: 30138152

Dear Mr. Hinkle:

Enclosed are the analytical results for sample(s) received by the laboratory on January 07, 2015. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Rachel Christner
rachel.christner@pacelabs.com
Project Manager

Enclosures

cc: Ms. Joan Amodeo, Groundwater and Environmental
Services, Inc.



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: UPA Bradford M-061

Pace Project No.: 30138152

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

ACCLASS DOD-ELAP Accreditation #: ADE-1544

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California/TNI Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683

Guam/PADEP Certification

Hawaii/PADEP Certification

Idaho Certification

Illinois/PADEP Certification

Indiana/PADEP Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: 90133

Louisiana DHH/TNI Certification #: LA140008

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: PA00091

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification

Missouri Certification #: 235

Montana Certification #: Cert 0082

Nebraska Certification #: NE-05-29-14

Nevada Certification

New Hampshire/TNI Certification #: 2976

New Jersey/TNI Certification #: PA 051

New Mexico Certification

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Oregon/TNI Certification #: PA200002

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

South Dakota Certification

Tennessee Certification #: TN2867

Texas/TNI Certification #: T104704188

Utah/TNI Certification #: PA014572014-4

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 460198

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin/PADEP Certification

Wyoming Certification #: 8TMS-Q

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SAMPLE ANALYTE COUNT

Project: UPA Bradford M-061

Pace Project No.: 30138152

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30138152001	MW-20	EPA 8260B	CLG	12	PASI-PA
30138152002	MW-21	EPA 8260B	CLG	12	PASI-PA
30138152003	MW-22	EPA 8260B	CLG	12	PASI-PA
30138152004	MW-23	EPA 8260B	CLG	12	PASI-PA
30138152005	MW-24	EPA 8260B	CLG	12	PASI-PA

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: UPA Bradford M-061

Pace Project No.: 30138152

Method: EPA 8260B

Description: 8260 MSV UST

Client: Groundwater & Environmental Services - Cranberry Twp PA

Date: January 12, 2015

General Information:

5 samples were analyzed for EPA 8260B. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30138152

Sample: MW-20		Lab ID: 30138152001	Collected: 01/06/15 10:20	Received: 01/07/15 13:20	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260B						
Benzene	ND ug/L		5.0	1		01/09/15 13:03	71-43-2	
Ethylbenzene	ND ug/L		5.0	1		01/09/15 13:03	100-41-4	
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		01/09/15 13:03	98-82-8	
Methyl-tert-butyl ether	ND ug/L		5.0	1		01/09/15 13:03	1634-04-4	
Naphthalene	ND ug/L		5.0	1		01/09/15 13:03	91-20-3	
Toluene	ND ug/L		5.0	1		01/09/15 13:03	108-88-3	
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		01/09/15 13:03	95-63-6	
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		01/09/15 13:03	108-67-8	
Xylene (Total)	ND ug/L		5.0	1		01/09/15 13:03	1330-20-7	
Surrogates								
Toluene-d8 (S)	92 %		79-118	1		01/09/15 13:03	2037-26-5	
4-Bromofluorobenzene (S)	90 %		84-113	1		01/09/15 13:03	460-00-4	
1,2-Dichloroethane-d4 (S)	113 %		84-124	1		01/09/15 13:03	17060-07-0	

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30138152

Sample: MW-21		Lab ID: 30138152002	Collected: 01/06/15 11:35	Received: 01/07/15 13:20	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260B						
Benzene	ND ug/L		5.0	1		01/09/15 13:28	71-43-2	
Ethylbenzene	ND ug/L		5.0	1		01/09/15 13:28	100-41-4	
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		01/09/15 13:28	98-82-8	
Methyl-tert-butyl ether	27.0 ug/L		5.0	1		01/09/15 13:28	1634-04-4	
Naphthalene	ND ug/L		5.0	1		01/09/15 13:28	91-20-3	
Toluene	ND ug/L		5.0	1		01/09/15 13:28	108-88-3	
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		01/09/15 13:28	95-63-6	
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		01/09/15 13:28	108-67-8	
Xylene (Total)	ND ug/L		5.0	1		01/09/15 13:28	1330-20-7	
Surrogates								
Toluene-d8 (S)	98 %		79-118	1		01/09/15 13:28	2037-26-5	
4-Bromofluorobenzene (S)	96 %		84-113	1		01/09/15 13:28	460-00-4	
1,2-Dichloroethane-d4 (S)	116 %		84-124	1		01/09/15 13:28	17060-07-0	

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30138152

Sample: MW-22		Lab ID: 30138152003	Collected: 01/06/15 13:00	Received: 01/07/15 13:20	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260B						
Benzene	ND ug/L		5.0	1		01/09/15 13:53	71-43-2	
Ethylbenzene	ND ug/L		5.0	1		01/09/15 13:53	100-41-4	
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		01/09/15 13:53	98-82-8	
Methyl-tert-butyl ether	ND ug/L		5.0	1		01/09/15 13:53	1634-04-4	
Naphthalene	ND ug/L		5.0	1		01/09/15 13:53	91-20-3	
Toluene	ND ug/L		5.0	1		01/09/15 13:53	108-88-3	
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		01/09/15 13:53	95-63-6	
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		01/09/15 13:53	108-67-8	
Xylene (Total)	ND ug/L		5.0	1		01/09/15 13:53	1330-20-7	
Surrogates								
Toluene-d8 (S)	96 %		79-118	1		01/09/15 13:53	2037-26-5	
4-Bromofluorobenzene (S)	90 %		84-113	1		01/09/15 13:53	460-00-4	
1,2-Dichloroethane-d4 (S)	113 %		84-124	1		01/09/15 13:53	17060-07-0	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30138152

Sample: MW-23		Lab ID: 30138152004	Collected: 01/06/15 11:50	Received: 01/07/15 13:20	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260B						
Benzene	ND ug/L		5.0	1		01/09/15 14:17	71-43-2	
Ethylbenzene	ND ug/L		5.0	1		01/09/15 14:17	100-41-4	
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		01/09/15 14:17	98-82-8	
Methyl-tert-butyl ether	49.2 ug/L		5.0	1		01/09/15 14:17	1634-04-4	
Naphthalene	ND ug/L		5.0	1		01/09/15 14:17	91-20-3	
Toluene	ND ug/L		5.0	1		01/09/15 14:17	108-88-3	
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		01/09/15 14:17	95-63-6	
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		01/09/15 14:17	108-67-8	
Xylene (Total)	ND ug/L		5.0	1		01/09/15 14:17	1330-20-7	
Surrogates								
Toluene-d8 (S)	91 %		79-118	1		01/09/15 14:17	2037-26-5	
4-Bromofluorobenzene (S)	90 %		84-113	1		01/09/15 14:17	460-00-4	
1,2-Dichloroethane-d4 (S)	109 %		84-124	1		01/09/15 14:17	17060-07-0	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30138152

Sample: MW-24		Lab ID: 30138152005	Collected: 01/06/15 09:05	Received: 01/07/15 13:20	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260B						
Benzene	ND ug/L		5.0	1		01/09/15 14:42	71-43-2	
Ethylbenzene	ND ug/L		5.0	1		01/09/15 14:42	100-41-4	
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		01/09/15 14:42	98-82-8	
Methyl-tert-butyl ether	ND ug/L		5.0	1		01/09/15 14:42	1634-04-4	
Naphthalene	ND ug/L		5.0	1		01/09/15 14:42	91-20-3	
Toluene	ND ug/L		5.0	1		01/09/15 14:42	108-88-3	
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		01/09/15 14:42	95-63-6	
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		01/09/15 14:42	108-67-8	
Xylene (Total)	ND ug/L		5.0	1		01/09/15 14:42	1330-20-7	
Surrogates								
Toluene-d8 (S)	93 %		79-118	1		01/09/15 14:42	2037-26-5	
4-Bromofluorobenzene (S)	97 %		84-113	1		01/09/15 14:42	460-00-4	
1,2-Dichloroethane-d4 (S)	112 %		84-124	1		01/09/15 14:42	17060-07-0	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: UPA Bradford M-061

Pace Project No.: 30138152

QC Batch:	MSV/22150	Analysis Method:	EPA 8260B
QC Batch Method:	EPA 8260B	Analysis Description:	8260 MSV UST-WATER
Associated Lab Samples:	30138152001, 30138152002, 30138152003, 30138152004, 30138152005		

METHOD BLANK: 840180

Matrix: Water

Associated Lab Samples: 30138152001, 30138152002, 30138152003, 30138152004, 30138152005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	ND	5.0	01/09/15 12:13	
1,3,5-Trimethylbenzene	ug/L	ND	5.0	01/09/15 12:13	
Benzene	ug/L	ND	1.0	01/09/15 12:13	
Ethylbenzene	ug/L	ND	1.0	01/09/15 12:13	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	01/09/15 12:13	
Methyl-tert-butyl ether	ug/L	ND	1.0	01/09/15 12:13	
Naphthalene	ug/L	ND	2.0	01/09/15 12:13	
Toluene	ug/L	ND	1.0	01/09/15 12:13	
Xylene (Total)	ug/L	ND	3.0	01/09/15 12:13	
1,2-Dichloroethane-d4 (S)	%	104	84-124	01/09/15 12:13	
4-Bromofluorobenzene (S)	%	93	84-113	01/09/15 12:13	
Toluene-d8 (S)	%	99	79-118	01/09/15 12:13	

LABORATORY CONTROL SAMPLE: 840181

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/L	20	16.8	84	70-123	
1,3,5-Trimethylbenzene	ug/L	20	16.3	81	67-123	
Benzene	ug/L	20	15.4	77	69-123	
Ethylbenzene	ug/L	20	14.2	71	70-123	
Isopropylbenzene (Cumene)	ug/L	20	17.5	88	66-136	
Methyl-tert-butyl ether	ug/L	20	16.6	83	69-133	
Naphthalene	ug/L	20	15.0	75	65-134	
Toluene	ug/L	20	14.6	73	73-123	
Xylene (Total)	ug/L	60	45.0	75	70-123	
1,2-Dichloroethane-d4 (S)	%			107	84-124	
4-Bromofluorobenzene (S)	%			104	84-113	
Toluene-d8 (S)	%			92	79-118	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 840243

840244

Parameter	Units	30137939001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
1,2,4-Trimethylbenzene	ug/L	ND	20	20	15.9	18.4	79	92	70-123	15	
1,3,5-Trimethylbenzene	ug/L	ND	20	20	15.9	18.6	80	93	67-123	15	
Benzene	ug/L	ND	20	20	15.8	18.2	79	91	69-123	14	
Ethylbenzene	ug/L	ND	20	20	14.2	17.1	71	85	70-123	18	
Isopropylbenzene (Cumene)	ug/L	ND	20	20	17.2	20.2	86	101	66-136	16	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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QUALITY CONTROL DATA

Project: UPA Bradford M-061

Pace Project No.: 30138152

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 840243 840244											
Parameter	Units	30137939001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Methyl-tert-butyl ether	ug/L	ND	20	20	19.3	19.5	96	98	69-133	1	
Naphthalene	ug/L	ND	20	20	13.9	15.3	69	77	65-134	10	
Toluene	ug/L	ND	20	20	14.8	17.7	74	89	73-123	18	
Xylene (Total)	ug/L	ND	60	60	45.5	54.3	76	90	70-123	18	
1,2-Dichloroethane-d4 (S)	%						105	107	84-124		
4-Bromofluorobenzene (S)	%						102	97	84-113		
Toluene-d8 (S)	%						95	93	79-118		

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: UPA Bradford M-061

Pace Project No.: 30138152

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: UPA Bradford M-061

Pace Project No.: 30138152

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30138152001	MW-20	EPA 8260B	MSV/22150		
30138152002	MW-21	EPA 8260B	MSV/22150		
30138152003	MW-22	EPA 8260B	MSV/22150		
30138152004	MW-23	EPA 8260B	MSV/22150		
30138152005	MW-24	EPA 8260B	MSV/22150		

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

30138152

Section A		Section B		Section C	
Required Client Information:		Required Project Information:		Invoice Information:	
Company:	Groundwater & Environmental Services	Report To:	Joe Hinkle	Attention:	Joe Hinkle
Address:	301 Commerce Park Drive	Copy To:	Joan Amodeo	Company Name:	Groundwater & Environmental Services
	Cranberry Twp, PA 16066		301 Commerce Park Drive, Cranberry Twp, PA 16066	Address:	301 Commerce Park Drive, Cranberry Twp, PA 16066
Email To:	jhinkle@gesonline.com	Purchase Order No.	UPA Bradford M-061	Pace Quote Reference:	
Phone:	800-267-2549	Client Project ID:	UPA Bradford M-061	Pace Project Manager:	Christner, Rachel
Requested Due Date/TAT:	10 Day (Default)	Container Order Number:		Pace Profile #:	

Page: 2 Of 2

ITEM#	MATRIX	CODE	COLLECTED		SAMPLE TYPE (G=GRAB C=COMP)	MATRIX CODE (see valid codes to left)	RELINQUISHED BY / AFFILIATION		ACCEPTED BY / AFFILIATION		DATE	TIME	DATE	TIME	SAMPLE CONDITIONS
			START	END			DATE	TIME	DATE	TIME					
1	MW-13	DW			G	WT									
2	MW-14	WT			G	WT									
3	MW-15	WW			G	WT									
4	MW-16	P			G	WT									
5	MW-17	SL			G	WT									
6	MW-18	OL			G	WT									
7	MW-19	WP			G	WT									
8	MW-20	AR			G	WT									
9	MW-21	OT			G	WT									
10	MW-22	TS			G	WT									
11	MW-23				G	WT									
12	MW-24				G	WT									
*3 Day TAT on (MW-20, MW-21, MW-22, MW-23, MW-24)															
UPAM061 Bradford-lab report no.24067.EQEDD.zip															
Email to: ges@gesonline.com															

SAMPLER NAME AND SIGNATURE	
PRINT Name of SAMPLER:	Walter Kotuba
SIGNATURE of SAMPLER:	Walter Kotuba
DATE Signed:	01-07-15

TEMP in C	
Received on Ice	(Y/N)
Custody Sealed	(Y/N)
Cooler (Y/N)	
Samples Intact	(Y/N)



Sample Condition Upon Receipt

Client Name: GES

Project # 30138152

PA5

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☒ Pace Other _____

Tracking #: _____

Custody Seal on Cooler/Box Present: ☒ yes ☐ no Seals intact: ☒ yes ☐ no Biological Tissue is Frozen: Yes No

Packing Material: Bubble Wrap ☒ Bubble Bags _____ None _____ Other _____

Thermometer Used #7 Type of Ice: ☒ Wet ☐ Blue ☐ None ☒ Samples on ice, cooling process has begun

Cooler Temp.: Observed Temp.: 1.4 °C Correction Factor: 0.1 °C Final Temp: 1.3 °C

Date and Initials of person

examining contents: SRA 17-15

Temp should be above freezing to 6°C

Comments:

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7. <u>standard TAT samples on separate Project</u>
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix: <u>wt</u>		
All containers needing preservation have been checked.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
exceptions: <u>VOA</u> , coliform, TOC, O&G, WI-DRO (water)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Initial when completed <u>SRA</u> Lot # of added preservative
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	15.
Trip Blank Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution:

Field Data Required?

Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review:

[Signature]

Date:

11/8/15

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

Project Number:

Client Name: GES

[illegible]

January 20, 2015

Mr. Joe Hinkle
Groundwater & Environmental Services
301 Commerce Park Drive
Cranberry Twp, PA 16066

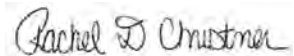
RE: Project: UPA Bradford M-061
Pace Project No.: 30138153

Dear Mr. Hinkle:

Enclosed are the analytical results for sample(s) received by the laboratory on January 07, 2015. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Rachel Christner
rachel.christner@pacelabs.com
Project Manager

Enclosures

cc: Ms. Joan Amodeo, Groundwater and Environmental
Services, Inc.



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: UPA Bradford M-061

Pace Project No.: 30138153

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

ACLASS DOD-ELAP Accreditation #: ADE-1544

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California/TNI Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683

Guam/PADEP Certification

Hawaii/PADEP Certification

Idaho Certification

Illinois/PADEP Certification

Indiana/PADEP Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: 90133

Louisiana DHH/TNI Certification #: LA140008

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: PA00091

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification

Missouri Certification #: 235

Montana Certification #: Cert 0082

Nebraska Certification #: NE-05-29-14

Nevada Certification

New Hampshire/TNI Certification #: 2976

New Jersey/TNI Certification #: PA 051

New Mexico Certification

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Oregon/TNI Certification #: PA200002

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

South Dakota Certification

Tennessee Certification #: TN2867

Texas/TNI Certification #: T104704188

Utah/TNI Certification #: PA014572014-4

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 460198

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin/PADEP Certification

Wyoming Certification #: 8TMS-Q

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SAMPLE ANALYTE COUNT

Project: UPA Bradford M-061

Pace Project No.: 30138153

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30138153001	MW-1R	EPA 8260B	CLG	12	PASI-PA
30138153002	MW-3R	EPA 8260B	CLG	12	PASI-PA
30138153003	MW-4	EPA 8260B	CLG	12	PASI-PA
30138153004	MW-5	EPA 8260B	CLG	12	PASI-PA
30138153005	MW-6	EPA 8260B	CLG	12	PASI-PA
30138153006	MW-7	EPA 8260B	CLG	12	PASI-PA
30138153007	MW-8	EPA 8260B	CLG	12	PASI-PA
30138153008	MW-9	EPA 8260B	CLG	12	PASI-PA
30138153009	MW-10	EPA 8260B	CLG	12	PASI-PA
30138153010	MW-11	EPA 8260B	CLG	12	PASI-PA
30138153011	MW-12	EPA 8260B	CLG	12	PASI-PA
30138153012	MW-13	EPA 8260B	CLG	12	PASI-PA
30138153013	MW-14	EPA 8260B	CLG	12	PASI-PA
30138153014	MW-15	EPA 8260B	CLG	12	PASI-PA
30138153015	MW-16	EPA 8260B	CLG	12	PASI-PA
30138153016	MW-17	EPA 8260B	CLG	12	PASI-PA
30138153017	MW-18	EPA 8260B	CLG	12	PASI-PA
30138153018	MW-19	EPA 8260B	CLG	12	PASI-PA

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: UPA Bradford M-061

Pace Project No.: 30138153

Method: EPA 8260B

Description: 8260 MSV UST

Client: Groundwater & Environmental Services - Cranberry Twp PA

Date: January 20, 2015

General Information:

18 samples were analyzed for EPA 8260B. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MSV/22177

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 30138153016

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 841126)
- Naphthalene

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30138153

Sample: MW-1R		Lab ID: 30138153001	Collected: 01/06/15 14:05	Received: 01/07/15 13:20	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260B						
Benzene	603 ug/L		50.0	10		01/14/15 18:46	71-43-2	
Ethylbenzene	13.5 ug/L		5.0	1		01/13/15 12:12	100-41-4	
Isopropylbenzene (Cumene)	15.9 ug/L		5.0	1		01/13/15 12:12	98-82-8	
Methyl-tert-butyl ether	ND ug/L		5.0	1		01/13/15 12:12	1634-04-4	
Naphthalene	5.4 ug/L		5.0	1		01/13/15 12:12	91-20-3	
Toluene	8.6 ug/L		5.0	1		01/13/15 12:12	108-88-3	
1,2,4-Trimethylbenzene	50.0 ug/L		5.0	1		01/13/15 12:12	95-63-6	
1,3,5-Trimethylbenzene	15.3 ug/L		5.0	1		01/13/15 12:12	108-67-8	
Xylene (Total)	33.8 ug/L		5.0	1		01/13/15 12:12	1330-20-7	
Surrogates								
Toluene-d8 (S)	93 %		79-118	1		01/13/15 12:12	2037-26-5	
4-Bromofluorobenzene (S)	98 %		84-113	1		01/13/15 12:12	460-00-4	
1,2-Dichloroethane-d4 (S)	96 %		84-124	1		01/13/15 12:12	17060-07-0	

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30138153

Sample: MW-3R		Lab ID: 30138153002	Collected: 01/06/15 12:50	Received: 01/07/15 13:20	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260B						
Benzene	ND ug/L		5.0	1		01/13/15 12:37	71-43-2	
Ethylbenzene	ND ug/L		5.0	1		01/13/15 12:37	100-41-4	
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		01/13/15 12:37	98-82-8	
Methyl-tert-butyl ether	ND ug/L		5.0	1		01/13/15 12:37	1634-04-4	
Naphthalene	ND ug/L		5.0	1		01/13/15 12:37	91-20-3	
Toluene	ND ug/L		5.0	1		01/13/15 12:37	108-88-3	
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		01/13/15 12:37	95-63-6	
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		01/13/15 12:37	108-67-8	
Xylene (Total)	ND ug/L		5.0	1		01/13/15 12:37	1330-20-7	
Surrogates								
Toluene-d8 (S)	95 %		79-118	1		01/13/15 12:37	2037-26-5	
4-Bromofluorobenzene (S)	97 %		84-113	1		01/13/15 12:37	460-00-4	
1,2-Dichloroethane-d4 (S)	108 %		84-124	1		01/13/15 12:37	17060-07-0	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30138153

Sample: MW-4		Lab ID: 30138153003	Collected: 01/06/15 13:50	Received: 01/07/15 13:20	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260B						
Benzene	542 ug/L		50.0	10		01/14/15 19:11	71-43-2	
Ethylbenzene	21.3 ug/L		5.0	1		01/13/15 13:02	100-41-4	
Isopropylbenzene (Cumene)	14.7 ug/L		5.0	1		01/13/15 13:02	98-82-8	
Methyl-tert-butyl ether	ND ug/L		5.0	1		01/13/15 13:02	1634-04-4	
Naphthalene	ND ug/L		5.0	1		01/13/15 13:02	91-20-3	
Toluene	14.5 ug/L		5.0	1		01/13/15 13:02	108-88-3	
1,2,4-Trimethylbenzene	127 ug/L		5.0	1		01/13/15 13:02	95-63-6	
1,3,5-Trimethylbenzene	18.7 ug/L		5.0	1		01/13/15 13:02	108-67-8	
Xylene (Total)	32.2 ug/L		5.0	1		01/13/15 13:02	1330-20-7	
Surrogates								
Toluene-d8 (S)	99 %		79-118	1		01/13/15 13:02	2037-26-5	
4-Bromofluorobenzene (S)	93 %		84-113	1		01/13/15 13:02	460-00-4	
1,2-Dichloroethane-d4 (S)	105 %		84-124	1		01/13/15 13:02	17060-07-0	

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30138153

Sample: MW-5		Lab ID: 30138153004		Collected: 01/06/15 13:10		Received: 01/07/15 13:20		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV UST		Analytical Method: EPA 8260B							
Benzene	ND ug/L		5.0	1		01/13/15 13:27	71-43-2		
Ethylbenzene	ND ug/L		5.0	1		01/13/15 13:27	100-41-4		
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		01/13/15 13:27	98-82-8		
Methyl-tert-butyl ether	ND ug/L		5.0	1		01/13/15 13:27	1634-04-4		
Naphthalene	ND ug/L		5.0	1		01/13/15 13:27	91-20-3		
Toluene	ND ug/L		5.0	1		01/13/15 13:27	108-88-3		
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		01/13/15 13:27	95-63-6		
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		01/13/15 13:27	108-67-8		
Xylene (Total)	ND ug/L		5.0	1		01/13/15 13:27	1330-20-7		
Surrogates									
Toluene-d8 (S)	95 %		79-118	1		01/13/15 13:27	2037-26-5		
4-Bromofluorobenzene (S)	101 %		84-113	1		01/13/15 13:27	460-00-4		
1,2-Dichloroethane-d4 (S)	106 %		84-124	1		01/13/15 13:27	17060-07-0		

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30138153

Sample: MW-6		Lab ID: 30138153005	Collected: 01/06/15 13:20	Received: 01/07/15 13:20	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260B						
Benzene	647 ug/L		50.0	10		01/14/15 19:36	71-43-2	
Ethylbenzene	11.0 ug/L		5.0	1		01/13/15 13:52	100-41-4	
Isopropylbenzene (Cumene)	15.0 ug/L		5.0	1		01/13/15 13:52	98-82-8	
Methyl-tert-butyl ether	5.9 ug/L		5.0	1		01/13/15 13:52	1634-04-4	
Naphthalene	9.1 ug/L		5.0	1		01/13/15 13:52	91-20-3	
Toluene	6.3 ug/L		5.0	1		01/13/15 13:52	108-88-3	
1,2,4-Trimethylbenzene	8.5 ug/L		5.0	1		01/13/15 13:52	95-63-6	
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		01/13/15 13:52	108-67-8	
Xylene (Total)	19.8 ug/L		5.0	1		01/13/15 13:52	1330-20-7	
Surrogates								
Toluene-d8 (S)	87 %		79-118	1		01/13/15 13:52	2037-26-5	
4-Bromofluorobenzene (S)	103 %		84-113	1		01/13/15 13:52	460-00-4	
1,2-Dichloroethane-d4 (S)	107 %		84-124	1		01/13/15 13:52	17060-07-0	

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30138153

Sample: MW-7		Lab ID: 30138153006	Collected: 01/06/15 13:40	Received: 01/07/15 13:20	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260B						
Benzene	12.5 ug/L		5.0	1		01/13/15 14:17	71-43-2	
Ethylbenzene	ND ug/L		5.0	1		01/13/15 14:17	100-41-4	
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		01/13/15 14:17	98-82-8	
Methyl-tert-butyl ether	ND ug/L		5.0	1		01/13/15 14:17	1634-04-4	
Naphthalene	ND ug/L		5.0	1		01/13/15 14:17	91-20-3	
Toluene	ND ug/L		5.0	1		01/13/15 14:17	108-88-3	
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		01/13/15 14:17	95-63-6	
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		01/13/15 14:17	108-67-8	
Xylene (Total)	ND ug/L		5.0	1		01/13/15 14:17	1330-20-7	
Surrogates								
Toluene-d8 (S)	94 %		79-118	1		01/13/15 14:17	2037-26-5	
4-Bromofluorobenzene (S)	99 %		84-113	1		01/13/15 14:17	460-00-4	
1,2-Dichloroethane-d4 (S)	114 %		84-124	1		01/13/15 14:17	17060-07-0	

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30138153

Sample: MW-8		Lab ID: 30138153007	Collected: 01/06/15 10:50	Received: 01/07/15 13:20	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260B						
Benzene	ND ug/L		5.0	1		01/13/15 14:42	71-43-2	
Ethylbenzene	ND ug/L		5.0	1		01/13/15 14:42	100-41-4	
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		01/13/15 14:42	98-82-8	
Methyl-tert-butyl ether	173 ug/L		5.0	1		01/13/15 14:42	1634-04-4	
Naphthalene	ND ug/L		5.0	1		01/13/15 14:42	91-20-3	
Toluene	ND ug/L		5.0	1		01/13/15 14:42	108-88-3	
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		01/13/15 14:42	95-63-6	
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		01/13/15 14:42	108-67-8	
Xylene (Total)	ND ug/L		5.0	1		01/13/15 14:42	1330-20-7	
Surrogates								
Toluene-d8 (S)	93 %		79-118	1		01/13/15 14:42	2037-26-5	
4-Bromofluorobenzene (S)	102 %		84-113	1		01/13/15 14:42	460-00-4	
1,2-Dichloroethane-d4 (S)	110 %		84-124	1		01/13/15 14:42	17060-07-0	

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30138153

Sample: MW-9		Lab ID: 30138153008	Collected: 01/06/15 11:05	Received: 01/07/15 13:20	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260B						
Benzene	ND ug/L		5.0	1		01/13/15 15:07	71-43-2	
Ethylbenzene	ND ug/L		5.0	1		01/13/15 15:07	100-41-4	
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		01/13/15 15:07	98-82-8	
Methyl-tert-butyl ether	2330 ug/L		100	20		01/13/15 15:31	1634-04-4	
Naphthalene	ND ug/L		5.0	1		01/13/15 15:07	91-20-3	
Toluene	ND ug/L		5.0	1		01/13/15 15:07	108-88-3	
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		01/13/15 15:07	95-63-6	
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		01/13/15 15:07	108-67-8	
Xylene (Total)	ND ug/L		5.0	1		01/13/15 15:07	1330-20-7	
Surrogates								
Toluene-d8 (S)	90 %		79-118	1		01/13/15 15:07	2037-26-5	
4-Bromofluorobenzene (S)	99 %		84-113	1		01/13/15 15:07	460-00-4	
1,2-Dichloroethane-d4 (S)	101 %		84-124	1		01/13/15 15:07	17060-07-0	

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30138153

Sample: MW-10		Lab ID: 30138153009	Collected: 01/06/15 11:20	Received: 01/07/15 13:20	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260B						
Benzene	ND ug/L		5.0	1		01/13/15 15:56	71-43-2	
Ethylbenzene	ND ug/L		5.0	1		01/13/15 15:56	100-41-4	
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		01/13/15 15:56	98-82-8	
Methyl-tert-butyl ether	396 ug/L		5.0	1		01/13/15 15:56	1634-04-4	
Naphthalene	ND ug/L		5.0	1		01/13/15 15:56	91-20-3	
Toluene	ND ug/L		5.0	1		01/13/15 15:56	108-88-3	
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		01/13/15 15:56	95-63-6	
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		01/13/15 15:56	108-67-8	
Xylene (Total)	ND ug/L		5.0	1		01/13/15 15:56	1330-20-7	
Surrogates								
Toluene-d8 (S)	100 %		79-118	1		01/13/15 15:56	2037-26-5	
4-Bromofluorobenzene (S)	94 %		84-113	1		01/13/15 15:56	460-00-4	
1,2-Dichloroethane-d4 (S)	115 %		84-124	1		01/13/15 15:56	17060-07-0	

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30138153

Sample: MW-11		Lab ID: 30138153010	Collected: 01/06/15 10:35	Received: 01/07/15 13:20	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260B						
Benzene	8.1 ug/L		5.0	1		01/13/15 16:46	71-43-2	
Ethylbenzene	ND ug/L		5.0	1		01/13/15 16:46	100-41-4	
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		01/13/15 16:46	98-82-8	
Methyl-tert-butyl ether	1030 ug/L		50.0	10		01/13/15 17:11	1634-04-4	
Naphthalene	ND ug/L		5.0	1		01/13/15 16:46	91-20-3	
Toluene	ND ug/L		5.0	1		01/13/15 16:46	108-88-3	
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		01/13/15 16:46	95-63-6	
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		01/13/15 16:46	108-67-8	
Xylene (Total)	ND ug/L		5.0	1		01/13/15 16:46	1330-20-7	
Surrogates								
Toluene-d8 (S)	96 %		79-118	1		01/13/15 16:46	2037-26-5	
4-Bromofluorobenzene (S)	98 %		84-113	1		01/13/15 16:46	460-00-4	
1,2-Dichloroethane-d4 (S)	110 %		84-124	1		01/13/15 16:46	17060-07-0	

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30138153

Sample: MW-12		Lab ID: 30138153011	Collected: 01/06/15 12:20	Received: 01/07/15 13:20	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260B						
Benzene	ND ug/L		5.0	1		01/13/15 17:35	71-43-2	
Ethylbenzene	ND ug/L		5.0	1		01/13/15 17:35	100-41-4	
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		01/13/15 17:35	98-82-8	
Methyl-tert-butyl ether	ND ug/L		5.0	1		01/13/15 17:35	1634-04-4	
Naphthalene	ND ug/L		5.0	1		01/13/15 17:35	91-20-3	
Toluene	ND ug/L		5.0	1		01/13/15 17:35	108-88-3	
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		01/13/15 17:35	95-63-6	
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		01/13/15 17:35	108-67-8	
Xylene (Total)	ND ug/L		5.0	1		01/13/15 17:35	1330-20-7	
Surrogates								
Toluene-d8 (S)	90 %		79-118	1		01/13/15 17:35	2037-26-5	
4-Bromofluorobenzene (S)	96 %		84-113	1		01/13/15 17:35	460-00-4	
1,2-Dichloroethane-d4 (S)	109 %		84-124	1		01/13/15 17:35	17060-07-0	

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30138153

Sample: MW-13		Lab ID: 30138153012	Collected: 01/06/15 14:20	Received: 01/07/15 13:20	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260B						
Benzene	ND ug/L		5.0	1		01/13/15 18:00	71-43-2	
Ethylbenzene	ND ug/L		5.0	1		01/13/15 18:00	100-41-4	
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		01/13/15 18:00	98-82-8	
Methyl-tert-butyl ether	1610 ug/L		50.0	10		01/13/15 18:25	1634-04-4	
Naphthalene	ND ug/L		5.0	1		01/13/15 18:00	91-20-3	
Toluene	ND ug/L		5.0	1		01/13/15 18:00	108-88-3	
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		01/13/15 18:00	95-63-6	
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		01/13/15 18:00	108-67-8	
Xylene (Total)	ND ug/L		5.0	1		01/13/15 18:00	1330-20-7	
Surrogates								
Toluene-d8 (S)	99 %		79-118	1		01/13/15 18:00	2037-26-5	
4-Bromofluorobenzene (S)	92 %		84-113	1		01/13/15 18:00	460-00-4	
1,2-Dichloroethane-d4 (S)	107 %		84-124	1		01/13/15 18:00	17060-07-0	

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30138153

Sample: MW-14		Lab ID: 30138153013	Collected: 01/06/15 13:30	Received: 01/07/15 13:20	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260B						
Benzene	543 ug/L		50.0	10		01/14/15 20:01	71-43-2	
Ethylbenzene	29.9 ug/L		5.0	1		01/13/15 18:50	100-41-4	
Isopropylbenzene (Cumene)	12.8 ug/L		5.0	1		01/13/15 18:50	98-82-8	
Methyl-tert-butyl ether	5.2 ug/L		5.0	1		01/13/15 18:50	1634-04-4	
Naphthalene	6.3 ug/L		5.0	1		01/13/15 18:50	91-20-3	
Toluene	8.5 ug/L		5.0	1		01/13/15 18:50	108-88-3	
1,2,4-Trimethylbenzene	32.4 ug/L		5.0	1		01/13/15 18:50	95-63-6	
1,3,5-Trimethylbenzene	15.5 ug/L		5.0	1		01/13/15 18:50	108-67-8	
Xylene (Total)	72.9 ug/L		5.0	1		01/13/15 18:50	1330-20-7	
Surrogates								
Toluene-d8 (S)	95 %		79-118	1		01/13/15 18:50	2037-26-5	
4-Bromofluorobenzene (S)	97 %		84-113	1		01/13/15 18:50	460-00-4	
1,2-Dichloroethane-d4 (S)	106 %		84-124	1		01/13/15 18:50	17060-07-0	

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30138153

Sample: MW-15		Lab ID: 30138153014		Collected: 01/06/15 12:35		Received: 01/07/15 13:20		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV UST		Analytical Method: EPA 8260B							
Benzene	ND ug/L		5.0	1		01/13/15 19:15	71-43-2		
Ethylbenzene	ND ug/L		5.0	1		01/13/15 19:15	100-41-4		
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		01/13/15 19:15	98-82-8		
Methyl-tert-butyl ether	ND ug/L		5.0	1		01/13/15 19:15	1634-04-4		
Naphthalene	ND ug/L		5.0	1		01/13/15 19:15	91-20-3		
Toluene	ND ug/L		5.0	1		01/13/15 19:15	108-88-3		
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		01/13/15 19:15	95-63-6		
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		01/13/15 19:15	108-67-8		
Xylene (Total)	ND ug/L		5.0	1		01/13/15 19:15	1330-20-7		
Surrogates									
Toluene-d8 (S)	94 %		79-118	1		01/13/15 19:15	2037-26-5		
4-Bromofluorobenzene (S)	96 %		84-113	1		01/13/15 19:15	460-00-4		
1,2-Dichloroethane-d4 (S)	111 %		84-124	1		01/13/15 19:15	17060-07-0		

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30138153

Sample: MW-16		Lab ID: 30138153015		Collected: 01/06/15 12:05		Received: 01/07/15 13:20		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV UST		Analytical Method: EPA 8260B							
Benzene	ND ug/L		5.0	1		01/13/15 19:40	71-43-2		
Ethylbenzene	ND ug/L		5.0	1		01/13/15 19:40	100-41-4		
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		01/13/15 19:40	98-82-8		
Methyl-tert-butyl ether	ND ug/L		5.0	1		01/13/15 19:40	1634-04-4		
Naphthalene	ND ug/L		5.0	1		01/13/15 19:40	91-20-3		
Toluene	ND ug/L		5.0	1		01/13/15 19:40	108-88-3		
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		01/13/15 19:40	95-63-6		
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		01/13/15 19:40	108-67-8		
Xylene (Total)	ND ug/L		5.0	1		01/13/15 19:40	1330-20-7		
Surrogates									
Toluene-d8 (S)	92 %		79-118	1		01/13/15 19:40	2037-26-5		
4-Bromofluorobenzene (S)	95 %		84-113	1		01/13/15 19:40	460-00-4		
1,2-Dichloroethane-d4 (S)	114 %		84-124	1		01/13/15 19:40	17060-07-0		

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30138153

Sample: MW-17		Lab ID: 30138153016		Collected: 01/06/15 09:25		Received: 01/07/15 13:20		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV UST		Analytical Method: EPA 8260B							
Benzene	ND ug/L		5.0	1		01/13/15 20:05	71-43-2		
Ethylbenzene	ND ug/L		5.0	1		01/13/15 20:05	100-41-4		
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		01/13/15 20:05	98-82-8		
Methyl-tert-butyl ether	ND ug/L		5.0	1		01/13/15 20:05	1634-04-4		
Naphthalene	ND ug/L		5.0	1		01/13/15 20:05	91-20-3	M1	
Toluene	ND ug/L		5.0	1		01/13/15 20:05	108-88-3		
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		01/13/15 20:05	95-63-6		
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		01/13/15 20:05	108-67-8		
Xylene (Total)	ND ug/L		5.0	1		01/13/15 20:05	1330-20-7		
Surrogates									
Toluene-d8 (S)	95 %		79-118	1		01/13/15 20:05	2037-26-5		
4-Bromofluorobenzene (S)	100 %		84-113	1		01/13/15 20:05	460-00-4		
1,2-Dichloroethane-d4 (S)	111 %		84-124	1		01/13/15 20:05	17060-07-0		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30138153

Sample: MW-18		Lab ID: 30138153017		Collected: 01/06/15 09:45		Received: 01/07/15 13:20		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV UST		Analytical Method: EPA 8260B							
Benzene	ND ug/L		5.0	1		01/13/15 20:30	71-43-2		
Ethylbenzene	ND ug/L		5.0	1		01/13/15 20:30	100-41-4		
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		01/13/15 20:30	98-82-8		
Methyl-tert-butyl ether	ND ug/L		5.0	1		01/13/15 20:30	1634-04-4		
Naphthalene	ND ug/L		5.0	1		01/13/15 20:30	91-20-3		
Toluene	ND ug/L		5.0	1		01/13/15 20:30	108-88-3		
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		01/13/15 20:30	95-63-6		
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		01/13/15 20:30	108-67-8		
Xylene (Total)	ND ug/L		5.0	1		01/13/15 20:30	1330-20-7		
Surrogates									
Toluene-d8 (S)	92 %		79-118	1		01/13/15 20:30	2037-26-5		
4-Bromofluorobenzene (S)	94 %		84-113	1		01/13/15 20:30	460-00-4		
1,2-Dichloroethane-d4 (S)	111 %		84-124	1		01/13/15 20:30	17060-07-0		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30138153

Sample: MW-19		Lab ID: 30138153018		Collected: 01/06/15 10:00		Received: 01/07/15 13:20		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV UST		Analytical Method: EPA 8260B							
Benzene	ND ug/L		5.0	1		01/13/15 20:54	71-43-2		
Ethylbenzene	ND ug/L		5.0	1		01/13/15 20:54	100-41-4		
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		01/13/15 20:54	98-82-8		
Methyl-tert-butyl ether	377 ug/L		50.0	10		01/13/15 21:19	1634-04-4		
Naphthalene	ND ug/L		5.0	1		01/13/15 20:54	91-20-3		
Toluene	ND ug/L		5.0	1		01/13/15 20:54	108-88-3		
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		01/13/15 20:54	95-63-6		
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		01/13/15 20:54	108-67-8		
Xylene (Total)	ND ug/L		5.0	1		01/13/15 20:54	1330-20-7		
Surrogates									
Toluene-d8 (S)	93 %		79-118	1		01/13/15 20:54	2037-26-5		
4-Bromofluorobenzene (S)	106 %		84-113	1		01/13/15 20:54	460-00-4		
1,2-Dichloroethane-d4 (S)	122 %		84-124	1		01/13/15 20:54	17060-07-0		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: UPA Bradford M-061

Pace Project No.: 30138153

QC Batch:	MSV/22177	Analysis Method:	EPA 8260B
QC Batch Method:	EPA 8260B	Analysis Description:	8260 MSV UST-WATER
Associated Lab Samples:	30138153001, 30138153002, 30138153003, 30138153004, 30138153005, 30138153006, 30138153007, 30138153008, 30138153009, 30138153010, 30138153011, 30138153012, 30138153013, 30138153014, 30138153015, 30138153016, 30138153017, 30138153018		

METHOD BLANK: 841120

Matrix: Water

Associated Lab Samples: 30138153001, 30138153002, 30138153003, 30138153004, 30138153005, 30138153006, 30138153007, 30138153008, 30138153009, 30138153010, 30138153011, 30138153012, 30138153013, 30138153014, 30138153015, 30138153016, 30138153017, 30138153018

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	ND	5.0	01/13/15 11:48	
1,3,5-Trimethylbenzene	ug/L	ND	5.0	01/13/15 11:48	
Benzene	ug/L	ND	1.0	01/13/15 11:48	
Ethylbenzene	ug/L	ND	1.0	01/13/15 11:48	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	01/13/15 11:48	
Methyl-tert-butyl ether	ug/L	ND	1.0	01/13/15 11:48	
Naphthalene	ug/L	ND	2.0	01/13/15 11:48	
Toluene	ug/L	ND	1.0	01/13/15 11:48	
Xylene (Total)	ug/L	ND	3.0	01/13/15 11:48	
1,2-Dichloroethane-d4 (S)	%	108	84-124	01/13/15 11:48	
4-Bromofluorobenzene (S)	%	89	84-113	01/13/15 11:48	
Toluene-d8 (S)	%	96	79-118	01/13/15 11:48	

LABORATORY CONTROL SAMPLE: 841121

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/L	20	21.5	108	70-123	
1,3,5-Trimethylbenzene	ug/L	20	21.9	109	67-123	
Benzene	ug/L	20	20.9	104	69-123	
Ethylbenzene	ug/L	20	20.1	101	70-123	
Isopropylbenzene (Cumene)	ug/L	20	20.4	102	66-136	
Methyl-tert-butyl ether	ug/L	20	20.2	101	69-133	
Naphthalene	ug/L	20	20.3	102	65-134	
Toluene	ug/L	20	20.0	100	73-123	
Xylene (Total)	ug/L	60	61.6	103	70-123	
1,2-Dichloroethane-d4 (S)	%			106	84-124	
4-Bromofluorobenzene (S)	%			103	84-113	
Toluene-d8 (S)	%			91	79-118	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 841126 841127

Parameter	Units	30138153016 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
1,2,4-Trimethylbenzene	ug/L	ND	20	20	16.3	16.8	82	84	70-123	3	
1,3,5-Trimethylbenzene	ug/L	ND	20	20	16.8	17.1	84	85	67-123	2	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: UPA Bradford M-061

Pace Project No.: 30138153

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 841126 841127											
Parameter	Units	30138153016 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Benzene	ug/L	ND	20	20	16.5	17.2	83	86	69-123	4	
Ethylbenzene	ug/L	ND	20	20	16.0	16.4	80	82	70-123	3	
Isopropylbenzene (Cumene)	ug/L	ND	20	20	18.2	19.2	91	96	66-136	5	
Methyl-tert-butyl ether	ug/L	ND	20	20	20.1	18.1	101	91	69-133	10	
Naphthalene	ug/L	ND	20	20	12.8	13.9	64	69	65-134	8	M1
Toluene	ug/L	ND	20	20	16.1	17.0	80	85	73-123	6	
Xylene (Total)	ug/L	ND	60	60	49.3	50.3	82	84	70-123	2	
1,2-Dichloroethane-d4 (S)	%						121	116	84-124		
4-Bromofluorobenzene (S)	%						97	99	84-113		
Toluene-d8 (S)	%						91	92	79-118		

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: UPA Bradford M-061

Pace Project No.: 30138153

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

ANALYTE QUALIFIERS

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: UPA Bradford M-061

Pace Project No.: 30138153

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30138153001	MW-1R	EPA 8260B	MSV/22177		
30138153002	MW-3R	EPA 8260B	MSV/22177		
30138153003	MW-4	EPA 8260B	MSV/22177		
30138153004	MW-5	EPA 8260B	MSV/22177		
30138153005	MW-6	EPA 8260B	MSV/22177		
30138153006	MW-7	EPA 8260B	MSV/22177		
30138153007	MW-8	EPA 8260B	MSV/22177		
30138153008	MW-9	EPA 8260B	MSV/22177		
30138153009	MW-10	EPA 8260B	MSV/22177		
30138153010	MW-11	EPA 8260B	MSV/22177		
30138153011	MW-12	EPA 8260B	MSV/22177		
30138153012	MW-13	EPA 8260B	MSV/22177		
30138153013	MW-14	EPA 8260B	MSV/22177		
30138153014	MW-15	EPA 8260B	MSV/22177		
30138153015	MW-16	EPA 8260B	MSV/22177		
30138153016	MW-17	EPA 8260B	MSV/22177		
30138153017	MW-18	EPA 8260B	MSV/22177		
30138153018	MW-19	EPA 8260B	MSV/22177		

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

30138153

Page: 1 Of 2

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

30138153

Page: 2 Of 2

Section A		Section B		Section C	
Required Client Information:		Required Project Information:		Invoice Information:	
Company:	Groundwater & Environmental Services	Report To:	Joe Hinkle	Attention:	Joe Hinkle
Address:	301 Commerce Park Drive	Copy To:	Joan Amodeo	Company Name:	Groundwater & Environmental Services
Cranberry Twp, PA 16066		301 Commerce Park Drive, Cranberry Twp, PA 16066		Address:	301 Commerce Park Drive, Cranberry Twp, PA 16066
Email To:	jhinkle@equisonline.com	Purchase Order No	UPA Bradford M-061	Pace Quote Reference:	
Phone:	800-267-2549 Fax: 724-779-4617	Client Project ID:	UPA Bradford M-061	Pace Project Manager:	Christner, Rachel
Requested Due Date/TAT:	10 Day (Default)	Container Order Number:		Pace Profile #:	

ITEM#	MATRIX	CODE	COLLECTED				SAMPLE TYPE (G=GRAB C=COMP)	MATRIX CODE (see valid codes to left)	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives								Analyses Test	Y/N	8260B (NEW Unleaded Shortlist)	Residual Chlorine (Y/N)		
			START	DATE	TIME	DATE					TIME	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol					Other	
1	MW-13	Drinking Water				07/06/15	1420	G	WT	3				X								X		012
2	MW-14	Drinking Water					1330	G	WT	3				X								X		013
3	MW-15	Drinking Water					1235	G	WT	3				X								X		014
4	MW-16	Drinking Water					1205	G	WT	3				X								X		015
5	MW-17	Drinking Water					0925	G	WT	3				X								X		016
6	MW-18	Drinking Water					0945	G	WT	3				X								X		017
7	MW-19	Drinking Water					1000	G	WT	3				X								X		018
8	MW-20	Drinking Water					1030	G	WT	3				X								X		
9	MW-21	Drinking Water					1135	G	WT	3				X								X		
10	MW-22	Drinking Water					1300	G	WT	3				X								X		
11	MW-23	Drinking Water					1150	G	WT	3				X								X		
12	MW-24	Drinking Water					0905	G	WT	3				X								X		

RELINQUISHED BY / AFFILIATION		DATE		ACCEPTED BY / AFFILIATION		DATE		SAMPLE CONDITIONS	
Walter Kotuba		01/07/15		Sample Receiving GIES		01/07/15			
Walter Kotuba		01/07/15		GIES Rep		1-7-15			
GIES Rep		1-7-15		GIES Rep		1-7-15			
UPAM061Bradford-lab report no.24067.EQEDD.zip									

SAMPLER NAME AND SIGNATURE		TEMP in C		Received on Ice (Y/N)		Custody Sealed (Y/N)		Cooler (Y/N)		Samples Intact (Y/N)	
Walter Kotuba											
PRINT Name of SAMPLER:		DATE Signed:									
Walter Kotuba		01-07-15									



Sample Condition Upon Receipt

Client Name: GES

Project # 30138153

PAS

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☒ Pace Other _____

Tracking #: _____

Custody Seal on Cooler/Box Present: ☒ yes ☐ no Seals intact: ☒ yes ☐ no Biological Tissue is Frozen: Yes No

Packing Material: Bubble Wrap ☒ Bubble Bags _____ None _____ Other _____

Thermometer Used #7 Type of Ice: ☒ Wet ☐ Blue ☐ None ☒ Samples on ice, cooling process has begun

Cooler Temp.: Observed Temp.: 1.4 °C Correction Factor: 0.1 °C Final Temp: 1.3 °C

Date and Initials of person

examining contents: SRA 17-15

Temp should be above freezing to 6°C

Comments:

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7. <u>Rush samples on separate project</u>
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix:	<u>nt</u>	
All containers needing preservation have been checked.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
exceptions: <u>VOA</u> , coliform, TOC, O&G, WI-DRO (water)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Initial when completed <u>SRA</u> Lot # of added preservative
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	15.
Trip Blank Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution:

Field Data Required?

Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review:

James D. Christian

Date:

1/8/15

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

Project Number:

Client Name: _____

Facts Allegedly

[illegible]

February 10, 2015

Mr. Joe Hinkle
Groundwater & Environmental Services
301 Commerce Park Drive
Cranberry Twp, PA 16066

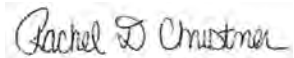
RE: Project: UPA Bradford M-061
Pace Project No.: 30140253

Dear Mr. Hinkle:

Enclosed are the analytical results for sample(s) received by the laboratory on February 06, 2015. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Rachel Christner
rachel.christner@pacelabs.com
Project Manager

Enclosures

cc: Ms. Joan Amodeo, Groundwater and Environmental
Services, Inc.



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: UPA Bradford M-061

Pace Project No.: 30140253

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

ACLASS DOD-ELAP Accreditation #: ADE-1544

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California/TNI Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683

Guam/PADEP Certification

Hawaii/PADEP Certification

Idaho Certification

Illinois/PADEP Certification

Indiana/PADEP Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: 90133

Louisiana DHH/TNI Certification #: LA140008

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: PA00091

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification

Missouri Certification #: 235

Montana Certification #: Cert 0082

Nebraska Certification #: NE-05-29-14

Nevada Certification

New Hampshire/TNI Certification #: 2976

New Jersey/TNI Certification #: PA 051

New Mexico Certification

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Oregon/TNI Certification #: PA200002

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

South Dakota Certification

Tennessee Certification #: TN2867

Texas/TNI Certification #: T104704188

Utah/TNI Certification #: PA014572014-4

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 460198

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin/PADEP Certification

Wyoming Certification #: 8TMS-Q

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SAMPLE ANALYTE COUNT

Project: UPA Bradford M-061

Pace Project No.: 30140253

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30140253001	MW-1R	EPA 8260B	RES	12	PASI-PA
30140253002	MW-3R	EPA 8260B	RES	12	PASI-PA
30140253003	MW-5	EPA 8260B	RES	12	PASI-PA
30140253004	MW-6	EPA 8260B	RES	12	PASI-PA
30140253005	MW-7	EPA 8260B	RES	12	PASI-PA
30140253006	MW-8	EPA 8260B	RES	12	PASI-PA
30140253007	MW-9	EPA 8260B	RES	12	PASI-PA
30140253008	MW-10	EPA 8260B	RES	12	PASI-PA
30140253009	MW-11	EPA 8260B	RES	12	PASI-PA
30140253010	MW-12	EPA 8260B	RES	12	PASI-PA
30140253011	MW-13	EPA 8260B	RES	12	PASI-PA
30140253012	MW-14	EPA 8260B	RES	12	PASI-PA
30140253013	MW-15	EPA 8260B	RES	12	PASI-PA
30140253014	MW-16	EPA 8260B	RES	12	PASI-PA
30140253015	MW-17	EPA 8260B	RES	12	PASI-PA
30140253016	MW-18	EPA 8260B	RES	12	PASI-PA
30140253017	MW-19	EPA 8260B	RES	12	PASI-PA
30140253018	MW-20	EPA 8260B	RES	12	PASI-PA
30140253019	MW-21	EPA 8260B	RES	12	PASI-PA
30140253020	MW-22	EPA 8260B	RES	12	PASI-PA
30140253021	MW-23	EPA 8260B	RES	12	PASI-PA
30140253022	MW-24	EPA 8260B	RES	12	PASI-PA

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PROJECT NARRATIVE

Project: UPA Bradford M-061

Pace Project No.: 30140253

Date: February 10, 2015

MW-3R (Lab ID: 30140253002)

- 8260 VOA: The sample was transferred to another VOA vial prior to analysis due to excessive sediment.

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PROJECT NARRATIVE

Project: UPA Bradford M-061

Pace Project No.: 30140253

Method: EPA 8260B

Description: 8260 MSV UST

Client: Groundwater & Environmental Services - Cranberry Twp PA

Date: February 10, 2015

General Information:

22 samples were analyzed for EPA 8260B. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30140253

Sample: MW-1R		Lab ID: 30140253001	Collected: 02/04/15 08:50	Received: 02/06/15 17:25	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260B						
Benzene	678 ug/L		50.0	10		02/09/15 18:00	71-43-2	
Ethylbenzene	20.3 ug/L		5.0	1		02/09/15 17:35	100-41-4	
Isopropylbenzene (Cumene)	21.9 ug/L		5.0	1		02/09/15 17:35	98-82-8	
Methyl-tert-butyl ether	7.5 ug/L		5.0	1		02/09/15 17:35	1634-04-4	
Naphthalene	7.4 ug/L		5.0	1		02/09/15 17:35	91-20-3	
Toluene	7.7 ug/L		5.0	1		02/09/15 17:35	108-88-3	
1,2,4-Trimethylbenzene	53.2 ug/L		5.0	1		02/09/15 17:35	95-63-6	
1,3,5-Trimethylbenzene	14.7 ug/L		5.0	1		02/09/15 17:35	108-67-8	
Xylene (Total)	25.6 ug/L		5.0	1		02/09/15 17:35	1330-20-7	
Surrogates								
Toluene-d8 (S)	103 %		79-118	1		02/09/15 17:35	2037-26-5	
4-Bromofluorobenzene (S)	103 %		84-113	1		02/09/15 17:35	460-00-4	
1,2-Dichloroethane-d4 (S)	88 %		84-124	1		02/09/15 17:35	17060-07-0	

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30140253

Sample: MW-3R **Lab ID: 30140253002** Collected: 02/03/15 16:20 Received: 02/06/15 17:25 Matrix: Water

Comments: • 8260 VOA: The sample was transferred to another VOA vial prior to analysis due to excessive sediment.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260B						
Benzene	ND ug/L		5.0	1		02/09/15 12:44	71-43-2	
Ethylbenzene	ND ug/L		5.0	1		02/09/15 12:44	100-41-4	
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		02/09/15 12:44	98-82-8	
Methyl-tert-butyl ether	ND ug/L		5.0	1		02/09/15 12:44	1634-04-4	
Naphthalene	ND ug/L		5.0	1		02/09/15 12:44	91-20-3	
Toluene	ND ug/L		5.0	1		02/09/15 12:44	108-88-3	
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		02/09/15 12:44	95-63-6	
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		02/09/15 12:44	108-67-8	
Xylene (Total)	ND ug/L		5.0	1		02/09/15 12:44	1330-20-7	
Surrogates								
Toluene-d8 (S)	104 %		79-118	1		02/09/15 12:44	2037-26-5	
4-Bromofluorobenzene (S)	99 %		84-113	1		02/09/15 12:44	460-00-4	
1,2-Dichloroethane-d4 (S)	86 %		84-124	1		02/09/15 12:44	17060-07-0	

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30140253

Sample: MW-5		Lab ID: 30140253003		Collected: 02/03/15 17:00		Received: 02/06/15 17:25		Matrix: Water	
Parameters		Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260B							
Benzene		ND ug/L		5.0	1		02/09/15 12:19	71-43-2	
Ethylbenzene		ND ug/L		5.0	1		02/09/15 12:19	100-41-4	
Isopropylbenzene (Cumene)		ND ug/L		5.0	1		02/09/15 12:19	98-82-8	
Methyl-tert-butyl ether		ND ug/L		5.0	1		02/09/15 12:19	1634-04-4	
Naphthalene		ND ug/L		5.0	1		02/09/15 12:19	91-20-3	
Toluene		ND ug/L		5.0	1		02/09/15 12:19	108-88-3	
1,2,4-Trimethylbenzene		ND ug/L		5.0	1		02/09/15 12:19	95-63-6	
1,3,5-Trimethylbenzene		ND ug/L		5.0	1		02/09/15 12:19	108-67-8	
Xylene (Total)		ND ug/L		5.0	1		02/09/15 12:19	1330-20-7	
Surrogates									
Toluene-d8 (S)		97 %		79-118	1		02/09/15 12:19	2037-26-5	
4-Bromofluorobenzene (S)		102 %		84-113	1		02/09/15 12:19	460-00-4	
1,2-Dichloroethane-d4 (S)		91 %		84-124	1		02/09/15 12:19	17060-07-0	

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30140253

Sample: MW-6		Lab ID: 30140253004	Collected: 02/03/15 15:40	Received: 02/06/15 17:25	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260B						
Benzene	680 ug/L		50.0	10		02/09/15 18:51	71-43-2	
Ethylbenzene	11.2 ug/L		5.0	1		02/09/15 18:26	100-41-4	
Isopropylbenzene (Cumene)	15.8 ug/L		5.0	1		02/09/15 18:26	98-82-8	
Methyl-tert-butyl ether	5.7 ug/L		5.0	1		02/09/15 18:26	1634-04-4	
Naphthalene	ND ug/L		5.0	1		02/09/15 18:26	91-20-3	
Toluene	8.1 ug/L		5.0	1		02/09/15 18:26	108-88-3	
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		02/09/15 18:26	95-63-6	
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		02/09/15 18:26	108-67-8	
Xylene (Total)	18.0 ug/L		5.0	1		02/09/15 18:26	1330-20-7	
Surrogates								
Toluene-d8 (S)	103 %		79-118	1		02/09/15 18:26	2037-26-5	
4-Bromofluorobenzene (S)	97 %		84-113	1		02/09/15 18:26	460-00-4	
1,2-Dichloroethane-d4 (S)	94 %		84-124	1		02/09/15 18:26	17060-07-0	

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30140253

Sample: MW-7		Lab ID: 30140253005	Collected: 02/03/15 15:00	Received: 02/06/15 17:25	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260B						
Benzene	79.9 ug/L		5.0	1		02/09/15 14:25	71-43-2	
Ethylbenzene	68.2 ug/L		5.0	1		02/09/15 14:25	100-41-4	
Isopropylbenzene (Cumene)	5.1 ug/L		5.0	1		02/09/15 14:25	98-82-8	
Methyl-tert-butyl ether	ND ug/L		5.0	1		02/09/15 14:25	1634-04-4	
Naphthalene	9.2 ug/L		5.0	1		02/09/15 14:25	91-20-3	
Toluene	ND ug/L		5.0	1		02/09/15 14:25	108-88-3	
1,2,4-Trimethylbenzene	67.5 ug/L		5.0	1		02/09/15 14:25	95-63-6	
1,3,5-Trimethylbenzene	17.0 ug/L		5.0	1		02/09/15 14:25	108-67-8	
Xylene (Total)	254 ug/L		5.0	1		02/09/15 14:25	1330-20-7	
Surrogates								
Toluene-d8 (S)	99 %		79-118	1		02/09/15 14:25	2037-26-5	
4-Bromofluorobenzene (S)	96 %		84-113	1		02/09/15 14:25	460-00-4	
1,2-Dichloroethane-d4 (S)	90 %		84-124	1		02/09/15 14:25	17060-07-0	

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30140253

Sample: MW-8		Lab ID: 30140253006	Collected: 02/04/15 09:40	Received: 02/06/15 17:25	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260B						
Benzene	ND ug/L		5.0	1		02/09/15 14:51	71-43-2	
Ethylbenzene	ND ug/L		5.0	1		02/09/15 14:51	100-41-4	
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		02/09/15 14:51	98-82-8	
Methyl-tert-butyl ether	155 ug/L		5.0	1		02/09/15 14:51	1634-04-4	
Naphthalene	ND ug/L		5.0	1		02/09/15 14:51	91-20-3	
Toluene	ND ug/L		5.0	1		02/09/15 14:51	108-88-3	
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		02/09/15 14:51	95-63-6	
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		02/09/15 14:51	108-67-8	
Xylene (Total)	ND ug/L		5.0	1		02/09/15 14:51	1330-20-7	
Surrogates								
Toluene-d8 (S)	98 %		79-118	1		02/09/15 14:51	2037-26-5	
4-Bromofluorobenzene (S)	96 %		84-113	1		02/09/15 14:51	460-00-4	
1,2-Dichloroethane-d4 (S)	89 %		84-124	1		02/09/15 14:51	17060-07-0	

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30140253

Sample: MW-9		Lab ID: 30140253007		Collected: 02/04/15 10:00		Received: 02/06/15 17:25		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV UST		Analytical Method: EPA 8260B							
Benzene	ND ug/L		5.0	1		02/09/15 19:16	71-43-2		
Ethylbenzene	ND ug/L		5.0	1		02/09/15 19:16	100-41-4		
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		02/09/15 19:16	98-82-8		
Methyl-tert-butyl ether	1230 ug/L		100	20		02/09/15 19:41	1634-04-4		
Naphthalene	ND ug/L		5.0	1		02/09/15 19:16	91-20-3		
Toluene	ND ug/L		5.0	1		02/09/15 19:16	108-88-3		
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		02/09/15 19:16	95-63-6		
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		02/09/15 19:16	108-67-8		
Xylene (Total)	ND ug/L		5.0	1		02/09/15 19:16	1330-20-7		
Surrogates									
Toluene-d8 (S)	101 %		79-118	1		02/09/15 19:16	2037-26-5		
4-Bromofluorobenzene (S)	103 %		84-113	1		02/09/15 19:16	460-00-4		
1,2-Dichloroethane-d4 (S)	97 %		84-124	1		02/09/15 19:16	17060-07-0		

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30140253

Sample: MW-10		Lab ID: 30140253008	Collected: 02/04/15 10:20	Received: 02/06/15 17:25	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260B						
Benzene	ND ug/L		5.0	1		02/09/15 15:16	71-43-2	
Ethylbenzene	ND ug/L		5.0	1		02/09/15 15:16	100-41-4	
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		02/09/15 15:16	98-82-8	
Methyl-tert-butyl ether	287 ug/L		5.0	1		02/09/15 15:16	1634-04-4	
Naphthalene	ND ug/L		5.0	1		02/09/15 15:16	91-20-3	
Toluene	ND ug/L		5.0	1		02/09/15 15:16	108-88-3	
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		02/09/15 15:16	95-63-6	
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		02/09/15 15:16	108-67-8	
Xylene (Total)	ND ug/L		5.0	1		02/09/15 15:16	1330-20-7	
Surrogates								
Toluene-d8 (S)	97 %		79-118	1		02/09/15 15:16	2037-26-5	
4-Bromofluorobenzene (S)	97 %		84-113	1		02/09/15 15:16	460-00-4	
1,2-Dichloroethane-d4 (S)	94 %		84-124	1		02/09/15 15:16	17060-07-0	

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30140253

Sample: MW-11		Lab ID: 30140253009	Collected: 02/04/15 09:20	Received: 02/06/15 17:25	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260B						
Benzene	ND ug/L		5.0	1		02/09/15 15:41	71-43-2	
Ethylbenzene	ND ug/L		5.0	1		02/09/15 15:41	100-41-4	
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		02/09/15 15:41	98-82-8	
Methyl-tert-butyl ether	854 ug/L		50.0	10		02/09/15 16:06	1634-04-4	
Naphthalene	ND ug/L		5.0	1		02/09/15 15:41	91-20-3	
Toluene	ND ug/L		5.0	1		02/09/15 15:41	108-88-3	
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		02/09/15 15:41	95-63-6	
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		02/09/15 15:41	108-67-8	
Xylene (Total)	ND ug/L		5.0	1		02/09/15 15:41	1330-20-7	
Surrogates								
Toluene-d8 (S)	98 %		79-118	1		02/09/15 15:41	2037-26-5	
4-Bromofluorobenzene (S)	99 %		84-113	1		02/09/15 15:41	460-00-4	
1,2-Dichloroethane-d4 (S)	96 %		84-124	1		02/09/15 15:41	17060-07-0	

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30140253

Sample: MW-12		Lab ID: 30140253010	Collected: 02/03/15 14:40	Received: 02/06/15 17:25	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260B						
Benzene	ND ug/L		5.0	1		02/09/15 13:09	71-43-2	
Ethylbenzene	ND ug/L		5.0	1		02/09/15 13:09	100-41-4	
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		02/09/15 13:09	98-82-8	
Methyl-tert-butyl ether	ND ug/L		5.0	1		02/09/15 13:09	1634-04-4	
Naphthalene	ND ug/L		5.0	1		02/09/15 13:09	91-20-3	
Toluene	ND ug/L		5.0	1		02/09/15 13:09	108-88-3	
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		02/09/15 13:09	95-63-6	
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		02/09/15 13:09	108-67-8	
Xylene (Total)	ND ug/L		5.0	1		02/09/15 13:09	1330-20-7	
Surrogates								
Toluene-d8 (S)	99 %		79-118	1		02/09/15 13:09	2037-26-5	
4-Bromofluorobenzene (S)	101 %		84-113	1		02/09/15 13:09	460-00-4	
1,2-Dichloroethane-d4 (S)	92 %		84-124	1		02/09/15 13:09	17060-07-0	

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30140253

Sample: MW-13		Lab ID: 30140253011	Collected: 02/04/15 08:30	Received: 02/06/15 17:25	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260B						
Benzene	ND ug/L		5.0	1		02/09/15 15:54	71-43-2	
Ethylbenzene	ND ug/L		5.0	1		02/09/15 15:54	100-41-4	
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		02/09/15 15:54	98-82-8	
Methyl-tert-butyl ether	1410 ug/L		50.0	10		02/09/15 16:19	1634-04-4	
Naphthalene	ND ug/L		5.0	1		02/09/15 15:54	91-20-3	
Toluene	ND ug/L		5.0	1		02/09/15 15:54	108-88-3	
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		02/09/15 15:54	95-63-6	
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		02/09/15 15:54	108-67-8	
Xylene (Total)	ND ug/L		5.0	1		02/09/15 15:54	1330-20-7	
Surrogates								
Toluene-d8 (S)	102 %		79-118	1		02/09/15 15:54	2037-26-5	
4-Bromofluorobenzene (S)	101 %		84-113	1		02/09/15 15:54	460-00-4	
1,2-Dichloroethane-d4 (S)	97 %		84-124	1		02/09/15 15:54	17060-07-0	

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30140253

Sample: MW-14		Lab ID: 30140253012	Collected: 02/03/15 15:20	Received: 02/06/15 17:25	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260B						
Benzene	706	ug/L	50.0	10		02/09/15 17:10	71-43-2	
Ethylbenzene	112	ug/L	5.0	1		02/09/15 16:44	100-41-4	
Isopropylbenzene (Cumene)	13.6	ug/L	5.0	1		02/09/15 16:44	98-82-8	
Methyl-tert-butyl ether	19.0	ug/L	5.0	1		02/09/15 16:44	1634-04-4	
Naphthalene	25.5	ug/L	5.0	1		02/09/15 16:44	91-20-3	
Toluene	10.5	ug/L	5.0	1		02/09/15 16:44	108-88-3	
1,2,4-Trimethylbenzene	119	ug/L	5.0	1		02/09/15 16:44	95-63-6	
1,3,5-Trimethylbenzene	46.5	ug/L	5.0	1		02/09/15 16:44	108-67-8	
Xylene (Total)	387	ug/L	5.0	1		02/09/15 16:44	1330-20-7	
Surrogates								
Toluene-d8 (S)	102	%	79-118	1		02/09/15 16:44	2037-26-5	
4-Bromofluorobenzene (S)	102	%	84-113	1		02/09/15 16:44	460-00-4	
1,2-Dichloroethane-d4 (S)	96	%	84-124	1		02/09/15 16:44	17060-07-0	

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30140253

Sample: MW-15		Lab ID: 30140253013	Collected: 02/03/15 16:00	Received: 02/06/15 17:25	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260B						
Benzene	ND ug/L		5.0	1		02/09/15 14:13	71-43-2	
Ethylbenzene	ND ug/L		5.0	1		02/09/15 14:13	100-41-4	
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		02/09/15 14:13	98-82-8	
Methyl-tert-butyl ether	ND ug/L		5.0	1		02/09/15 14:13	1634-04-4	
Naphthalene	ND ug/L		5.0	1		02/09/15 14:13	91-20-3	
Toluene	ND ug/L		5.0	1		02/09/15 14:13	108-88-3	
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		02/09/15 14:13	95-63-6	
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		02/09/15 14:13	108-67-8	
Xylene (Total)	ND ug/L		5.0	1		02/09/15 14:13	1330-20-7	
Surrogates								
Toluene-d8 (S)	100 %		79-118	1		02/09/15 14:13	2037-26-5	
4-Bromofluorobenzene (S)	99 %		84-113	1		02/09/15 14:13	460-00-4	
1,2-Dichloroethane-d4 (S)	95 %		84-124	1		02/09/15 14:13	17060-07-0	

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30140253

Sample: MW-16		Lab ID: 30140253014		Collected: 02/03/15 14:20		Received: 02/06/15 17:25		Matrix: Water	
Parameters		Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260B							
Benzene		ND ug/L		5.0	1		02/09/15 14:38	71-43-2	
Ethylbenzene		ND ug/L		5.0	1		02/09/15 14:38	100-41-4	
Isopropylbenzene (Cumene)		ND ug/L		5.0	1		02/09/15 14:38	98-82-8	
Methyl-tert-butyl ether		ND ug/L		5.0	1		02/09/15 14:38	1634-04-4	
Naphthalene		ND ug/L		5.0	1		02/09/15 14:38	91-20-3	
Toluene		ND ug/L		5.0	1		02/09/15 14:38	108-88-3	
1,2,4-Trimethylbenzene		ND ug/L		5.0	1		02/09/15 14:38	95-63-6	
1,3,5-Trimethylbenzene		ND ug/L		5.0	1		02/09/15 14:38	108-67-8	
Xylene (Total)		ND ug/L		5.0	1		02/09/15 14:38	1330-20-7	
Surrogates									
Toluene-d8 (S)		103 %		79-118	1		02/09/15 14:38	2037-26-5	
4-Bromofluorobenzene (S)		101 %		84-113	1		02/09/15 14:38	460-00-4	
1,2-Dichloroethane-d4 (S)		98 %		84-124	1		02/09/15 14:38	17060-07-0	

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30140253

Sample: MW-17		Lab ID: 30140253015	Collected: 02/03/15 12:30	Received: 02/06/15 17:25	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260B						
Benzene	ND ug/L		5.0	1		02/09/15 15:28	71-43-2	
Ethylbenzene	ND ug/L		5.0	1		02/09/15 15:28	100-41-4	
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		02/09/15 15:28	98-82-8	
Methyl-tert-butyl ether	ND ug/L		5.0	1		02/09/15 15:28	1634-04-4	
Naphthalene	ND ug/L		5.0	1		02/09/15 15:28	91-20-3	
Toluene	ND ug/L		5.0	1		02/09/15 15:28	108-88-3	
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		02/09/15 15:28	95-63-6	
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		02/09/15 15:28	108-67-8	
Xylene (Total)	ND ug/L		5.0	1		02/09/15 15:28	1330-20-7	
Surrogates								
Toluene-d8 (S)	103 %		79-118	1		02/09/15 15:28	2037-26-5	
4-Bromofluorobenzene (S)	99 %		84-113	1		02/09/15 15:28	460-00-4	
1,2-Dichloroethane-d4 (S)	96 %		84-124	1		02/09/15 15:28	17060-07-0	

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30140253

Sample: MW-18		Lab ID: 30140253016		Collected: 02/03/15 12:50		Received: 02/06/15 17:25		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV UST		Analytical Method: EPA 8260B							
Benzene	ND ug/L		5.0	1		02/09/15 14:00	71-43-2		
Ethylbenzene	ND ug/L		5.0	1		02/09/15 14:00	100-41-4		
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		02/09/15 14:00	98-82-8		
Methyl-tert-butyl ether	ND ug/L		5.0	1		02/09/15 14:00	1634-04-4		
Naphthalene	ND ug/L		5.0	1		02/09/15 14:00	91-20-3		
Toluene	ND ug/L		5.0	1		02/09/15 14:00	108-88-3		
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		02/09/15 14:00	95-63-6		
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		02/09/15 14:00	108-67-8		
Xylene (Total)	ND ug/L		5.0	1		02/09/15 14:00	1330-20-7		
Surrogates									
Toluene-d8 (S)	100 %		79-118	1		02/09/15 14:00	2037-26-5		
4-Bromofluorobenzene (S)	95 %		84-113	1		02/09/15 14:00	460-00-4		
1,2-Dichloroethane-d4 (S)	93 %		84-124	1		02/09/15 14:00	17060-07-0		

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30140253

Sample: MW-19		Lab ID: 30140253017		Collected: 02/03/15 13:10		Received: 02/06/15 17:25		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV UST		Analytical Method: EPA 8260B							
Benzene	ND ug/L		5.0	1		02/09/15 13:47	71-43-2		
Ethylbenzene	ND ug/L		5.0	1		02/09/15 13:47	100-41-4		
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		02/09/15 13:47	98-82-8		
Methyl-tert-butyl ether	377 ug/L		25.0	5		02/09/15 15:03	1634-04-4		
Naphthalene	ND ug/L		5.0	1		02/09/15 13:47	91-20-3		
Toluene	ND ug/L		5.0	1		02/09/15 13:47	108-88-3		
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		02/09/15 13:47	95-63-6		
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		02/09/15 13:47	108-67-8		
Xylene (Total)	ND ug/L		5.0	1		02/09/15 13:47	1330-20-7		
Surrogates									
Toluene-d8 (S)	104 %		79-118	1		02/09/15 13:47	2037-26-5		
4-Bromofluorobenzene (S)	106 %		84-113	1		02/09/15 13:47	460-00-4		
1,2-Dichloroethane-d4 (S)	96 %		84-124	1		02/09/15 13:47	17060-07-0		

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30140253

Sample: MW-20		Lab ID: 30140253018		Collected: 02/04/15 11:00		Received: 02/06/15 17:25		Matrix: Water	
Parameters		Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260B							
Benzene		ND ug/L		5.0	1		02/09/15 12:06	71-43-2	
Ethylbenzene		ND ug/L		5.0	1		02/09/15 12:06	100-41-4	
Isopropylbenzene (Cumene)		ND ug/L		5.0	1		02/09/15 12:06	98-82-8	
Methyl-tert-butyl ether		ND ug/L		5.0	1		02/09/15 12:06	1634-04-4	
Naphthalene		ND ug/L		5.0	1		02/09/15 12:06	91-20-3	
Toluene		ND ug/L		5.0	1		02/09/15 12:06	108-88-3	
1,2,4-Trimethylbenzene		ND ug/L		5.0	1		02/09/15 12:06	95-63-6	
1,3,5-Trimethylbenzene		ND ug/L		5.0	1		02/09/15 12:06	108-67-8	
Xylene (Total)		ND ug/L		5.0	1		02/09/15 12:06	1330-20-7	
Surrogates									
Toluene-d8 (S)		101 %		79-118	1		02/09/15 12:06	2037-26-5	
4-Bromofluorobenzene (S)		97 %		84-113	1		02/09/15 12:06	460-00-4	
1,2-Dichloroethane-d4 (S)		92 %		84-124	1		02/09/15 12:06	17060-07-0	

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30140253

Sample: MW-21		Lab ID: 30140253019	Collected: 02/04/15 10:40	Received: 02/06/15 17:25	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260B						
Benzene	ND ug/L		5.0	1		02/09/15 12:31	71-43-2	
Ethylbenzene	ND ug/L		5.0	1		02/09/15 12:31	100-41-4	
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		02/09/15 12:31	98-82-8	
Methyl-tert-butyl ether	20.5 ug/L		5.0	1		02/09/15 12:31	1634-04-4	
Naphthalene	ND ug/L		5.0	1		02/09/15 12:31	91-20-3	
Toluene	ND ug/L		5.0	1		02/09/15 12:31	108-88-3	
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		02/09/15 12:31	95-63-6	
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		02/09/15 12:31	108-67-8	
Xylene (Total)	ND ug/L		5.0	1		02/09/15 12:31	1330-20-7	
Surrogates								
Toluene-d8 (S)	104 %		79-118	1		02/09/15 12:31	2037-26-5	
4-Bromofluorobenzene (S)	101 %		84-113	1		02/09/15 12:31	460-00-4	
1,2-Dichloroethane-d4 (S)	98 %		84-124	1		02/09/15 12:31	17060-07-0	

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30140253

Sample: MW-22		Lab ID: 30140253020	Collected: 02/03/15 16:40	Received: 02/06/15 17:25	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260B						
Benzene	ND ug/L		5.0	1		02/09/15 13:35	71-43-2	
Ethylbenzene	ND ug/L		5.0	1		02/09/15 13:35	100-41-4	
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		02/09/15 13:35	98-82-8	
Methyl-tert-butyl ether	12.9 ug/L		5.0	1		02/09/15 13:35	1634-04-4	
Naphthalene	ND ug/L		5.0	1		02/09/15 13:35	91-20-3	
Toluene	ND ug/L		5.0	1		02/09/15 13:35	108-88-3	
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		02/09/15 13:35	95-63-6	
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		02/09/15 13:35	108-67-8	
Xylene (Total)	ND ug/L		5.0	1		02/09/15 13:35	1330-20-7	
Surrogates								
Toluene-d8 (S)	100 %		79-118	1		02/09/15 13:35	2037-26-5	
4-Bromofluorobenzene (S)	97 %		84-113	1		02/09/15 13:35	460-00-4	
1,2-Dichloroethane-d4 (S)	95 %		84-124	1		02/09/15 13:35	17060-07-0	

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30140253

Sample: MW-23		Lab ID: 30140253021	Collected: 02/03/15 14:00	Received: 02/06/15 17:25	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260B						
Benzene	ND ug/L		5.0	1		02/09/15 12:57	71-43-2	
Ethylbenzene	ND ug/L		5.0	1		02/09/15 12:57	100-41-4	
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		02/09/15 12:57	98-82-8	
Methyl-tert-butyl ether	46.7 ug/L		5.0	1		02/09/15 12:57	1634-04-4	
Naphthalene	ND ug/L		5.0	1		02/09/15 12:57	91-20-3	
Toluene	ND ug/L		5.0	1		02/09/15 12:57	108-88-3	
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		02/09/15 12:57	95-63-6	
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		02/09/15 12:57	108-67-8	
Xylene (Total)	ND ug/L		5.0	1		02/09/15 12:57	1330-20-7	
Surrogates								
Toluene-d8 (S)	103 %		79-118	1		02/09/15 12:57	2037-26-5	
4-Bromofluorobenzene (S)	98 %		84-113	1		02/09/15 12:57	460-00-4	
1,2-Dichloroethane-d4 (S)	97 %		84-124	1		02/09/15 12:57	17060-07-0	

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ANALYTICAL RESULTS

Project: UPA Bradford M-061

Pace Project No.: 30140253

Sample: MW-24		Lab ID: 30140253022	Collected: 02/04/15 11:20	Received: 02/06/15 17:25	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260B						
Benzene	ND ug/L		5.0	1		02/09/15 13:22	71-43-2	
Ethylbenzene	ND ug/L		5.0	1		02/09/15 13:22	100-41-4	
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		02/09/15 13:22	98-82-8	
Methyl-tert-butyl ether	ND ug/L		5.0	1		02/09/15 13:22	1634-04-4	
Naphthalene	ND ug/L		5.0	1		02/09/15 13:22	91-20-3	
Toluene	ND ug/L		5.0	1		02/09/15 13:22	108-88-3	
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		02/09/15 13:22	95-63-6	
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		02/09/15 13:22	108-67-8	
Xylene (Total)	ND ug/L		5.0	1		02/09/15 13:22	1330-20-7	
Surrogates								
Toluene-d8 (S)	103 %		79-118	1		02/09/15 13:22	2037-26-5	
4-Bromofluorobenzene (S)	97 %		84-113	1		02/09/15 13:22	460-00-4	
1,2-Dichloroethane-d4 (S)	94 %		84-124	1		02/09/15 13:22	17060-07-0	

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QUALITY CONTROL DATA

Project: UPA Bradford M-061

Pace Project No.: 30140253

QC Batch:	MSV/22447	Analysis Method:	EPA 8260B
QC Batch Method:	EPA 8260B	Analysis Description:	8260 MSV UST-WATER
Associated Lab Samples:	30140253001, 30140253004, 30140253007, 30140253011, 30140253012, 30140253013, 30140253014, 30140253015, 30140253017, 30140253018, 30140253019, 30140253021, 30140253022		

METHOD BLANK: 852075

Matrix: Water

Associated Lab Samples: 30140253001, 30140253004, 30140253007, 30140253011, 30140253012, 30140253013, 30140253014, 30140253015, 30140253017, 30140253018, 30140253019, 30140253021, 30140253022

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	ND	5.0	02/09/15 11:41	
1,3,5-Trimethylbenzene	ug/L	ND	5.0	02/09/15 11:41	
Benzene	ug/L	ND	1.0	02/09/15 11:41	
Ethylbenzene	ug/L	ND	1.0	02/09/15 11:41	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	02/09/15 11:41	
Methyl-tert-butyl ether	ug/L	ND	1.0	02/09/15 11:41	
Naphthalene	ug/L	ND	2.0	02/09/15 11:41	
Toluene	ug/L	ND	1.0	02/09/15 11:41	
Xylene (Total)	ug/L	ND	3.0	02/09/15 11:41	
1,2-Dichloroethane-d4 (S)	%	97	84-124	02/09/15 11:41	
4-Bromofluorobenzene (S)	%	102	84-113	02/09/15 11:41	
Toluene-d8 (S)	%	105	79-118	02/09/15 11:41	

LABORATORY CONTROL SAMPLE: 852076

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/L	20	18.0	90	70-123	
1,3,5-Trimethylbenzene	ug/L	20	17.7	88	67-123	
Benzene	ug/L	20	21.2	106	69-123	
Ethylbenzene	ug/L	20	18.8	94	70-123	
Isopropylbenzene (Cumene)	ug/L	20	19.0	95	66-136	
Methyl-tert-butyl ether	ug/L	20	18.5	92	69-133	
Naphthalene	ug/L	20	18.0	90	65-134	
Toluene	ug/L	20	19.9	99	73-123	
Xylene (Total)	ug/L	60	56.6	94	70-123	
1,2-Dichloroethane-d4 (S)	%			91	84-124	
4-Bromofluorobenzene (S)	%			100	84-113	
Toluene-d8 (S)	%			101	79-118	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 852324

852325

Parameter	Units	30140253014 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
1,2,4-Trimethylbenzene	ug/L	ND	20	20	17.3	17.6	87	88	70-123	2	
1,3,5-Trimethylbenzene	ug/L	ND	20	20	17.0	17.2	85	86	67-123	1	
Benzene	ug/L	ND	20	20	20.8	20.9	104	105	69-123	1	
Ethylbenzene	ug/L	ND	20	20	18.6	18.3	93	91	70-123	2	

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QUALITY CONTROL DATA

Project: UPA Bradford M-061

Pace Project No.: 30140253

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 852324 852325											
Parameter	Units	30140253014 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Isopropylbenzene (Cumene)	ug/L	ND	20	20	18.8	19.4	94	97	66-136	3	
Methyl-tert-butyl ether	ug/L	ND	20	20	17.3	17.2	87	86	69-133	1	
Naphthalene	ug/L	ND	20	20	14.4	15.7	72	78	65-134	9	
Toluene	ug/L	ND	20	20	19.7	19.4	98	97	73-123	2	
Xylene (Total)	ug/L	ND	60	60	56.9	54.9	95	91	70-123	4	
1,2-Dichloroethane-d4 (S)	%						101	102	84-124		
4-Bromofluorobenzene (S)	%						104	105	84-113		
Toluene-d8 (S)	%						105	100	79-118		

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QUALITY CONTROL DATA

Project: UPA Bradford M-061

Pace Project No.: 30140253

QC Batch:	MSV/22448	Analysis Method:	EPA 8260B
QC Batch Method:	EPA 8260B	Analysis Description:	8260 MSV UST-WATER
Associated Lab Samples:	30140253002, 30140253003, 30140253005, 30140253006, 30140253008, 30140253009, 30140253010, 30140253016, 30140253020		

METHOD BLANK: 852081 Matrix: Water
Associated Lab Samples: 30140253002, 30140253003, 30140253005, 30140253006, 30140253008, 30140253009, 30140253010, 30140253016, 30140253020

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	ND	5.0	02/09/15 11:54	
1,3,5-Trimethylbenzene	ug/L	ND	5.0	02/09/15 11:54	
Benzene	ug/L	ND	1.0	02/09/15 11:54	
Ethylbenzene	ug/L	ND	1.0	02/09/15 11:54	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	02/09/15 11:54	
Methyl-tert-butyl ether	ug/L	ND	1.0	02/09/15 11:54	
Naphthalene	ug/L	ND	2.0	02/09/15 11:54	
Toluene	ug/L	ND	1.0	02/09/15 11:54	
Xylene (Total)	ug/L	ND	3.0	02/09/15 11:54	
1,2-Dichloroethane-d4 (S)	%	88	84-124	02/09/15 11:54	
4-Bromofluorobenzene (S)	%	97	84-113	02/09/15 11:54	
Toluene-d8 (S)	%	100	79-118	02/09/15 11:54	

LABORATORY CONTROL SAMPLE: 852082

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/L	20	19.0	95	70-123	
1,3,5-Trimethylbenzene	ug/L	20	18.4	92	67-123	
Benzene	ug/L	20	19.8	99	69-123	
Ethylbenzene	ug/L	20	20.2	101	70-123	
Isopropylbenzene (Cumene)	ug/L	20	20.6	103	66-136	
Methyl-tert-butyl ether	ug/L	20	20.1	100	69-133	
Naphthalene	ug/L	20	21.3	106	65-134	
Toluene	ug/L	20	20.9	105	73-123	
Xylene (Total)	ug/L	60	62.4	104	70-123	
1,2-Dichloroethane-d4 (S)	%			94	84-124	
4-Bromofluorobenzene (S)	%			97	84-113	
Toluene-d8 (S)	%			98	79-118	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 852083 852084

Parameter	Units	30140253003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
1,2,4-Trimethylbenzene	ug/L	ND	20	20	17.3	17.1	86	85	70-123	1	
1,3,5-Trimethylbenzene	ug/L	ND	20	20	16.7	16.6	83	83	67-123	0	
Benzene	ug/L	ND	20	20	19.0	18.1	93	88	69-123	5	
Ethylbenzene	ug/L	ND	20	20	17.6	17.4	88	87	70-123	1	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: UPA Bradford M-061

Pace Project No.: 30140253

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 852083 852084											
Parameter	Units	30140253003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Isopropylbenzene (Cumene)	ug/L	ND	20	20	18.8	18.1	94	91	66-136	4	
Methyl-tert-butyl ether	ug/L	ND	20	20	17.1	19.6	85	98	69-133	14	
Naphthalene	ug/L	ND	20	20	18.2	18.2	91	91	65-134	0	
Toluene	ug/L	ND	20	20	18.7	18.5	94	92	73-123	1	
Xylene (Total)	ug/L	ND	60	60	54.7	54.7	91	91	70-123	0	
1,2-Dichloroethane-d4 (S)	%						96	98	84-124		
4-Bromofluorobenzene (S)	%						102	101	84-113		
Toluene-d8 (S)	%						98	97	79-118		

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: UPA Bradford M-061

Pace Project No.: 30140253

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: UPA Bradford M-061

Pace Project No.: 30140253

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30140253001	MW-1R	EPA 8260B	MSV/22447		
30140253002	MW-3R	EPA 8260B	MSV/22448		
30140253003	MW-5	EPA 8260B	MSV/22448		
30140253004	MW-6	EPA 8260B	MSV/22447		
30140253005	MW-7	EPA 8260B	MSV/22448		
30140253006	MW-8	EPA 8260B	MSV/22448		
30140253007	MW-9	EPA 8260B	MSV/22447		
30140253008	MW-10	EPA 8260B	MSV/22448		
30140253009	MW-11	EPA 8260B	MSV/22448		
30140253010	MW-12	EPA 8260B	MSV/22448		
30140253011	MW-13	EPA 8260B	MSV/22447		
30140253012	MW-14	EPA 8260B	MSV/22447		
30140253013	MW-15	EPA 8260B	MSV/22447		
30140253014	MW-16	EPA 8260B	MSV/22447		
30140253015	MW-17	EPA 8260B	MSV/22447		
30140253016	MW-18	EPA 8260B	MSV/22448		
30140253017	MW-19	EPA 8260B	MSV/22447		
30140253018	MW-20	EPA 8260B	MSV/22447		
30140253019	MW-21	EPA 8260B	MSV/22447		
30140253020	MW-22	EPA 8260B	MSV/22448		
30140253021	MW-23	EPA 8260B	MSV/22447		
30140253022	MW-24	EPA 8260B	MSV/22447		

REPORT OF LABORATORY ANALYSIS

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30140253

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A		Section B		Section C	
Required Client Information:		Required Project Information:		Invoice Information:	
Company:	Groundwater & Environmental Services	Report To:	Joe Hinkle	Attention:	Joe Hinkle
Address:	301 Commerce Park Drive	Copy To:	Joan Amodeo	Company Name:	Groundwater & Environmental Services
	Cranberry Twp, PA 16066		301 Commerce Park Drive, Cranberry Twp, PA 16066	Address:	301 Commerce Park Drive, Cranberry Twp, PA 16066
Email To:	jhinkle@gesonline.com	Purchase Order No	UPA Bradford M-061	Pace Quote Reference:	
Phone:	800-267-2549 Fax: 724-779-4617	Client Project ID:	UPA Bradford M-061	Pace Project Manager:	Christher, Rachel
Requested Due Date/TAT:	10 Day (Default)	Container Order Number:		Pace Profile #:	

ITEM#	MATRIX	CODE	COLLECTED		SAMPLE TYPE (G=GRAB C=COMP)	MATRIX CODE (see valid codes to left)	# OF CONTAINERS	PRESERVATIVES						Analyses Test	Y/N	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)
			START	END				Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other		
1	MW-1R	DW	DATE	TIME	DATE	TIME	WT G	3			X					X	001
2	MW-3R	WW	2-4-15	0850	2-3-15	1620	WT G	3			X					X	002
3	MW-4	P					WT G	3			X					X	003
4	MW-5	SL	2-3-15	1700	2-3-15	1700	WT G	3			X					X	004
5	MW-6	OL	2-3-15	1540	2-3-15	1540	WT G	3			X					X	005
6	MW-7	WP	2-3-15	1500	2-3-15	1500	WT G	3			X					X	006
7	MW-8	WP	2-4-15	0940	2-4-15	0940	WT G	3			X					X	007
8	MW-9	AR	2-4-15	1000	2-4-15	1000	WT G	3			X					X	008
9	MW-10	OT	2-4-15	1020	2-4-15	1020	WT G	3			X					X	009
10	MW-11	TS	2-4-15	0930	2-4-15	0930	WT G	3			X					X	010
11	MW-12		2-3-15	1440	2-3-15	1440	WT G	3			X					X	011
12																	

ADDITIONAL COMMENTS		RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS	
2 Different Bags on Chain		AR 2-4-15 1605	2-6-15	0640	TGG's Jack Aron	2-6-15	0640		
		AR 2-4-15 1615			Oliver P. G. Aron	2-6-15	2:55		
UPAM061Bradford-lab report no.24067.EQEDD.zip		AR 2-4-15 1615	2-6-15	5:25	Submittal/Pace	2/6/15	1725	Y	Y
Email to: ges@gesonline.com									
SAMPLER NAME AND SIGNATURE									
PRINT Name of SAMPLER: James R. Hinkle									
SIGNATURE of SAMPLER: [Signature]		DATE Signed: 2-9-15							
Received on Ice (Y/N)		TEMP in C		Custody Sealed (Y/N)		Samples Intact (Y/N)			



CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

30140253

Section A		Section B		Section C	
Required Client Information:		Required Project Information:		Invoice Information:	
Company:	Groundwater & Environmental Services	Report To:	Joe Hinkle	Attention:	Joe Hinkle
Address:	301 Commerce Park Drive	Copy To:	Joan Amodeo	Company Name:	Groundwater & Environmental Services
Email To:	jhinkle@gesonline.com	Purchase Order No.	UPA Bradford M-061	Address:	301 Commerce Park Drive, Cranberry Twp, PA 16006
Phone:	800-267-2549	Client Project ID:	UPA Bradford M-061	Pace Quote Reference:	
Requested Due Date/TAT:	10 Day (Default)	Container Order Number:		Pace Project Manager:	Christner, Rachel
				Pace Profile #:	

Page: 2 Of 2

ITEM#	MATRIX	CODE	COLLECTED		SAMPLE TYPE (G=GRAB C=COMP)	RELINQUISHED BY / AFFILIATION		DATE	TIME	ACCEPTED BY / AFFILIATION		DATE	TIME	Requested Analysis Filtered (Y/N)												Residual Chlorine (Y/N)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
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ADDITIONAL COMMENTS		RELINQUISHED BY / AFFILIATION		DATE		TIME		ACCEPTED BY / AFFILIATION		DATE		TIME		SAMPLE CONDITIONS	
2 PFA bottles on Chem		J. Hinkle / GES		2-6-15		0640		To GES Sample Room		2-6-15		0640			
		J. Hinkle / GES		2-6-15		1435		J. Hinkle - Pa. Cr		2-6-15		2:55			
UPAM061Bradford-lab report no.24067.EQEDD.zip		J. Hinkle / GES		2-6-15		2:25		J. Hinkle - Pa. Cr		2-6-15		1725		20	
Email to: ges@equisonline.com															

SAMPLER NAME AND SIGNATURE		TEMP in C		Received on Ice (Y/N)		Custody Sealed (Y/N)		Samples Intact (Y/N)	
PRINT Name of SAMPLER: J. Hinkle									
SIGNATURE of SAMPLER: J. Hinkle									
DATE Signed: 2-4-15									



Sample Condition Upon Receipt

30140253

Client Name: GES

Project # _____

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☒ Pace Other _____

Tracking #: _____

Custody Seal on Cooler/Box Present: ☒ Yes ☐ no Seals intact: ☒ Yes ☐ no Biological Tissue is Frozen: Yes No

Packing Material: Bubble Wrap ☒ Bubble Bags _____ None _____ Other _____

Thermometer Used 7 Type of Ice: ☒ Wet ☐ Blue ☐ None ☐ Samples on ice, cooling process has begun

Cooler Temp.: Observed Temp.: 2.9 °C Correction Factor: 0.1 °C Final Temp: 2.8 °C

Date and Initials of person

examining contents: Ann
2/16/15

Temp should be above freezing to 6°C

Comments:

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix:	<u>uk</u>	
All containers needing preservation have been checked.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
exceptions: <input checked="" type="checkbox"/> VOA: coliform, TOC, O&G, WI-DRO (water)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Initial when completed <u>Ann</u> Lot # of added preservative
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution:

Field Data Required?

Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review:

Rachel Christine

Date:

2/11/15

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

[illegible]



APPENDIX G

Soil Gas Laboratory Analytical Reports, 2013-2014

January 22, 2014

Erin Letrick
Groundwater Environmental Serv
301 Commerce Park Dr.
Cranberry Twp, PA 16066

RE: Project: UPA Bradford M-061_REV
Pace Project No.: 10248839

Dear Erin Letrick:

Enclosed are the analytical results for sample(s) received by the laboratory on November 08, 2013. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

This report was revised January 22nd, 2014 to include the MDL values on the supplemental conversion report, per client request.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Nicole Benjamin
nicole.benjamin@pacelabs.com
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: UPA Bradford M-061_REV

Pace Project No.: 10248839

Minnesota Certification IDs

1700 Elm Street SE Suite 200, Minneapolis, MN 55414
A2LA Certification #: 2926.01
Alabama Dept of Environmental Management #40770
Alaska Certification #: UST-078
Alaska Certification #MN00064
Arizona Certification #: AZ-0014
Arkansas Certification #: 88-0680
California Certification #: 01155CA
Colorado Certification #Pace
Connecticut Certification #: PH-0256
EPA Region 8 Certification #: Pace
EPA Region 5 #WD-15J
Florida/NELAP Certification #: E87605
Georgia Certification #: 959
Hawaii Certification #Pace
Idaho Certification #: MN00064
Illinois Certification #: 200011
Indiana Certification#C-MN-01
Iowa Certification #: 368
Kansas Certification #: E-10167
Kentucky Dept of Envi. Protection - DW #90062
Louisiana Certification #: 03086
Louisiana Certification #: LA080009
Maine Certification #: 2007029
Maryland Certification #: 322

Michigan DEQ Certification #: 9909
Minnesota Certification #: 027-053-137
Mississippi Certification #: Pace
Montana Certification #: MT CERT0092
Nebraska Certification #: Pace
Nevada Certification #: MN_00064
New Jersey Certification #: MN-002
New York Certification #: 11647
North Carolina Certification #: 530
North Dakota Certification #: R-036
Ohio VAP Certification #: CL101
Oklahoma Certification #: 9507
Oregon Certification #: MN200001
Oregon Certification #: MN300001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification
Tennessee Certification #: 02818
Texas Certification #: T104704192
Utah Certification #: MN00064
Virginia/DCLS Certification #: 002521
Virginia/VELAP Certification #: 460163
Washington Certification #: C754
West Virginia Certification #: 382
Wisconsin Certification #: 999407970

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SAMPLE SUMMARY

Project: UPA Bradford M-061_REV

Pace Project No.: 10248839

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10248839001	VP-3	Air	11/06/13 08:52	11/08/13 13:00
10248839002	DUP-1	Air	11/06/13 08:52	11/08/13 13:00
10248839003	VP-2	Air	11/06/13 09:15	11/08/13 13:00
10248839004	VP-1	Air	11/06/13 09:40	11/08/13 13:00
10248839005	VP-4	Air	11/06/13 10:22	11/08/13 13:00
10248839006	PACE0290	Air	11/06/13 00:00	11/08/13 13:00

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SAMPLE ANALYTE COUNT

Project: UPA Bradford M-061_REV

Pace Project No.: 10248839

Lab ID	Sample ID	Method	Analysts	Analytes Reported
10248839001	VP-3	TO-15	DR1	10
10248839002	DUP-1	TO-15	DR1	10
10248839003	VP-2	TO-15	DR1	10
10248839004	VP-1	TO-15	DR1	10
10248839005	VP-4	TO-15	DR1	10

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: UPA Bradford M-061_REV

Pace Project No.: 10248839

Sample: VP-3		Lab ID: 10248839001		Collected: 11/06/13 08:52		Received: 11/08/13 13:00		Matrix: Air	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR		Analytical Method: TO-15							
Benzene	ND	ppbv	33.6	16.8	67.2		11/20/13 02:43	71-43-2	D3
Ethylbenzene	ND	ppbv	33.6	16.8	67.2		11/20/13 02:43	100-41-4	
Isopropylbenzene (Cumene)	ND	ppbv	33.6	16.8	67.2		11/20/13 02:43	98-82-8	
Methyl-tert-butyl ether	ND	ppbv	33.6	16.8	67.2		11/20/13 02:43	1634-04-4	
Naphthalene	ND	ppbv	33.6	16.8	67.2		11/20/13 02:43	91-20-3	
Toluene	ND	ppbv	33.6	16.8	67.2		11/20/13 02:43	108-88-3	
1,2,4-Trimethylbenzene	ND	ppbv	33.6	16.8	67.2		11/20/13 02:43	95-63-6	
1,3,5-Trimethylbenzene	ND	ppbv	33.6	16.8	67.2		11/20/13 02:43	108-67-8	
m&p-Xylene	ND	ppbv	67.2	33.6	67.2		11/20/13 02:43	179601-23-1	
o-Xylene	ND	ppbv	33.6	16.8	67.2		11/20/13 02:43	95-47-6	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: UPA Bradford M-061_REV

Pace Project No.: 10248839

Sample: DUP-1		Lab ID: 10248839002		Collected: 11/06/13 08:52		Received: 11/08/13 13:00		Matrix: Air	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR		Analytical Method: TO-15							
Benzene	ND	ppbv	33.6	16.8	67.2		11/20/13 03:08	71-43-2	D3
Ethylbenzene	ND	ppbv	33.6	16.8	67.2		11/20/13 03:08	100-41-4	
Isopropylbenzene (Cumene)	ND	ppbv	33.6	16.8	67.2		11/20/13 03:08	98-82-8	
Methyl-tert-butyl ether	ND	ppbv	33.6	16.8	67.2		11/20/13 03:08	1634-04-4	
Naphthalene	ND	ppbv	33.6	16.8	67.2		11/20/13 03:08	91-20-3	
Toluene	ND	ppbv	33.6	16.8	67.2		11/20/13 03:08	108-88-3	
1,2,4-Trimethylbenzene	ND	ppbv	33.6	16.8	67.2		11/20/13 03:08	95-63-6	
1,3,5-Trimethylbenzene	ND	ppbv	33.6	16.8	67.2		11/20/13 03:08	108-67-8	
m&p-Xylene	ND	ppbv	67.2	33.6	67.2		11/20/13 03:08	179601-23-1	
o-Xylene	ND	ppbv	33.6	16.8	67.2		11/20/13 03:08	95-47-6	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: UPA Bradford M-061_REV

Pace Project No.: 10248839

Sample: VP-2		Lab ID: 10248839003		Collected: 11/06/13 09:15		Received: 11/08/13 13:00		Matrix: Air	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR		Analytical Method: TO-15							
Benzene	7240	ppbv	307	154	614.4		11/20/13 03:32	71-43-2	
Ethylbenzene	ND	ppbv	307	154	614.4		11/20/13 03:32	100-41-4	
Isopropylbenzene (Cumene)	ND	ppbv	307	154	614.4		11/20/13 03:32	98-82-8	
Methyl-tert-butyl ether	ND	ppbv	307	154	614.4		11/20/13 03:32	1634-04-4	
Naphthalene	ND	ppbv	307	154	614.4		11/20/13 03:32	91-20-3	
Toluene	ND	ppbv	307	154	614.4		11/20/13 03:32	108-88-3	
1,2,4-Trimethylbenzene	ND	ppbv	307	154	614.4		11/20/13 03:32	95-63-6	
1,3,5-Trimethylbenzene	ND	ppbv	307	154	614.4		11/20/13 03:32	108-67-8	
m&p-Xylene	ND	ppbv	614	307	614.4		11/20/13 03:32	179601-23-1	
o-Xylene	ND	ppbv	307	154	614.4		11/20/13 03:32	95-47-6	

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ANALYTICAL RESULTS

Project: UPA Bradford M-061_REV

Pace Project No.: 10248839

Sample: VP-1		Lab ID: 10248839004		Collected: 11/06/13 09:40		Received: 11/08/13 13:00		Matrix: Air	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR		Analytical Method: TO-15							
Benzene	ND	ppbv	1.0	0.50	2.01		11/20/13 01:54	71-43-2	
Ethylbenzene	ND	ppbv	1.0	0.50	2.01		11/20/13 01:54	100-41-4	
Isopropylbenzene (Cumene)	ND	ppbv	1.0	0.50	2.01		11/20/13 01:54	98-82-8	
Methyl-tert-butyl ether	ND	ppbv	1.0	0.50	2.01		11/20/13 01:54	1634-04-4	
Naphthalene	ND	ppbv	1.0	0.50	2.01		11/20/13 01:54	91-20-3	
Toluene	6.9	ppbv	1.0	0.50	2.01		11/20/13 01:54	108-88-3	
1,2,4-Trimethylbenzene	ND	ppbv	1.0	0.50	2.01		11/20/13 01:54	95-63-6	
1,3,5-Trimethylbenzene	ND	ppbv	1.0	0.50	2.01		11/20/13 01:54	108-67-8	
m&p-Xylene	ND	ppbv	2.0	1.0	2.01		11/20/13 01:54	179601-23-1	
o-Xylene	ND	ppbv	1.0	0.50	2.01		11/20/13 01:54	95-47-6	

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ANALYTICAL RESULTS

Project: UPA Bradford M-061_REV

Pace Project No.: 10248839

Sample: VP-4		Lab ID: 10248839005		Collected: 11/06/13 10:22		Received: 11/08/13 13:00		Matrix: Air	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR		Analytical Method: TO-15							
Benzene	ND	ppbv	18.3	9.2	36.6		11/20/13 02:18	71-43-2	D3
Ethylbenzene	ND	ppbv	18.3	9.2	36.6		11/20/13 02:18	100-41-4	
Isopropylbenzene (Cumene)	ND	ppbv	18.3	9.2	36.6		11/20/13 02:18	98-82-8	
Methyl-tert-butyl ether	ND	ppbv	18.3	9.2	36.6		11/20/13 02:18	1634-04-4	
Naphthalene	ND	ppbv	18.3	9.2	36.6		11/20/13 02:18	91-20-3	
Toluene	ND	ppbv	18.3	9.2	36.6		11/20/13 02:18	108-88-3	
1,2,4-Trimethylbenzene	ND	ppbv	18.3	9.2	36.6		11/20/13 02:18	95-63-6	
1,3,5-Trimethylbenzene	ND	ppbv	18.3	9.2	36.6		11/20/13 02:18	108-67-8	
m&p-Xylene	ND	ppbv	36.6	18.3	36.6		11/20/13 02:18	179601-23-1	
o-Xylene	ND	ppbv	18.3	9.2	36.6		11/20/13 02:18	95-47-6	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: UPA Bradford M-061_REV

Pace Project No.: 10248839

QC Batch: AIR/18743

Analysis Method: TO-15

QC Batch Method: TO-15

Analysis Description: TO15 MSV AIR

Associated Lab Samples: 10248839001, 10248839002, 10248839003, 10248839004, 10248839005

METHOD BLANK: 1580231

Matrix: Air

Associated Lab Samples: 10248839001, 10248839002, 10248839003, 10248839004, 10248839005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ppbv	ND	0.50	11/19/13 15:21	
1,3,5-Trimethylbenzene	ppbv	ND	0.50	11/19/13 15:21	
Benzene	ppbv	ND	0.50	11/19/13 15:21	
Ethylbenzene	ppbv	ND	0.50	11/19/13 15:21	
Isopropylbenzene (Cumene)	ppbv	ND	0.50	11/19/13 15:21	
m&p-Xylene	ppbv	ND	1.0	11/19/13 15:21	
Methyl-tert-butyl ether	ppbv	ND	0.50	11/19/13 15:21	
Naphthalene	ppbv	ND	0.50	11/19/13 15:21	
o-Xylene	ppbv	ND	0.50	11/19/13 15:21	
Toluene	ppbv	ND	0.50	11/19/13 15:21	

LABORATORY CONTROL SAMPLE: 1580232

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ppbv	10	11.3	113	71-135	
1,3,5-Trimethylbenzene	ppbv	10	10.0	100	69-136	
Benzene	ppbv	10	9.1	91	72-136	
Ethylbenzene	ppbv	10	10.4	104	74-136	
Isopropylbenzene (Cumene)	ppbv	10.4	11.1	107	70-130	
m&p-Xylene	ppbv	10	10	100	72-135	
Methyl-tert-butyl ether	ppbv	10	10.2	102	71-134	
Naphthalene	ppbv	10	12.4	124	30-150	
o-Xylene	ppbv	10	10.1	101	74-135	
Toluene	ppbv	10	9.8	98	71-134	

SAMPLE DUPLICATE: 1580972

Parameter	Units	10248330002 Result	Dup Result	RPD	Max RPD	Qualifiers
1,2,4-Trimethylbenzene	ppbv	ND	ND		25	
1,3,5-Trimethylbenzene	ppbv	ND	ND		25	
Benzene	ppbv	ND	ND		25	
Ethylbenzene	ppbv	ND	ND		25	
Isopropylbenzene (Cumene)	ppbv	ND	ND		25	
m&p-Xylene	ppbv	ND	ND		25	
Methyl-tert-butyl ether	ppbv	ND	ND		25	
Naphthalene	ppbv	ND	ND		25	
o-Xylene	ppbv	ND	ND		25	
Toluene	ppbv	4.4	4.3	4	25	

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: UPA Bradford M-061_REV

Pace Project No.: 10248839

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

SAMPLE QUALIFIERS

Sample: 10248839003

[1] This result is reported from a serial dilution.

ANALYTE QUALIFIERS

D3 Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: UPA Bradford M-061_REV

Pace Project No.: 10248839

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10248839001	VP-3	TO-15	AIR/18743		
10248839002	DUP-1	TO-15	AIR/18743		
10248839003	VP-2	TO-15	AIR/18743		
10248839004	VP-1	TO-15	AIR/18743		
10248839005	VP-4	TO-15	AIR/18743		

REPORT OF LABORATORY ANALYSIS

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The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

65887201

[illegible]

ORIGINAL

	Document Name: Air Sample Condition Upon Receipt	Document Revised: 19Sep2013 Page 1 of 1
	Document No.: F-MN-A-106-rev.08	Issuing Authority: Pace Minnesota Quality Office

**Air Sample Condition
Upon Receipt**

Client Name:

GES

Project #:

WO# : 10248839



Courier: ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client
☐ Commercial ☐ Pace ☐ Other:

Tracking Number: *038836030534535, 038836030534542*

Custody Seal on Cooler/Box Present? ☐ Yes ☒ No Seals Intact? ☐ Yes ☐ No

Optional: Proj. Due Date: Proj. Name:

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☒ Foam ☐ None ☐ Other:

Temp. (TO17 and TO13 samples only) (°C): *AMB* Corrected Temp (°C):

Thermom. Used: ☐ B88A912167504 ☐ B88A9132521491

☐ 72337080 ☐ 80512447

Temp should be above freezing to 6°C Correction Factor:

Date & Initials of Person Examining Contents: *11/11/13 JF*

Comments:

Chain of Custody Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name and/or Signature on COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72 hr)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Media:	<i>ADA (CAN)</i>	11.
Sample Labels Match COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.

Samples Received: <i>6 CAN'S, 6 FC'S</i>					
Canisters		Flow Controllers		Stand Alone G	
Sample Number	Can ID	Sample Number	Can ID	Sample Number	Can ID
<i>VP-3</i>	<i>0423</i>	<i>FC 0618</i>			
<i>DUP-1</i>	<i>1520</i>	<i>11</i>			
<i>VP-2</i>	<i>0282</i>	<i>FC0563</i>			
<i>VP-1</i>	<i>1647</i>	<i>FC0572</i>			
<i>VP-4</i>	<i>0594</i>	<i>FC0693</i>			
	<i>0290</i>	<i>FC0592</i>			

CLIENT NOTIFICATION/RESOLUTION

Field Data Required? ☐ Yes ☐ No

Person Contacted: _____

Date/Time: _____

Comments/Resolution: _____

Project Manager Review:

GNH

Date: *13 NOV 2013*

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

Client: Groundwater Environmental Services, Inc.
Phone: 866-800-0716

Lab Project Number: 10248839
Project Name: UPA Bradford M-061

Lab Sample No: 10248839001
Client Sample ID: VP-3

ProjSampleNum: 10248839001
Matrix: Air

Date Collected: 11/06/13 8:52
Date Received: 11/08/13 13:00

Parameters	Results	Units	Report Limit	MDL	Analyzed	CAS No.	Fnote
Air							
TO-15							
1,2,4-Trimethylbenzene	ND	mg/m3	0.17	0.084	11/20/13 2:43 DR1	95-63-6	D3
1,3,5-Trimethylbenzene	ND	mg/m3	0.17	0.084	11/20/13 2:43 DR1	108-67-8	
Benzene	ND	mg/m3	0.11	0.055	11/20/13 2:43 DR1	71-43-2	
Ethylbenzene	ND	mg/m3	0.15	0.074	11/20/13 2:43 DR1	100-41-4	
Isopropylbenzene (Cumene)	ND	mg/m3	0.17	0.084	11/20/13 2:43 DR1	98-82-8	
m&p-Xylene	ND	mg/m3	0.3	0.15	11/20/13 2:43 DR1	179601-23-	
Methyl-tert-butyl ether	ND	mg/m3	0.12	0.062	11/20/13 2:43 DR1	1634-04-4	
Naphthalene	ND	mg/m3	0.18	0.089	11/20/13 2:43 DR1	91-20-3	
o-Xylene	ND	mg/m3	0.15	0.074	11/20/13 2:43 DR1	95-47-6	
Toluene	ND	mg/m3	0.13	0.064	11/20/13 2:43 DR1	108-88-3	

DISCLAIMER: These results have been converted to the units shown from the original units of measurement assuming 20 degrees Celsius and 1 atmosphere pressure. Values were not rounded according to EPA rounding rules. THC is quantitated based on the average response factors of several compounds; the nominal molecular weight of THC used for units conversion is the average of the molecular weights of the compounds used for quantitation.

SUPPLEMENTAL REPORT

Units Conversion Request

Date: 1/22/2014

Page 1

Client: Groundwater Environmental Services, Inc.
Phone: 866-800-0716

Lab Project Number: 10248839
Project Name: UPA Bradford M-061

Lab Sample No: 10248839002 ProjSampleNum: 10248839002 Date Collected: 11/06/13 8:52
Client Sample ID: DUP-1 Matrix: Air Date Received: 11/08/13 13:00

Parameters	Results	Units	Report Limit	MDL	Analyzed	CAS No.	Fnote
Air							
TO-15							
1,2,4-Trimethylbenzene	ND	mg/m3	0.17	0.084	11/20/13 3:08 DR1	95-63-6	D3
1,3,5-Trimethylbenzene	ND	mg/m3	0.17	0.084	11/20/13 3:08 DR1	108-67-8	
Benzene	ND	mg/m3	0.11	0.055	11/20/13 3:08 DR1	71-43-2	
Ethylbenzene	ND	mg/m3	0.15	0.074	11/20/13 3:08 DR1	100-41-4	
Isopropylbenzene (Cumene)	ND	mg/m3	0.17	0.084	11/20/13 3:08 DR1	98-82-8	
m&p-Xylene	ND	mg/m3	0.3	0.15	11/20/13 3:08 DR1	179601-23-	
Methyl-tert-butyl ether	ND	mg/m3	0.12	0.062	11/20/13 3:08 DR1	1634-04-4	
Naphthalene	ND	mg/m3	0.18	0.089	11/20/13 3:08 DR1	91-20-3	
o-Xylene	ND	mg/m3	0.15	0.074	11/20/13 3:08 DR1	95-47-6	
Toluene	ND	mg/m3	0.13	0.064	11/20/13 3:08 DR1	108-88-3	

DISCLAIMER: These results have been converted to the units shown from the original units of measurement assuming 20 degrees Celsius and 1 atmosphere pressure. Values were not rounded according to EPA rounding rules. THC is quantitated based on the average response factors of several compounds; the nominal molecular weight of THC used for units conversion is the average of the molecular weights of the compounds used for quantitation.

SUPPLEMENTAL REPORT

Units Conversion Request

Date: 1/22/2014

Page 2

Client: Groundwater Environmental Services, Inc.
Phone: 866-800-0716

Lab Project Number: 10248839
Project Name: UPA Bradford M-061

Lab Sample No: 10248839003
Client Sample ID: VP-2

ProjSampleNum: 10248839003
Matrix: Air

Date Collected: 11/06/13 9:15
Date Received: 11/08/13 13:00

Parameters	Results	Units	Report Limit	MDL	Analyzed	CAS No.	Ftnote
Air							
TO-15							
1,2,4-Trimethylbenzene	ND	mg/m3	1.5	0.77	11/20/13 3:32 DR1	95-63-6	
1,3,5-Trimethylbenzene	ND	mg/m3	1.5	0.77	11/20/13 3:32 DR1	108-67-8	
Benzene	23.5	mg/m3	1	0.5	11/20/13 3:32 DR1	71-43-2	
Ethylbenzene	ND	mg/m3	1.4	0.68	11/20/13 3:32 DR1	100-41-4	
Isopropylbenzene (Cumene)	ND	mg/m3	1.5	0.77	11/20/13 3:32 DR1	98-82-8	
m&p-Xylene	ND	mg/m3	2.7	1.4	11/20/13 3:32 DR1	179601-23-	
Methyl-tert-butyl ether	ND	mg/m3	1.1	0.56	11/20/13 3:32 DR1	1634-04-4	
Naphthalene	ND	mg/m3	1.6	0.82	11/20/13 3:32 DR1	91-20-3	
o-Xylene	ND	mg/m3	1.4	0.68	11/20/13 3:32 DR1	95-47-6	
Toluene	ND	mg/m3	1.2	0.59	11/20/13 3:32 DR1	108-88-3	

DISCLAIMER: These results have been converted to the units shown from the original units of measurement assuming 20 degrees Celsius and 1 atmosphere pressure. Values were not rounded according to EPA rounding rules. THC is quantitated based on the average response factors of several compounds; the nominal molecular weight of THC used for units conversion is the average of the molecular weights of the compounds used for quantitation.

SUPPLEMENTAL REPORT

Units Conversion Request

Date: 1/22/2014

Page 3

Client: Groundwater Environmental Services, Inc.
Phone: 866-800-0716

Lab Project Number: 10248839
Project Name: UPA Bradford M-061

Lab Sample No: 10248839004
Client Sample ID: VP-1

ProjSampleNum: 10248839004
Matrix: Air

Date Collected: 11/06/13 9:40
Date Received: 11/08/13 13:00

Parameters	Results	Units	Report Limit	MDL	Analyzed	CAS No.	Ftnote
Air							
TO-15							
1,2,4-Trimethylbenzene	ND	mg/m3	0.005	0.0025	11/20/13 1:54 DR1	95-63-6	
1,3,5-Trimethylbenzene	ND	mg/m3	0.005	0.0025	11/20/13 1:54 DR1	108-67-8	
Benzene	ND	mg/m3	0.0032	0.0016	11/20/13 1:54 DR1	71-43-2	
Ethylbenzene	ND	mg/m3	0.0044	0.0022	11/20/13 1:54 DR1	100-41-4	
Isopropylbenzene (Cumene)	ND	mg/m3	0.005	0.0025	11/20/13 1:54 DR1	98-82-8	
m&p-Xylene	ND	mg/m3	0.0088	0.0044	11/20/13 1:54 DR1	179601-23-	
Methyl-tert-butyl ether	ND	mg/m3	0.0037	0.0018	11/20/13 1:54 DR1	1634-04-4	
Naphthalene	ND	mg/m3	0.0053	0.0027	11/20/13 1:54 DR1	91-20-3	
o-Xylene	ND	mg/m3	0.0044	0.0022	11/20/13 1:54 DR1	95-47-6	
Toluene	0.0264	mg/m3	0.0038	0.0019	11/20/13 1:54 DR1	108-88-3	

DISCLAIMER: These results have been converted to the units shown from the original units of measurement assuming 20 degrees Celsius and 1 atmosphere pressure. Values were not rounded according to EPA rounding rules. THC is quantitated based on the average response factors of several compounds; the nominal molecular weight of THC used for units conversion is the average of the molecular weights of the compounds used for quantitation.

SUPPLEMENTAL REPORT

Units Conversion Request

Date: 1/22/2014

Page 4

Client: Groundwater Environmental Services, Inc.
Phone: 866-800-0716

Lab Project Number: 10248839
Project Name: UPA Bradford M-061

Lab Sample No: 10248839005 ProjSampleNum: 10248839005 Date Collected: 11/06/13 10:22
Client Sample ID: VP-4 Matrix: Air Date Received: 11/08/13 13:00

Parameters	Results	Units	Report Limit	MDL	Analyzed	CAS No.	Fnote
Air							
TO-15							
1,2,4-Trimethylbenzene	ND	mg/m3	0.091	0.046	11/20/13 2:18 DR1	95-63-6	D3
1,3,5-Trimethylbenzene	ND	mg/m3	0.091	0.046	11/20/13 2:18 DR1	108-67-8	
Benzene	ND	mg/m3	0.059	0.03	11/20/13 2:18 DR1	71-43-2	
Ethylbenzene	ND	mg/m3	0.081	0.041	11/20/13 2:18 DR1	100-41-4	
Isopropylbenzene (Cumene)	ND	mg/m3	0.091	0.046	11/20/13 2:18 DR1	98-82-8	
m&p-Xylene	ND	mg/m3	0.16	0.081	11/20/13 2:18 DR1	179601-23-	
Methyl-tert-butyl ether	ND	mg/m3	0.067	0.034	11/20/13 2:18 DR1	1634-04-4	
Naphthalene	ND	mg/m3	0.097	0.049	11/20/13 2:18 DR1	91-20-3	
o-Xylene	ND	mg/m3	0.081	0.041	11/20/13 2:18 DR1	95-47-6	
Toluene	ND	mg/m3	0.07	0.035	11/20/13 2:18 DR1	108-88-3	

DISCLAIMER: These results have been converted to the units shown from the original units of measurement assuming 20 degrees Celsius and 1 atmosphere pressure. Values were not rounded according to EPA rounding rules. THC is quantitated based on the average response factors of several compounds; the nominal molecular weight of THC used for units conversion is the average of the molecular weights of the compounds used for quantitation.

SUPPLEMENTAL REPORT

Units Conversion Request

Date: 1/22/2014

Page 5

Client: Groundwater Environmental Services, Inc.
Phone: 866-800-0716

Lab Project Number: 10248839
Project Name: UPA Bradford M-061

PARAMETER FOOTNOTES

ND Not detected at or above adjusted reporting limit

NC Not Calculable

J Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

[D3] Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

SUPPLEMENTAL REPORT

Units Conversion Request

Date: 1/22/2014

Page 6

January 28, 2014

Erin Letrick
Groundwater Environmental Serv
301 Commerce Park Dr.
Cranberry Twp, PA 16066

RE: Project: UPA Bradford M061
Pace Project No.: 10254822

Dear Erin Letrick:

Enclosed are the analytical results for sample(s) received by the laboratory on January 14, 2014. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Nicole Benjamin
nicole.benjamin@pacelabs.com
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: UPA Bradford M061

Pace Project No.: 10254822

Minnesota Certification IDs

1700 Elm Street SE Suite 200, Minneapolis, MN 55414
A2LA Certification #: 2926.01
Alabama Dept of Environmental Management #40770
Alaska Certification #: UST-078
Alaska Certification #MN00064
Arizona Certification #: AZ-0014
Arkansas Certification #: 88-0680
California Certification #: 01155CA
Colorado Certification #Pace
Connecticut Certification #: PH-0256
EPA Region 8 Certification #: Pace
EPA Region 5 #WD-15J
Florida/NELAP Certification #: E87605
Georgia Certification #: 959
Hawaii Certification #Pace
Idaho Certification #: MN00064
Illinois Certification #: 200011
Indiana Certification#C-MN-01
Iowa Certification #: 368
Kansas Certification #: E-10167
Kentucky Dept of Envi. Protection - DW #90062
Louisiana Certification #: 03086
Louisiana Certification #: LA080009
Maine Certification #: 2007029
Maryland Certification #: 322

Michigan DEQ Certification #: 9909
Minnesota Certification #: 027-053-137
Mississippi Certification #: Pace
Montana Certification #: MT CERT0092
Nebraska Certification #: Pace
Nevada Certification #: MN_00064
New Jersey Certification #: MN-002
New York Certification #: 11647
North Carolina Certification #: 530
North Dakota Certification #: R-036
Ohio VAP Certification #: CL101
Oklahoma Certification #: 9507
Oregon Certification #: MN200001
Oregon Certification #: MN300001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification
Tennessee Certification #: 02818
Texas Certification #: T104704192
Utah Certification #: MN00064
Virginia/DCLS Certification #: 002521
Virginia/VELAP Certification #: 460163
Washington Certification #: C754
West Virginia Certification #: 382
Wisconsin Certification #: 999407970

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SAMPLE SUMMARY

Project: UPA Bradford M061

Pace Project No.: 10254822

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10254822001	VP-3	Air	01/09/14 13:21	01/14/14 13:00
10254822002	DUP-1	Air	01/09/14 13:21	01/14/14 13:00
10254822003	VP-2	Air	01/09/14 14:39	01/14/14 13:00
10254822004	VP-1	Air	01/09/14 15:23	01/14/14 13:00
10254822005	VP-4	Air	01/09/14 15:37	01/14/14 13:00

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SAMPLE ANALYTE COUNT

Project: UPA Bradford M061

Pace Project No.: 10254822

Lab ID	Sample ID	Method	Analysts	Analytes Reported
10254822001	VP-3	TO-15	JAM	10
10254822002	DUP-1	TO-15	JAM	10
10254822004	VP-1	TO-15	JAM	10
10254822005	VP-4	TO-15	JAM	10

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: UPA Bradford M061

Pace Project No.: 10254822

Sample: VP-3		Lab ID: 10254822001		Collected: 01/09/14 13:21		Received: 01/14/14 13:00		Matrix: Air	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR		Analytical Method: TO-15							
Benzene	ND	ppbv	3.1	1.6	6.2		01/22/14 20:59	71-43-2	
Ethylbenzene	ND	ppbv	3.1	1.6	6.2		01/22/14 20:59	100-41-4	
Isopropylbenzene (Cumene)	ND	ppbv	3.1	1.6	6.2		01/22/14 20:59	98-82-8	
Methyl-tert-butyl ether	ND	ppbv	3.1	1.6	6.2		01/22/14 20:59	1634-04-4	
Naphthalene	ND	ppbv	3.1	1.6	6.2		01/22/14 20:59	91-20-3	
Toluene	ND	ppbv	3.1	1.6	6.2		01/22/14 20:59	108-88-3	
1,2,4-Trimethylbenzene	ND	ppbv	3.1	1.6	6.2		01/22/14 20:59	95-63-6	
1,3,5-Trimethylbenzene	ND	ppbv	3.1	1.6	6.2		01/22/14 20:59	108-67-8	
m&p-Xylene	ND	ppbv	6.2	3.1	6.2		01/22/14 20:59	179601-23-1	
o-Xylene	ND	ppbv	3.1	1.6	6.2		01/22/14 20:59	95-47-6	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: UPA Bradford M061

Pace Project No.: 10254822

Sample: DUP-1		Lab ID: 10254822002		Collected: 01/09/14 13:21		Received: 01/14/14 13:00		Matrix: Air	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR		Analytical Method: TO-15							
Benzene	ND	ppbv	3.1	1.6	6.2		01/22/14 21:33	71-43-2	
Ethylbenzene	ND	ppbv	3.1	1.6	6.2		01/22/14 21:33	100-41-4	
Isopropylbenzene (Cumene)	ND	ppbv	3.1	1.6	6.2		01/22/14 21:33	98-82-8	
Methyl-tert-butyl ether	ND	ppbv	3.1	1.6	6.2		01/22/14 21:33	1634-04-4	
Naphthalene	ND	ppbv	3.1	1.6	6.2		01/22/14 21:33	91-20-3	
Toluene	ND	ppbv	3.1	1.6	6.2		01/22/14 21:33	108-88-3	
1,2,4-Trimethylbenzene	ND	ppbv	3.1	1.6	6.2		01/22/14 21:33	95-63-6	
1,3,5-Trimethylbenzene	ND	ppbv	3.1	1.6	6.2		01/22/14 21:33	108-67-8	
m&p-Xylene	ND	ppbv	6.2	3.1	6.2		01/22/14 21:33	179601-23-1	
o-Xylene	ND	ppbv	3.1	1.6	6.2		01/22/14 21:33	95-47-6	

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ANALYTICAL RESULTS

Project: UPA Bradford M061

Pace Project No.: 10254822

Sample: VP-1		Lab ID: 10254822004		Collected: 01/09/14 15:23		Received: 01/14/14 13:00		Matrix: Air	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR		Analytical Method: TO-15							
Benzene	ND	ppbv	0.88	0.44	1.75		01/20/14 23:12	71-43-2	
Ethylbenzene	ND	ppbv	0.88	0.44	1.75		01/20/14 23:12	100-41-4	
Isopropylbenzene (Cumene)	ND	ppbv	0.88	0.44	1.75		01/20/14 23:12	98-82-8	
Methyl-tert-butyl ether	ND	ppbv	0.88	0.44	1.75		01/20/14 23:12	1634-04-4	
Naphthalene	ND	ppbv	0.88	0.44	1.75		01/20/14 23:12	91-20-3	
Toluene	5.9	ppbv	0.88	0.44	1.75		01/20/14 23:12	108-88-3	
1,2,4-Trimethylbenzene	ND	ppbv	0.88	0.44	1.75		01/20/14 23:12	95-63-6	
1,3,5-Trimethylbenzene	ND	ppbv	0.88	0.44	1.75		01/20/14 23:12	108-67-8	
m&p-Xylene	ND	ppbv	1.8	0.88	1.75		01/20/14 23:12	179601-23-1	
o-Xylene	ND	ppbv	0.88	0.44	1.75		01/20/14 23:12	95-47-6	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: UPA Bradford M061

Pace Project No.: 10254822

Sample: VP-4		Lab ID: 10254822005		Collected: 01/09/14 15:37		Received: 01/14/14 13:00		Matrix: Air	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR		Analytical Method: TO-15							
Benzene	ND	ppbv	69.0	34.5	138.07		01/27/14 10:31	71-43-2	D3
Ethylbenzene	ND	ppbv	69.0	34.5	138.07		01/27/14 10:31	100-41-4	
Isopropylbenzene (Cumene)	ND	ppbv	69.0	34.5	138.07		01/27/14 10:31	98-82-8	
Methyl-tert-butyl ether	ND	ppbv	69.0	34.5	138.07		01/27/14 10:31	1634-04-4	
Naphthalene	ND	ppbv	69.0	34.5	138.07		01/27/14 10:31	91-20-3	1M
Toluene	ND	ppbv	69.0	34.5	138.07		01/27/14 10:31	108-88-3	
1,2,4-Trimethylbenzene	ND	ppbv	69.0	34.5	138.07		01/27/14 10:31	95-63-6	
1,3,5-Trimethylbenzene	ND	ppbv	69.0	34.5	138.07		01/27/14 10:31	108-67-8	
m&p-Xylene	ND	ppbv	138	69.0	138.07		01/27/14 10:31	179601-23-1	
o-Xylene	ND	ppbv	69.0	34.5	138.07		01/27/14 10:31	95-47-6	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: UPA Bradford M061

Pace Project No.: 10254822

QC Batch: AIR/19224

Analysis Method: TO-15

QC Batch Method: TO-15

Analysis Description: TO15 MSV AIR

Associated Lab Samples: 10254822004

METHOD BLANK: 1612134

Matrix: Air

Associated Lab Samples: 10254822004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ppbv	ND	0.50	01/20/14 11:12	
1,3,5-Trimethylbenzene	ppbv	ND	0.50	01/20/14 11:12	
Benzene	ppbv	ND	0.50	01/20/14 11:12	
Ethylbenzene	ppbv	ND	0.50	01/20/14 11:12	
Isopropylbenzene (Cumene)	ppbv	ND	0.50	01/20/14 11:12	
m&p-Xylene	ppbv	ND	1.0	01/20/14 11:12	
Methyl-tert-butyl ether	ppbv	ND	0.50	01/20/14 11:12	
Naphthalene	ppbv	ND	0.50	01/20/14 11:12	
o-Xylene	ppbv	ND	0.50	01/20/14 11:12	
Toluene	ppbv	ND	0.50	01/20/14 11:12	

LABORATORY CONTROL SAMPLE: 1612135

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ppbv	10	11.5	115	71-140	
1,3,5-Trimethylbenzene	ppbv	10	11.9	119	73-136	
Benzene	ppbv	10	11.2	112	69-134	
Ethylbenzene	ppbv	10	11.7	117	73-139	
Isopropylbenzene (Cumene)	ppbv	10.4	11.9	114	70-130	
m&p-Xylene	ppbv	10	11.5	115	73-139	
Methyl-tert-butyl ether	ppbv	10	11.6	116	72-132	
Naphthalene	ppbv	10	10.7	107	61-150	
o-Xylene	ppbv	10	11.8	118	71-138	
Toluene	ppbv	10	11.0	110	67-133	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: UPA Bradford M061

Pace Project No.: 10254822

QC Batch: AIR/19239

Analysis Method: TO-15

QC Batch Method: TO-15

Analysis Description: TO15 MSV AIR

Associated Lab Samples: 10254822001, 10254822002

METHOD BLANK: 1612922

Matrix: Air

Associated Lab Samples: 10254822001, 10254822002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ppbv	ND	0.50	01/22/14 19:31	
1,3,5-Trimethylbenzene	ppbv	ND	0.50	01/22/14 19:31	
Benzene	ppbv	ND	0.50	01/22/14 19:31	
Ethylbenzene	ppbv	ND	0.50	01/22/14 19:31	
Isopropylbenzene (Cumene)	ppbv	ND	0.50	01/22/14 19:31	
m&p-Xylene	ppbv	ND	1.0	01/22/14 19:31	
Methyl-tert-butyl ether	ppbv	ND	0.50	01/22/14 19:31	
Naphthalene	ppbv	ND	0.50	01/22/14 19:31	
o-Xylene	ppbv	ND	0.50	01/22/14 19:31	
Toluene	ppbv	ND	0.50	01/22/14 19:31	

LABORATORY CONTROL SAMPLE: 1612923

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ppbv	10	12.8	128	71-140	
1,3,5-Trimethylbenzene	ppbv	10	11.8	118	73-136	
Benzene	ppbv	10	11.3	113	69-134	
Ethylbenzene	ppbv	10	11.9	119	73-139	
Isopropylbenzene (Cumene)	ppbv	10.4	12.4	119	70-130	
m&p-Xylene	ppbv	10	11.7	117	73-139	
Methyl-tert-butyl ether	ppbv	10	11.2	112	72-132	
Naphthalene	ppbv	10	10.6	106	61-150	
o-Xylene	ppbv	10	11.1	111	71-138	
Toluene	ppbv	10	10.6	106	67-133	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: UPA Bradford M061

Pace Project No.: 10254822

QC Batch: AIR/19271

Analysis Method: TO-15

QC Batch Method: TO-15

Analysis Description: TO15 MSV AIR

Associated Lab Samples: 10254822005

METHOD BLANK: 1615128

Matrix: Air

Associated Lab Samples: 10254822005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ppbv	ND	0.50	01/26/14 22:49	
1,3,5-Trimethylbenzene	ppbv	ND	0.50	01/26/14 22:49	
Benzene	ppbv	ND	0.50	01/26/14 22:49	
Ethylbenzene	ppbv	ND	0.50	01/26/14 22:49	
Isopropylbenzene (Cumene)	ppbv	ND	0.50	01/26/14 22:49	
m&p-Xylene	ppbv	ND	1.0	01/26/14 22:49	
Methyl-tert-butyl ether	ppbv	ND	0.50	01/26/14 22:49	
Naphthalene	ppbv	ND	0.50	01/26/14 22:49	1M
o-Xylene	ppbv	ND	0.50	01/26/14 22:49	
Toluene	ppbv	ND	0.50	01/26/14 22:49	

LABORATORY CONTROL SAMPLE: 1615129

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ppbv	10	10.6	106	71-140	
1,3,5-Trimethylbenzene	ppbv	10	10	100	73-136	
Benzene	ppbv	10	9.8	98	69-134	
Ethylbenzene	ppbv	10	10.5	105	73-139	
Isopropylbenzene (Cumene)	ppbv	10.4	10.9	105	70-130	
m&p-Xylene	ppbv	10	10.5	105	73-139	
Methyl-tert-butyl ether	ppbv	10	9.3	93	72-132	
Naphthalene	ppbv	10	9.8	98	61-150	1M
o-Xylene	ppbv	10	10.3	103	71-138	
Toluene	ppbv	10	9.2	92	67-133	

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: UPA Bradford M061

Pace Project No.: 10254822

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

SAMPLE QUALIFIERS

Sample: 10254822001

[1] This result is reported from a serial dilution.

Sample: 10254822002

[1] This result is reported from a serial dilution.

Sample: 10254822005

[1] This result is reported from a serial dilution.

ANALYTE QUALIFIERS

1M This analyte did not meet the secondary source verification criteria for the initial calibration, with 52% recovery for Napthalene (acceptance criteria is 60-140%).

D3 Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: UPA Bradford M061

Pace Project No.: 10254822

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10254822001	VP-3	TO-15	AIR/19239		
10254822002	DUP-1	TO-15	AIR/19239		
10254822004	VP-1	TO-15	AIR/19224		
10254822005	VP-4	TO-15	AIR/19271		

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The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

AIR: CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

[illegible]

ORIGINAL

	Document Name: Air Sample Condition Upon Receipt	Document Revised: 28Jan2013 Page 1 of 1
	Document No.: F-MN-A-106-rev.07	Issuing Authority: Pace Minnesota Quality Office

**Air Sample Condition
Upon Receipt**

Client Name:

Project #:

WO# : 10254822



Courier: ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client
☐ Commercial ☐ Pace ☐ Other: _____

Tracking Number: 7975-9927 6733; 6744

Custody Seal on Cooler/Box Present? ☐ Yes ☒ No **Seals Intact?** ☐ Yes ☒ No

Optional: Proj. Due Date: _____ Proj. Name: _____

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☒ Foam ☐ None ☐ Other: _____

Temp. (TO17 and TO13 samples only) (°C): _____ **Corrected Temp (°C):** _____
 Temp should be above freezing to 6°C **Correction Factor:** _____

Thermom. Used: ☐ B88A912167504 ☐ 80512447 ☒ 7233/080
Date & Initials of Person Examining Contents: Chf 1.14.14

Comments:

Chain of Custody Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name and/or Signature on COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72 hr)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Media: <u>Air Can</u>		11.
Sample Labels Match COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.

Samples Received: <u>5 Air Cans, 4 Flow Controllers</u>					
Canisters		Flow Controllers		Stand Alone G	
Sample Number	Can ID	Sample Number	Can ID	Sample Number	Can ID
VP-3	1722	0918			
PUP-1	0710				
VP-2	0701	0497			
VP-1	0017	0556			
VP-4	0145	0901			

CLIENT NOTIFICATION/RESOLUTION

Field Data Required? ☐ Yes ☐ No

Person Contacted: BRIN LOTRICH

Date/Time: 1/15/14 13:15

Comments/Resolution: PROCEED DESPITE CAN PRESSURE REMAINING ON VP-3, PUP-1 &

VP-2. DO NOT ANALYZE VP-2

Project Manager Review:

Date: 1/15/14

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

Client: Groundwater Environmental Services, Inc. - AIR
Phone: 866-800-0716

Lab Project Number: 10254822
Project Name: UPA Bradford M061

Lab Sample No: 10254822001 ProjSampleNum: 10254822001 Date Collected: 01/09/14 13:21
Client Sample ID: VP-3 Matrix: Air Date Received: 01/14/14 13:00

Parameters	Results	Units	Report Limit	MDL	Analyzed	CAS No.	Ftnote
Air							
TO-15							
1,2,4-Trimethylbenzene	ND	mg/m3	0.015	0.008	01/22/14 20:59 JAM	95-63-6	
1,3,5-Trimethylbenzene	ND	mg/m3	0.015	0.008	01/22/14 20:59 JAM	108-67-8	
Benzene	ND	mg/m3	0.01	0.0052	01/22/14 20:59 JAM	71-43-2	
Ethylbenzene	ND	mg/m3	0.014	0.0071	01/22/14 20:59 JAM	100-41-4	
Isopropylbenzene (Cumene)	ND	mg/m3	0.015	0.008	01/22/14 20:59 JAM	98-82-8	
m&p-Xylene	ND	mg/m3	0.027	0.014	01/22/14 20:59 JAM	179601-23-	
Methyl-tert-butyl ether	ND	mg/m3	0.011	0.0059	01/22/14 20:59 JAM	1634-04-4	
Naphthalene	ND	mg/m3	0.017	0.0085	01/22/14 20:59 JAM	91-20-3	
o-Xylene	ND	mg/m3	0.014	0.0071	01/22/14 20:59 JAM	95-47-6	
Toluene	ND	mg/m3	0.012	0.0061	01/22/14 20:59 JAM	108-88-3	

DISCLAIMER: These results have been converted to the units shown from the original units of measurement assuming 20 degrees Celsius and 1 atmosphere pressure. Values were not rounded according to EPA rounding rules. THC is quantitated based on the average response factors of several compounds; the nominal molecular weight of THC used for units conversion is the average of the molecular weights of the compounds used for quantitation.

SUPPLEMENTAL REPORT

Units Conversion Request

Date: 1/28/2014

Page 1

Client: Groundwater Environmental Services, Inc. - AIR
Phone: 866-800-0716

Lab Project Number: 10254822
Project Name: UPA Bradford M061

Lab Sample No: 10254822002 ProjSampleNum: 10254822002 Date Collected: 01/09/14 13:21
Client Sample ID: DUP-1 Matrix: Air Date Received: 01/14/14 13:00

Parameters	Results	Units	Report Limit	MDL	Analyzed	CAS No.	Fnote
Air							
TO-15							
1,2,4-Trimethylbenzene	ND	mg/m3	0.015	0.008	01/22/14 21:33 JAM	95-63-6	
1,3,5-Trimethylbenzene	ND	mg/m3	0.015	0.008	01/22/14 21:33 JAM	108-67-8	
Benzene	ND	mg/m3	0.01	0.0052	01/22/14 21:33 JAM	71-43-2	
Ethylbenzene	ND	mg/m3	0.014	0.0071	01/22/14 21:33 JAM	100-41-4	
Isopropylbenzene (Cumene)	ND	mg/m3	0.015	0.008	01/22/14 21:33 JAM	98-82-8	
m&p-Xylene	ND	mg/m3	0.027	0.014	01/22/14 21:33 JAM	179601-23-	
Methyl-tert-butyl ether	ND	mg/m3	0.011	0.0059	01/22/14 21:33 JAM	1634-04-4	
Naphthalene	ND	mg/m3	0.017	0.0085	01/22/14 21:33 JAM	91-20-3	
o-Xylene	ND	mg/m3	0.014	0.0071	01/22/14 21:33 JAM	95-47-6	
Toluene	ND	mg/m3	0.012	0.0061	01/22/14 21:33 JAM	108-88-3	

DISCLAIMER: These results have been converted to the units shown from the original units of measurement assuming 20 degrees Celsius and 1 atmosphere pressure. Values were not rounded according to EPA rounding rules. THC is quantitated based on the average response factors of several compounds; the nominal molecular weight of THC used for units conversion is the average of the molecular weights of the compounds used for quantitation.

SUPPLEMENTAL REPORT

Units Conversion Request

Date: 1/28/2014

Page 2

Client: Groundwater Environmental Services, Inc. - AIR
Phone: 866-800-0716

Lab Project Number: 10254822
Project Name: UPA Bradford M061

Lab Sample No: 10254822004 ProjSampleNum: 10254822004 Date Collected: 01/09/14 15:23
Client Sample ID: VP-1 Matrix: Air Date Received: 01/14/14 13:00

Parameters	Results	Units	Report Limit	MDL	Analyzed	CAS No.	Fnote
Air							
TO-15							
1,2,4-Trimethylbenzene	ND	mg/m3	0.0044	0.0022	01/20/14 23:12 JAM	95-63-6	
1,3,5-Trimethylbenzene	ND	mg/m3	0.0044	0.0022	01/20/14 23:12 JAM	108-67-8	
Benzene	ND	mg/m3	0.0029	0.0014	01/20/14 23:12 JAM	71-43-2	
Ethylbenzene	ND	mg/m3	0.0039	0.0019	01/20/14 23:12 JAM	100-41-4	
Isopropylbenzene (Cumene)	ND	mg/m3	0.0044	0.0022	01/20/14 23:12 JAM	98-82-8	
m&p-Xylene	ND	mg/m3	0.0079	0.0039	01/20/14 23:12 JAM	179601-23-	
Methyl-tert-butyl ether	ND	mg/m3	0.0032	0.0016	01/20/14 23:12 JAM	1634-04-4	
Naphthalene	ND	mg/m3	0.0047	0.0023	01/20/14 23:12 JAM	91-20-3	
o-Xylene	ND	mg/m3	0.0039	0.0019	01/20/14 23:12 JAM	95-47-6	
Toluene	0.0226	mg/m3	0.0034	0.0017	01/20/14 23:12 JAM	108-88-3	

DISCLAIMER: These results have been converted to the units shown from the original units of measurement assuming 20 degrees Celsius and 1 atmosphere pressure. Values were not rounded according to EPA rounding rules. THC is quantitated based on the average response factors of several compounds; the nominal molecular weight of THC used for units conversion is the average of the molecular weights of the compounds used for quantitation.

SUPPLEMENTAL REPORT

Units Conversion Request

Date: 1/28/2014

Page 3

Client: Groundwater Environmental Services, Inc. - AIR
Phone: 866-800-0716

Lab Project Number: 10254822
Project Name: UPA Bradford M061

Lab Sample No: 10254822005 ProjSampleNum: 10254822005 Date Collected: 01/09/14 15:37
Client Sample ID: VP-4 Matrix: Air Date Received: 01/14/14 13:00

Parameters	Results	Units	Report Limit	MDL	Analyzed	CAS No.	Fnote
Air							
TO-15							
1,2,4-Trimethylbenzene	ND	mg/m3	0.34	0.17	01/27/14 10:31 JAM	95-63-6	
1,3,5-Trimethylbenzene	ND	mg/m3	0.34	0.17	01/27/14 10:31 JAM	108-67-8	
Benzene	ND	mg/m3	0.22	0.11	01/27/14 10:31 JAM	71-43-2	D3
Ethylbenzene	ND	mg/m3	0.3	0.15	01/27/14 10:31 JAM	100-41-4	
Isopropylbenzene (Cumene)	ND	mg/m3	0.34	0.17	01/27/14 10:31 JAM	98-82-8	
m&p-Xylene	ND	mg/m3	0.61	0.3	01/27/14 10:31 JAM	179601-23-	
Methyl-tert-butyl ether	ND	mg/m3	0.25	0.13	01/27/14 10:31 JAM	1634-04-4	
Naphthalene	ND	mg/m3	0.37	0.18	01/27/14 10:31 JAM	91-20-3	1M
o-Xylene	ND	mg/m3	0.3	0.15	01/27/14 10:31 JAM	95-47-6	
Toluene	ND	mg/m3	0.26	0.13	01/27/14 10:31 JAM	108-88-3	

DISCLAIMER: These results have been converted to the units shown from the original units of measurement assuming 20 degrees Celsius and 1 atmosphere pressure. Values were not rounded according to EPA rounding rules. THC is quantitated based on the average response factors of several compounds; the nominal molecular weight of THC used for units conversion is the average of the molecular weights of the compounds used for quantitation.

SUPPLEMENTAL REPORT

Units Conversion Request

Date: 1/28/2014

Page 4

Client: Groundwater Environmental Services, Inc. - AIR
Phone: 866-800-0716

Lab Project Number: 10254822
Project Name: UPA Bradford M061

PARAMETER FOOTNOTES

ND Not detected at or above adjusted reporting limit

NC Not Calculable

J Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

[1M] This analyte did not meet the secondary source verification criteria for the initial calibration, with 52% recovery for Napthalene (acceptance criteria is 60-140%).

[D3] Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

SUPPLEMENTAL REPORT

Units Conversion Request

Date: 1/28/2014

Page 5



APPENDIX H

Investigation and Remediation Derived Waste Disposal Documentation



McCutcheon Enterprises, Inc.
250 Park Road
Apollo, PA 15613
(724)568-3623 Fax (724)568-2571
www.completewastemgmt.com

00108672

Non-Hazardous Waste Manifest		1. Generator's US EPA ID No.		Manifest Document No. 043834		2. Page 1 of 1		JWC00151207		
3. Generator's Name and Mailing Address United Refining Company 15 Bradley Street Warren, PA 16365						MC043834				
4. Generator's Phone ()						B. State Generator's ID				
5. Transporter 1 Company Name McCutcheon Enterprises Inc			6. US EPA ID Number PA0013826847			C. State Trans. ID				
7. Transporter 2 Company Name			8. US EPA ID Number			D. Transporter's Phone ()				
9. Designated Facility Name and Site Address McCutcheon Ent. Biosolids Treatment Facility 250 Park Road Apollo, PA 15613						E. State Trans. ID				
10. US EPA ID Number PA0013826847						F. Transporter's Phone ()				
11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number) HM						12. Containers No. Type		13. Total Quantity	14. Unit Wt/Vol	L Waste No.
a. Waste petroleum material contaminated soil/debris						6 DM		3600	P	5 0 7
b. Municipal Waste (Construction and Demolition)						2 DM		400	P	M W
c. Oil/water emulsions, oily wastewaters						3 DM		600	P	4 2 2
d.										
J. Additional Descriptions for Materials Listed Above						K. Handling Codes for Wastes Listed Above				
a. 081108-00002291						c. 061308-00002229				
b. 011609-00002433						d.				
15. Special Handling Instructions and Additional Information UPA Kwik Fill M-061 227 E. Main St. Bradford, PA 16701 188175-12-C&D All weights estimated Waste ID# 188175-1,2,3,4,5,6,7,8,9,10,11 Dates 1-42 Consignment Dates Dates 3-8 - Soil/Cuttings Dates 9-11 Liquid										
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations. I hereby certify that the above-named material is not hazardous waste as defined by 40 CFR Part 261 or any applicable state law.										
Printed/Typed Name James M. Ganza, United Refining Company						Signature [Signature]		Month Day Year 07/11/13		
17. Transporter 1 Acknowledgement of Receipt of Materials Printed/Typed Name James Ganza						Signature [Signature]		Month Day Year 07/11/13		
18. Transporter 2 Acknowledgement of Receipt of Materials Printed/Typed Name						Signature		Month Day Year		
19. Discrepancy Indication Space										
20. Facility Owner or Operator: Certification of receipt of non-hazardous materials covered by this manifest except as noted in Item 19. Printed/Typed Name Gary E. Miller						Signature [Signature]		Month Day Year 10/11/13		

GENERATOR COPY

SIGNATURE AND INFORMATION MUST BE LEGIBLE ON ALL COPIES

Bill To: United Ref
United Refining
Kwik Fill Stations
PO Box 780
Warren PA, 16365

McCutcheon Ent., Inc.
250 Park Road, Apollo, PA 1561
724-568-3623

Ticket#: 55132
MANUAL ORIGINAL

IN: 7/15/2013 8:16:11AM
OUT: 7/15/2013 8:16:11AM

Operator: Franko 75795
CM 72628

Bio Facility

Customer: United Ref
United Refining
Kwik Fill Stations
PO Box 780
Warren PA, 16365

Hauler: BV5
Truck: N
Container:
JWO#: 151207
Manifest#: 43834

GROSS lbs: 17,560.00
TARE lbs: 14,320.00
NET lbs: 3,240.00
ADJUSTED lbs: 3,240.00
Tons: 1.62

MATERIAL CODE/DESCRIPTION	QUANTITY	MEASURE	RATE	AMOUNT
507 - Waste petroleum material con	1.62	ton	\$0.00	\$0.00
6 DRUMS				
Product Total:				\$0.00
Total Fees:				\$0.00
Total Taxes:				\$0.00
Ticket Total:				\$0.00



Bill To: United Ref
United Refining
Kwik Fill Stations
PO Box 780
Warren PA, 16365

McCutcheon Ent., Inc.
250 Park Road, Apollo, PA 1561
724-568-3623

Ticket#: 55133
MANUAL ORIGINAL

IN: 7/15/2013 8:17:26AM
OUT: 7/15/2013 8:17:26AM

Operator: Franko 75795
CM 72628

Bio Facility

Customer: United Ref
United Refining
Kwik Fill Stations
PO Box 780
Warren PA, 16365

Hauler: BV5
Truck: N
Container:
JWO#: 151207
Manifest#: 43834

GROSS lbs: 14,320.00
TARE lbs: 13,240.00
NET lbs: 1,080.00
ADJUSTED lbs: 1,080.00
Tons: 0.54

MATERIAL CODE/DESCRIPTION	QUANTITY	MEASURE	RATE	AMOUNT
MW01 - Municipal Waste (Sewage Slu	1,080.00	Lbs	\$0.00	\$0.00
2 DRUMS				
Product Total:				\$0.00
Total Fees:				\$0.00
Total Taxes:				\$0.00
Ticket Total:				\$0.00



Bill To: United Ref

United Refining

Kwik Fill Stations

PO Box 780

Warren PA, 16365

McCutocheon Ent., Inc.

250 Park Road, Apollo, PA 1561

724-568-3623

Bio Facility

Ticket#: 55134

MANUAL ORIGINAL

IN: 7/15/2013 8:18:32AM

OUT: 7/15/2013 8:18:32AM

Operator: ~~Frank~~

GM 72628

Customer: United Ref

United Refining

Kwik Fill Stations

PO Box 780

Warren PA, 16365

Hauler: BV5

Truck: N

Container:

JWO#: 151207

Manifest#: 43834

GROSS lbs: 13,240.00

TARE lbs: 11,620.00

NET lbs: 1,620.00

ADJUSTED lbs: 1,620.00

Tons: 0.81

MATERIAL CODE/DESCRIPTION

422 - oil/water emulsions, oily wa

QUANTITY

0.81

MEASURE

ton

RATE

\$0.00

AMOUNT

\$0.00

3 DRUMS

Product Total: \$0.00

Total Fees: \$0.00

Total Taxes: \$0.00

Ticket Total: \$0.00



McCutcheon Enterprises, Inc.
250 Park Road
Apollo, PA 15613
(724)568-3623 Fax (724)568-2571
www.completewastemgmt.com

00113345

Non Hazardous Waste Manifest		1. Generator's US EPA ID No.		Manifest Document No. 044412		2. Page 1 of 1		JWC0158500						
3. Generator's Name and Mailing Address United Refining Company 15 Bradley Street Warren, PA 16368						MC046412								
4. Generator's Phone ()						B. State Generator's ID								
5. Transporter 1 Company Name McCutcheon Enterprises Inc						6. US EPA ID Number PAD013826847								
7. Transporter 2 Company Name						8. US EPA ID Number								
9. Designated Facility Name and Site Address McCutcheon Ent. Biosolids Treatment Facility 250 Park Road Apollo, PA 15613						10. US EPA ID Number PAD013826847								
11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number) HM						12. Containers No. Type		13. Total Quantity		14. Unit Wt/Vol		15. Waste No.		
GENERATOR	a.	Waste petroleum material contaminated soil/debris				1009 10010		0.0855		0.015		0.7		
	b.	Municipal Waste (Construction and Demolition)				1003 1002		0.010		1.200		M W		
	c.													
	d.													
J. Additional Descriptions for Materials Listed Above 081108-00002291						K. Handling Codes for Wastes Listed Above								
a. 011609-00002433						a.								
b.						b.								
15. Special Handling Instructions and Additional Information UPA Kwik File M-051 227 E. Main St. Bradford, PA 16701 191606 1-12						a.) 2.88 TON 9 Drums b.) 0.57 TON 3 Drums								
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations. I hereby certify that the above-named material is not hazardous waste as defined by 40 CFR Part 261 or any applicable state law.														
Printed/Typed Name James R. Ksawer						Signature [Signature] ON BEHALF OF UNITED Refining						Month Day Year 11/10/13		
TRANSPORTER	17. Transporter 1 Acknowledgement of Receipt of Materials Printed/Typed Name Gary Koin						Signature [Signature]						Month Day Year 11/10/13	
	18. Transporter 2 Acknowledgement of Receipt of Materials Printed/Typed Name						Signature						Month Day Year	
FACILITY	19. Discrepancy Indication Space													
	20. Facility Owner or Operator: Certification of receipt of non-hazardous materials covered by this manifest except as noted in Item 19. Printed/Typed Name Scott Hannz													
						Signature [Signature]						Month Day Year 11/10/13		

GENERATOR COPY

SIGNATURE AND INFORMATION MUST BE LEGIBLE ON ALL COPIES

Bill To: United Ref
United Refining
Kwik Fill Stations
PO Box 780
Warren PA, 16365

McCutcheon Ent., Inc.
250 Park Road, Apollo, PA 1561
724-568-3623

Ticket#: 58481
MANUAL ORIGINAL

IN: 11/4/2013 11:34:45AM
OUT: 11/4/2013 11:34:45AM

Operator: Franko73795

Bio Facility

Customer: United Ref
United Refining
Kwik Fill Stations
PO Box 780
Warren PA, 16365

Hauler: BV6
Truck: N
Container:
JWO#: 158500
Manifest#: 46412

GROSS lbs: 33,940.00
TARE lbs: 28,180.00
NET lbs: 5,760.00
ADJUSTED lbs: 5,760.00
Tons: 2.88

MATERIAL CODE/DESCRIPTION	QUANTITY	MEASURE	RATE	AMOUNT
507 - Waste petroleum material con	2.88	ton	\$0.00	\$0.00

3 DMMMS

Frank Colwell

Product Total: \$0.00
Total Fees: \$0.00
Total Taxes: \$0.00
Ticket Total: \$0.00

Bill To: United Ref
United Refining
Kwik Fill Stations
PO Box 780
Warren PA, 16365

McCutcheon Ent., Inc.
250 Park Road, Apollo, PA 1561
724-568-3623

Ticket#: 58482
MANUAL ORIGINAL

IN: 11/4/2013 11:36:57AM
OUT: 11/4/2013 11:36:57AM

Operator: Franko73795

Bio Facility

Customer: United Ref
United Refining
Kwik Fill Stations
PO Box 780
Warren PA, 16365

Hauler: BV6
Truck: N
Container:
JWO#: 158500
Manifest#: 46412

GROSS lbs: 28,100.00
TARE lbs: 26,960.00
NET lbs: 1,140.00
ADJUSTED lbs: 1,140.00
Tons: 0.57

MATERIAL CODE/DESCRIPTION	QUANTITY	MEASURE	RATE	AMOUNT
HW6C - C/D-Commercial	1,140.00	Lbs	\$0.04	\$45.60

3 DMMMS

Frank Colwell

Product Total: \$50.00
Total Fees: \$0.00
Total Taxes: \$0.00
Ticket Total: \$50.00



McCutcheon Enterprises, Inc.
250 Park Road
Apollo, PA 15613
(724)568-3623 Fax (724)568-2571
www.completewastemgmt.com

00115282

BU5

Non-Hazardous Waste Manifest		1. Generator's US EPA ID No.		Manifest Document No.		2. Page 1 of 1		jwo0161147	
3. Generator's Name and Mailing Address United Refining Company 15 Bradley Street, Warren, PA 16365						B. State Generator's ID MC047406			
4. Generator's Phone				5. Transporter 1 Company Name		6. US EPA ID Number		C. State Trans. ID	
7. Transporter 2 Company Name				8. US EPA ID Number		9. Designated Facility Name and Site Address		D. Transporter's Phone (724)568-3623	
9. Designated Facility Name and Site Address				10. US EPA ID Number		F. Transporter's Phone ()		G. State Facility's ID	
11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number) HM				12. Containers No. Type		13. Total Quantity		14. Unit Wt/Vol	
a. Waste petroleum material contaminated soil/debris				01 17 DM		1316.00		P 507	
b.									
c.									
d.									
J. Additional Descriptions for Materials Listed Above						K. Handling Codes for Wastes Listed Above			
a. 061108-00002281						a.			
b.						b.			
15. Special Handling Instructions and Additional Information 17 Drums 6.80 TON UPA Kwik Fill M-061 227 E. Main St. Bradford, PA 16701 waste Tracking # 193323-1 Thru 17									
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations. I hereby certify that the above-named material is not hazardous waste as defined by 40 CFR Part 261 or any applicable state law.									
Printed/Typed Name James R. Alesworth						Signature [Signature]		Month Day Year 11/23/15	
17. Transporter 1 Acknowledgement of Receipt of Materials									
Printed/Typed Name Gary Kamm						Signature [Signature]		Month Day Year 11/23/15	
18. Transporter 2 Acknowledgement of Receipt of Materials									
Printed/Typed Name						Signature		Month Day Year	
19. Discrepancy Indication Space									
20. Facility Owner or Operator: Certification of receipt of non-hazardous materials covered by this manifest except as noted in Item 19.									
Printed/Typed Name Frank Colwell						Signature [Signature]		Month Day Year 01/02/14	

GENERATOR COPY

SIGNATURE AND INFORMATION MUST BE LEGIBLE ON ALL COPIES

Bill To: United Ref
United Refining
Kwik Fill Stations
PO Box 780
Warren PA, 16365

McCutcheon Ent., Inc.
250 Park Road, Agollo, PA 1561
724-568-3623

Ticket#: S9703
MANUAL ORIGINAL

IN: 1/2/2014 11:15:22AM
OUT: 1/2/2014 11:15:22AM

Operator: ~~FC73795~~
FC73795

Bio Facility

Hauler: BV5

Truck: N

Container:

JWO#: 161147

Manifest#: 47406

GROSS lbs: 45,600.00
TARE lbs: 32,000.00
NET lbs: 13,600.00
ADJUSTED lbs: 13,600.00
Tons: 6.80

MATERIAL CODE/DESCRIPTION

507 - Waste petroleum material con
17 DRUMS

QUANTITY 6.80
MEASURE ton

RATE \$0.00

AMOUNT \$0.00

Product Total: \$0.00

Total Fees: \$0.00

Total Taxes: \$0.00

Ticket Total: \$0.00

Frank Colwell



McCutcheon Enterprises, Inc.
250 Park Road
Apollo, PA 15613
(724)568-3623 Fax (724)568-2571
www.completewastemgmt.com

00116027

Non Hazardous Waste Manifest		1. Generator's US EPA ID No.		Manifest Document No. 047782		2. Page 1 of 1		JW00162217					
3. Generator's Name and Mailing Address United Refining Company 15 Bradley Street. Warren, PA 15365						MC047782							
4. Generator's Phone ()						B. State Generator's ID							
5. Transporter 1 Company Name McCutcheon Enterprises Inc				6. US EPA ID Number PAD013826847		C. State Trans. ID 724 568 3623							
7. Transporter 2 Company Name				8. US EPA ID Number		D. Transporter's Phone ()							
9. Designated Facility Name and Site Address McCutcheon Ent. Biosolids Treatment Facility 250 Park Road. Apollo, PA 15613						E. State Trans. ID							
10. US EPA ID Number PAD013826847						F. Transporter's Phone ()							
11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number) HM						12. Containers No. Type		13. Total Quantity		14. Unit Wt/Vol		15. Waste No.	
a. Oil/water emulsions, oily wastewaters						001 TT		172 G		4		2 2	
b.													
c.													
d.													
J. Additional Descriptions for Materials Listed Above 061308-00002229						K. Handling Codes for Wastes Listed Above							
a.						a.		c.					
b.						b.		d.					
15. Special Handling Instructions and Additional Information Kwik Fill M-065 227 East Main St Bradford, PA 1.04 TON 172 gal													
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations. I hereby certify that the above-named material is not hazardous waste as defined by 40 CFR Part 261 or any applicable state law.													
Printed/Typed Name Catherine [Signature]						Signature Catherine [Signature]				Month Day Year 04 23 14			
17. Transporter 1 Acknowledgement of Receipt of Materials Printed/Typed Name Don Nichols						Signature [Signature]				Month Day Year 04 23 14			
18. Transporter 2 Acknowledgement of Receipt of Materials Printed/Typed Name						Signature				Month Day Year			
19. Discrepancy Indication Space													
20. Facility Owner or Operator: Certification of receipt of non-hazardous materials covered by this manifest except as noted in Item 19.													
Printed/Typed Name Frank Colwell						Signature Frank Colwell				Month Day Year 04 24 14			

GENERATOR COPY

SIGNATURE AND INFORMATION MUST BE LEGIBLE ON ALL COPIES

Bill To: United Ref
United Refining
Kwik Fill Stations
PO Box 780
Warren PA, 16365

McCutcherson Ent., Inc.
250 Park Street, Apollo, PA 1561

724-568-7623

Bio Facility

Customer: United Ref
United Refining
Kwik Fill Stations
PO Box 780
Warren PA, 16365

Hauler: V8
Truck: None
Container:
JWO#: 162217
Manifest#: 47782

MATERIAL CODE/DESCRIPTION QUANTITY
422 - oil/water emulsions, oily wa 1.04
Kwik Fill

Ticket#: 61967

MANUAL ORIGINAL

IN: 4/24/2014 9:40:42AM

OUT: 4/24/2014 9:40:42AM

Operator: ~~Frankie~~
Scott 75054

GROSS lbs: 16,660.00
TARE lbs: 14,580.00
NET lbs: 2,080.00
ADJUSTED lbs: 2,080.00
Tons: 1.04

MEASURE	RATE	AMOUNT
ton	\$0.00	\$0.00
Product Total:		\$0.00
Total Fees:		\$0.00
Total Taxes:		\$0.00
Ticket Total:		\$0.00



McCutcheon Enterprises, Inc.
250 Park Road
Apollo, PA 15613
(724)568-3623 Fax (724)568-2571
www.completewastemgmt.com

00119944

Non Hazardous Waste Manifest		1. Generator's US EPA ID No.		Manifest Document No. 049982		2. Page 1 of 1		JWO0168307					
3. Generator's Name and Mailing Address United Refining Company 18 Bradley Street, Warren, PA 15365						B. State Generator's ID MC049982							
4. Generator's Phone ()				6. US EPA ID Number PAD013826847		C. State Trans. ID 7245683623							
5. Transporter 1 Company Name McCutcheon Enterprises Inc				8. US EPA ID Number		D. Transporter's Phone ()							
7. Transporter 2 Company Name				10. US EPA ID Number		E. State Trans. ID							
9. Designated Facility Name and Site Address McCutcheon Ent. Biosolids Treatment Facility 250 Park Road, Apollo, PA 15613						F. Transporter's Phone ()							
						G. State Facility's ID							
						H. Facility's Phone (724) 568-3623							
11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number) HM						12. Containers No. Type		13. Total Quantity		14. Unit Wt/Vol		L Waste No.	
a. Municipal Waste (Construction and Demolition)						001 GM		560 TP		M		W	
b. Residual Waste (Soil Cuttings)						16 DM		1/2 100 TP		9		9 9	
c.													
d.													
J. Additional Descriptions for Materials Listed Above						K. Handling Codes for Wastes Listed Above							
a. 011600-00002433						c.							
b. 053100-00001837						d.							
15. Special Handling Instructions and Additional Information													
UPA M051 227 E. Main Street Bradford, PA													
a.) 0.28 TON GES Waste #15 → 198941-1 thru 17 1 drum													
b.) 4.64 TON 16 Drums													
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations. I hereby certify that the above-named material is not hazardous waste as defined by 40 CFR Part 261 or any applicable state law.													
Printed/Typed Name Walter Kotuba						Signature Walter Kotuba on behalf of United Refining Month Day Year 06/17/14							
17. Transporter 1 Acknowledgement of Receipt of Materials													
Printed/Typed Name Edward J. Lorent						Signature Edward J. Lorent Month Day Year 06/17/14							
18. Transporter 2 Acknowledgement of Receipt of Materials													
Printed/Typed Name						Signature Month Day Year							
19. Discrepancy Indication Space													
20. Facility Owner or Operator: Certification of receipt of non-hazardous materials covered by this manifest except as noted in Item 19.													
Printed/Typed Name Frank Colwell						Signature Frank Colwell Month Day Year 06/18/14							

GENERATOR COPY

SIGNATURE AND INFORMATION MUST BE LEGIBLE ON ALL COPIES

Bill To: United Ref
United Refinining
Kwik Fill Stations
PO Box 780
Warren PA, 16365

McCutcheon Ent., Inc.
250 Park Road, Apollo, PA 1561
724-568-3623

Ticket#: 63517
MANUAL ORIGINAL

IN: 6/18/2014 10:19:23AM
OUT: 6/18/2014 10:19:23AM
Operator: Frank73795

Bio Facility

Customer: United Ref
United Refinining
Kwik Fill Stations
PO Box 780
Warren PA, 16365

Hauler: BV5
Truck: N
Container:
JWO#: 168307
Manifest#: 49982

GROSS lbs: 36,580.00
TARE lbs: 27,300.00
NET lbs: 9,280.00
ADJUSTED lbs: 9,280.00
Tons: 4.64

MATERIAL CODE/DESCRIPTION
999 - Only Collants

QUANTITY
4.64

MEASURE
ton

RATE
\$0.00

AMOUNT
\$0.00

UFA M061 (16 DRUMS)

Frank Colwell

Product Total: \$0.00
Total Fees: \$0.00
Total Taxes: \$0.00
Ticket Total: \$0.00

Bill To: United Ref
United Refinining
Kwik Fill Stations
PO Box 780
Warren PA, 16365

McCutcheon Ent., Inc.
250 Park Road, Apollo, PA 1561
724-568-3623

Ticket#: 63516
MANUAL ORIGINAL

IN: 6/18/2014 10:17:18AM
OUT: 6/18/2014 10:17:18AM
Operator: Frank73795

Bio Facility

Customer: United Ref
United Refinining
Kwik Fill Stations
PO Box 780
Warren PA, 16365

Hauler: BV5
Truck: N
Container:
JWO#: 168307
Manifest#: 49982

GROSS lbs: 37,140.00
TARE lbs: 36,580.00
NET lbs: 560.00
ADJUSTED lbs: 560.00
Tons: 0.28

MATERIAL CODE/DESCRIPTION
W6C - C/D-Commercial

QUANTITY
560.00

MEASURE
Lbs

RATE
\$0.04

AMOUNT
\$22.40

PA M061 (1 DRUM)

Frank Colwell

Product Total: \$50.00
Total Fees: \$0.00
Total Taxes: \$0.00
Ticket Total: \$50.00



McCutcheon Enterprises, Inc.
250 Park Road
Apollo, PA 15613
(724)568-3623 Fax (724)568-2571
www.completewastemgmt.com

00127076

Non Hazardous Waste Manifest		1. Generator's US EPA ID No.		Manifest Document No. 034011		2. Page 1 of 1		JWC00178093					
3. Generator's Name and Mailing Address United Refining Company 814 Lexington Avenue, P. O. Box 608 Warren, PA 15365						MC054011							
4. Generator's Phone ()						B. State Generator's ID							
5. Transporter 1 Company Name McCutcheon Enterprises Inc				6. US EPA ID Number PAD013826847		C. State Trans. ID 724 568 3623							
7. Transporter 2 Company Name				8. US EPA ID Number		D. Transporter's Phone ()							
9. Designated Facility Name and Site Address McCutcheon Ent. Biosolids Treatment Facility 250 Park Road, Apollo, PA 15613						10. US EPA ID Number PAD013826847							
11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number) HM						12. Containers No. Type		13. Total Quantity		14. Unit Wt/Vol		15. Waste No.	
a. Waste petroleum material contaminated soil/debris						19 DM		est		6 T		5 0 7	
b.													
c.													
d.													
J. Additional Descriptions for Materials Listed Above 051106-00002291						K. Handling Codes for Wastes Listed Above							
a.						a.							
b.						b.							
15. Special Handling Instructions and Additional Information UPA Bradford 227 E Main St Bradford, PA <i>Waste IDT 202332-1</i> <i>19 Drums</i> <i>5.39 ton</i> <i>202626-123456789101112131415161718</i> <i>Orange X on lids</i>													
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations. I hereby certify that the above-named material is not hazardous waste as defined by 40 CFR Part 261 or any applicable state law.													
Printed/Typed Name _____ Signature _____ Month Day Year _____													
17. Transporter 1 Acknowledgement of Receipt of Materials													
Printed/Typed Name Jarrett Carter Signature _____ Month Day Year 1/22/14													
18. Transporter 2 Acknowledgement of Receipt of Materials													
Printed/Typed Name _____ Signature _____ Month Day Year _____													
19. Discrepancy Indication Space													
20. Facility Owner or Operator: Certification of receipt of non-hazardous materials covered by this manifest except as noted in Item 19.													
Printed/Typed Name Frank Colwell Signature Frank Colwell Month Day Year 1/22/14													

GENERATOR COPY

SIGNATURE AND INFORMATION MUST BE LEGIBLE ON ALL COPIES

Bill To: United Ref

United Refining

Kwik Fill Stations

PO Box 780

Warren PA, 16365

McCutcheon Ent., Inc.

250 Park Road, Apollo, PA 1561

724-568-3623

Ticket#: 69476-3623
MANUAL ORIGINAL

IN: 12/29/2014

2:08:16PM

OUT: 12/29/2014

2:08:24PM

Bio Facility

Operator: ~~Anthony~~ *FC73795*

Customer: United Ref

United Refining

Kwik Fill Stations

PO Box 780

Warren PA, 16365

Hauler: BVS

Truck: N

Container:

JW04: 178093

Manifest#: 54011

GROSS lbs:

38,300.00

TAKE lbs:

27,520.00

NET lbs:

10,780.00

ADJUSTED lbs:

10,780.00

Tons:

5.39

MATERIAL CODE/DESCRIPTION

507 - Waste petroleum material con

QUANTITY

5.39

MEASURE

ton

RATE

\$0.00

AMOUNT

\$0.00

19 DUMPS

Product Total:

\$0.00

Total Fees:

\$0.00

Total Taxes:

\$0.00

Ticket Total:

\$0.00

Monday through Friday 7AM - 4:30 PM
Saturday 8AM - 12 NOON

Frank Colwell

STRAIGHT BILL OF LADING - SHORT FORM - Shipper Copy

RECEIVED, subject to the classifications and tariffs in effect on the date of issue of this Original Bill of Lading.

BOL#: 15716-C-2

Date: 2/4/2015

Page: 1 of 1

CSEC

Carrier

C.CODE 3056C

the property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated below, which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery as said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed, as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all the terms and conditions of the Uniform Domestic Straight Bill of Lading set forth (1) in the Uniform Freight Classification in effect on the date hereof, if this is a rail, or a rail-water shipment, or (2) in the applicable motor carrier classification or tariff if this is a motor carrier shipment. Shipper hereby certifies that he is familiar with all the terms and conditions of said bill of lading, including those on the attachment thereof, set forth in the classification or tariff which governs the transportation of this shipment, and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

SHIPPER (FROM)

KWIK FILL M-061
227 E. MAIN STREET
BRADFORD, PA 16701

PRO #:

CONSIGNEE (SHIP TO)

ENCOTECH, INC.
1037 RT. 519
EIGHTY FOUR, PA 15330

CUST. ORDER#: 527202

OUR ORDER#: 15716-C-2

DEPT:

ROUTE:

Special Instructions:

SEND FREIGHT BILL TO: (if different than CONSIGNEE above)

Freight charges are:

COLLECT

Subject to Section 7 of conditions of applicable bill of lading, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:

C.O.D. _____ AMOUNT

C.O.D. FEE _____

Prepaid ☐Collect ☒

The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

(Signature of Consignor)

NO. PKGS	UM	HM (X)	DESCRIPTION OF ARTICLES, KIND OF PACKAGE, SPECIAL MARKS AND EXCEPTIONS	*WEIGHT (subject to correction)	CLASS	NMFC	SUB
			ONE(1) SPENT 55-GALLON DRUM VAPOR PHASE ADSORBER	260	50		

0

260 LBS

TOTALS

MARK "X" IN THE HM COLUMN TO DESIGNATE HAZARDOUS MATERIALS AS DEFINED IN DOT REGULATIONS

* If the shipment moves between two ports by a carrier by water, the law requires that the bill of lading shall state whether it is "carrier's or shipper's weight."

NOTE - Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property.

The agreed or declared value of the property is hereby stated by the shipper to be not exceeding

PER

* The fibre boxes used for this shipment conform to the specifications set forth in the box maker's certificate thereon, and all other requirements of Uniform Freight Classifications.

* Shipper's imprint in lieu of stamp; not a part of bill of lading approved by the Interstate Commerce Commission.

SHIPPER'S CERTIFICATION This is to certify that the above-named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

Per

SHIPPER: KWIK FILL M-061

PER:

EMERGENCY RESPONSE NUMBER:

CONTACT:

REGISTERED COMPANY:

PLACARDS REQUIRED

SUPPLIED BY SHIPPER

Received by: ENCOTECH, INC.

Carrier/Driver: CSEC

Receiving & Carrier Signatures

Date

Star Bill of Lading Software - www.starbol.com

ENCOTECH, INC.
CARBON SERVICE & EQUIPMENT CO.

P.O. BOX 305
EIGHTY FOUR, PA 15330
(724) 222-3334

ENCOTECH FAX: (724) 222-4090 • CARBON SERVICE FAX: (724) 222-4095

PACKING LIST

CUSTOMER ORDER # 527202	OUR ORDER # 15716-C-2	DATE SHIPPED 2/04/15	SHIPPED VIA CSEC
----------------------------	--------------------------	-------------------------	---------------------

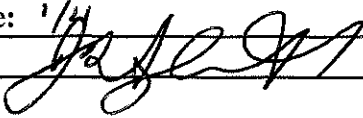
SHIP TO:

Kwik Fill M-061
227 E. Main Street
Bradford, PA 16701

SOLD TO:

GES
301 Commerce Park Drive
Cranberry Twp., PA 16066

ATTENTION:

QUANTITY ORDERED	QUANTITY SHIPPED	QUANTITY BACK ORDERED	DESCRIPTION
1	1	0	<p>Remove one(1) 55-gallon drum of spent vapor phase carbon from site for reactivation.</p> <p>Site Notes: _____</p> <p>_____</p> <p>Hrs. on site: <u>1 1/4</u></p> <p>Signature: <u></u></p>
CARTONS:	PACKED BY:	<input type="checkbox"/> ORDER COMPLETE <input type="checkbox"/> BALANCE TO FOLLOW	



APPENDIX I

Fate and Transport Modeling

Table I-1

Fate and Transport Model Input Values for MTBE

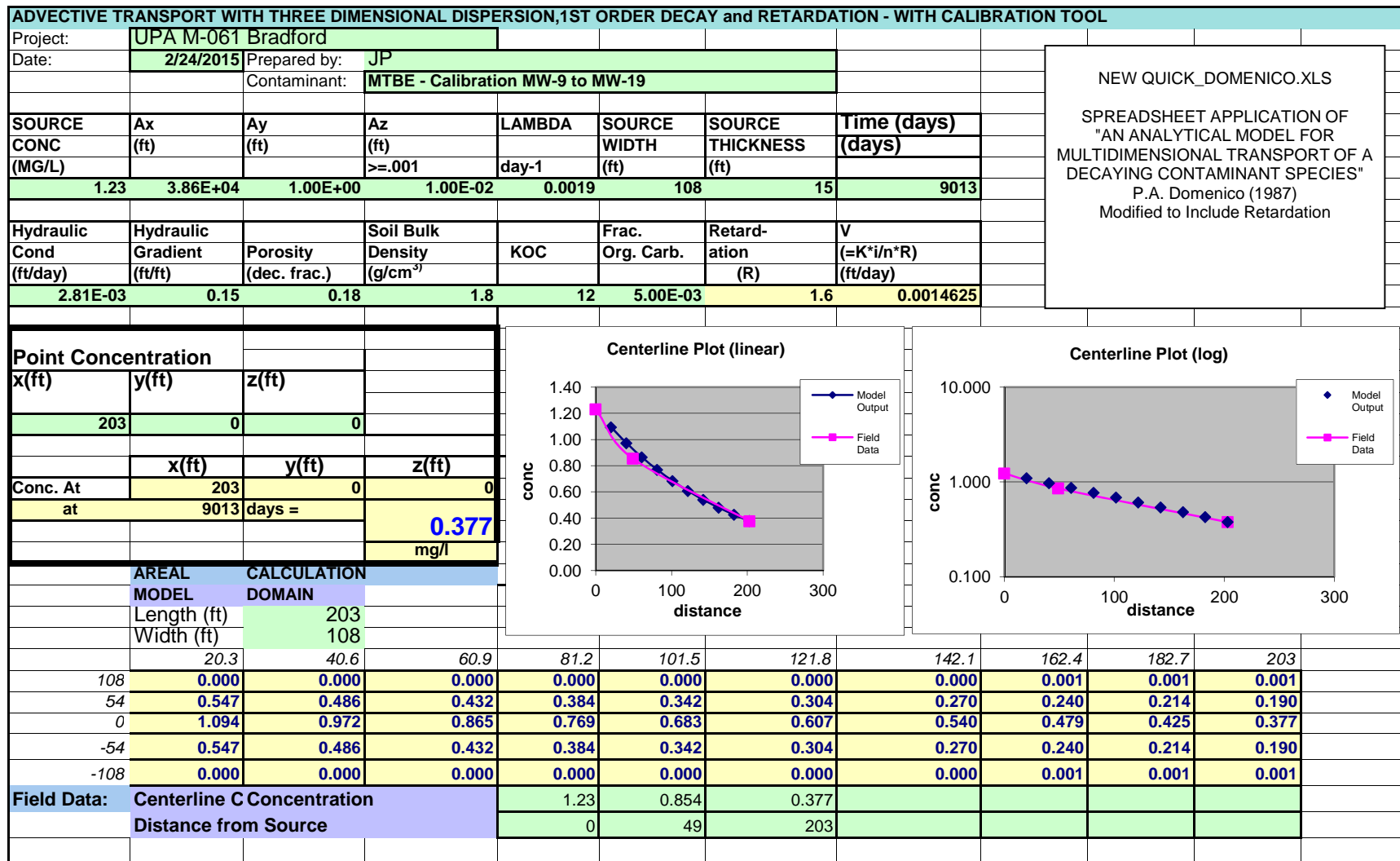
United Refining Company
Kwik Fill Station #M-061
227 East Main Street
Bradford, PA

Parameter	Description	Input Value	Rationale For Use
Source Concentration (mg/L) - MTBE	Maximum dissolved phase concentration in groundwater acting as an infinite source	1.23	MTBE concentration in MW-9 (2/3/2015) was calibrated to monitoring wells MW-11 and MW-19 (2/3/2015). Input values were used where the upgradient MTBE concentration was greater than the downgradient well.
Source Concentration (mg/L) - Model Run	Maximum dissolved phase concentration in groundwater acting as an infinite source	0.377	Maximum MTBE concentration observed in MW-19 during the sampling event (2/3/15)
Ax (ft)	Longitudinal Dispersivity	2,300 to 38,600	Calibrated using the QD model and site-specific data
Ay (ft)	Transverse Dispersivity	1 to 29.4	Calibrated using the QD model and site-specific data
Az (ft)	Vertical Dispersivity	0.01 to 0.3	Calibrated using the QD model and site-specific data
Lambda (day-1)	First Order Decay Constant	0.0019	Degradation coefficient obtained from PA Code 25, Chapter 250, Table 5 (converted to day-1)
Source Width (ft)	Width of area of identified groundwater impacts	108	Estimated width of current dissolved phase MTBE plume based on February 3-4, 2015 MTBE Groundwater Isoconcentration Map.
Source Thickness (ft)	Average difference in total depth and minimum water levels in on- and off-site overburden monitoring wells (MW-9, MW-11 and MW-13)	15	Conservative estimated thickness of smear zone based on average minimum depth to groundwater (16.77-ft) and average total well depth (31.67-ft) in deepest on-site (MW-13) and off-site (MW-9 and MW-11) overburden monitoring wells.
Time (days) - Calibration	Time the source is active	9,013	The time in days between the calibrated MTBE value in MW-9, MW-11 and MW-19 (2/3/2015) and the estimated date of the release (6/1/1990).
Time (days) - Model Run	Time that the solution is desired	10,950	The time during which the plume would be expected to be in steady-state conditions, assuming a continuing source.
Hydraulic Conductivity (ft/day)	Soil permeability	0.0028 to 28.08 ft/day	Overburden lithology is composed of clay with lenses of silt and sand with varying amounts of clay and gravel. Due to variability of the aquifer soil, a range of K values was input into the model for clay, silt and sand, respectively. Book values Freeze and Cherry, 1979. Slug test data was not collected during site characterization activities. Off-site feasibility test data estimated a K-value of 24.16 ft/day.
Hydraulic Gradient (ft/ft)	Slope of water table	0.15	Value calculated from groundwater sampling data collected February 2015.
Porosity (dec. frac.)	Effective porosity	0.18	Upper range book value for clay accounting for the presence of silt and gravel. Book value from McWhorter and Sunada, 1977.
Soil Bulk Density (gm/cm ³)	Dry weight of soil/volume	1.8	Book value obtained from PA Code 25, Chapter 250.307
KOC	Organic Carbon Partition Coefficient	12	Book value obtained from PA Code 25, Chapter 250, Table 5
Fraction Organic Carbon	Fraction of Organic Carbon	0.005	Book value obtained from PA Code 25, Chapter 250.307
Distance from source area (MW-19) to receptor (ft)	Site-specific field data	191	Distance from MW-19 to the downgradient receptor (MW-20).

Figure I-1

QD Model - MTBE - Calibration

United Refining Company
Kwik Fill Station #M-061
227 East Main Street
Bradford, PA



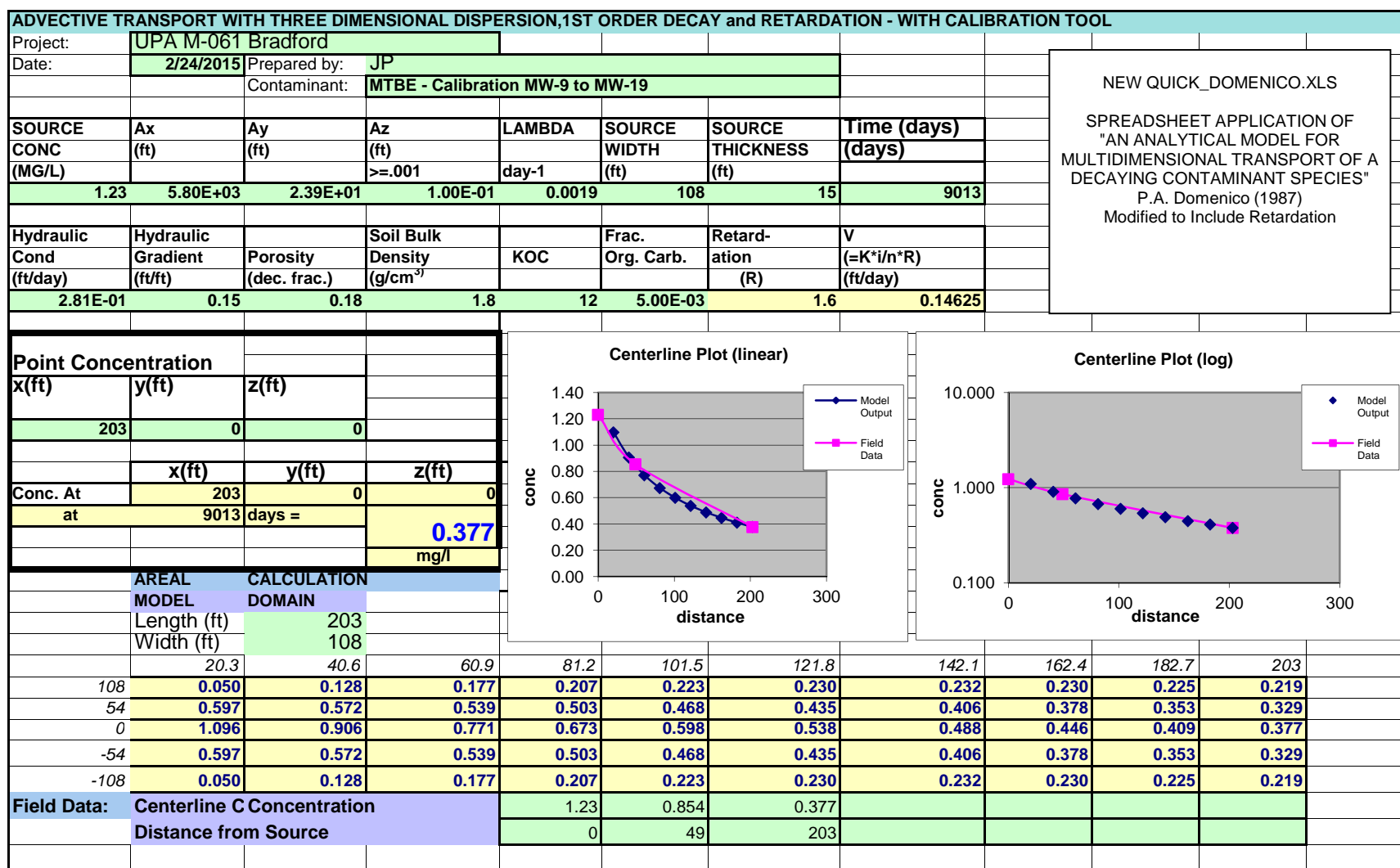
NEW QUICK_DOMENICO.XLS

SPREADSHEET APPLICATION OF
"AN ANALYTICAL MODEL FOR
MULTIDIMENSIONAL TRANSPORT OF A
DECAYING CONTAMINANT SPECIES"
P.A. Domenico (1987)
Modified to Include Retardation

Figure I-2

QD Model - MTBE - Calibration

United Refining Company
Kwik Fill Station #M-061
227 East Main Street
Bradford, PA



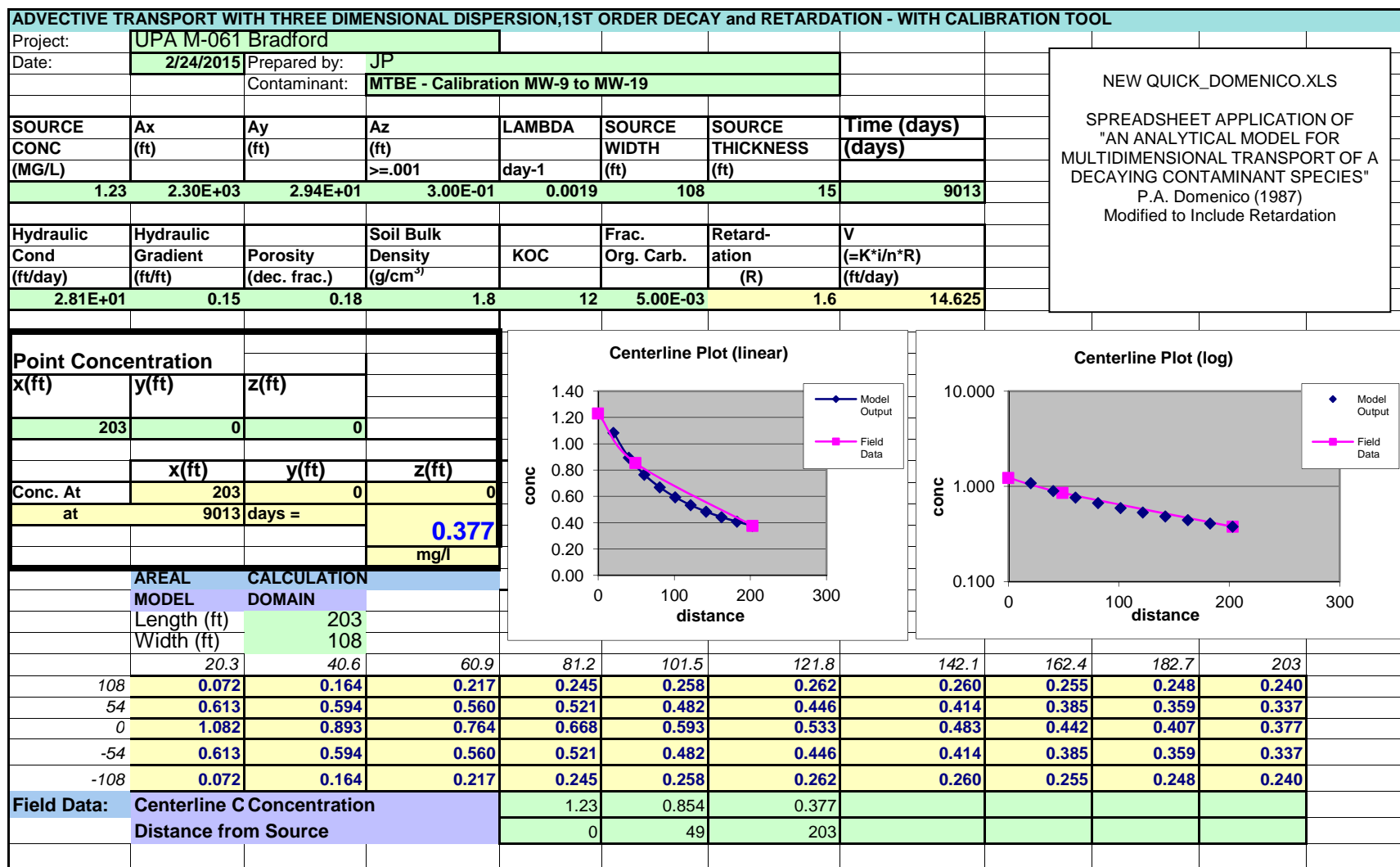
NEW QUICK_DOMENICO.XLS

SPREADSHEET APPLICATION OF
"AN ANALYTICAL MODEL FOR
MULTIDIMENSIONAL TRANSPORT OF A
DECAYING CONTAMINANT SPECIES"
P.A. Domenico (1987)
Modified to Include Retardation

Figure I-3

QD Model - MTBE - Calibration

United Refining Company
Kwik Fill Station #M-061
227 East Main Street
Bradford, PA



NEW QUICK_DOMENICO.XLS

SPREADSHEET APPLICATION OF
"AN ANALYTICAL MODEL FOR
MULTIDIMENSIONAL TRANSPORT OF A
DECAYING CONTAMINANT SPECIES"
P.A. Domenico (1987)
Modified to Include Retardation

QD Model - MTBE - Concentration at Receptor

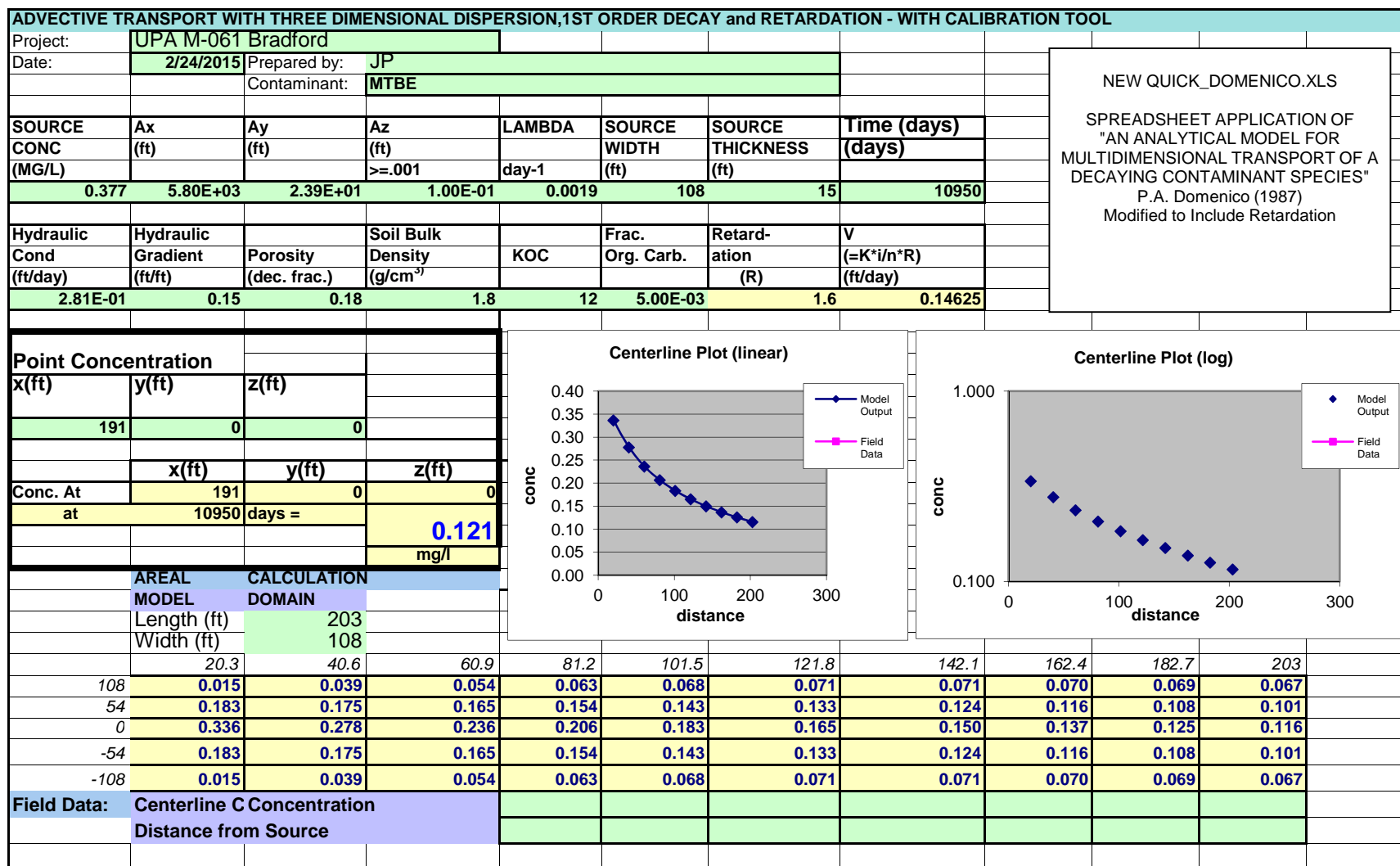
NEW QUICK_DOMENICO.XLS

SPREADSHEET APPLICATION OF
"AN ANALYTICAL MODEL FOR
MULTIDIMENSIONAL TRANSPORT OF A
DECAYING CONTAMINANT SPECIES"
P.A. Domenico (1987)
Modified to Include Retardation

Figure I-5

QD Model - MTBE - Concentration at Receptor

United Refining Company
Kwik Fill Station #M-061
227 East Main Street
Bradford, PA



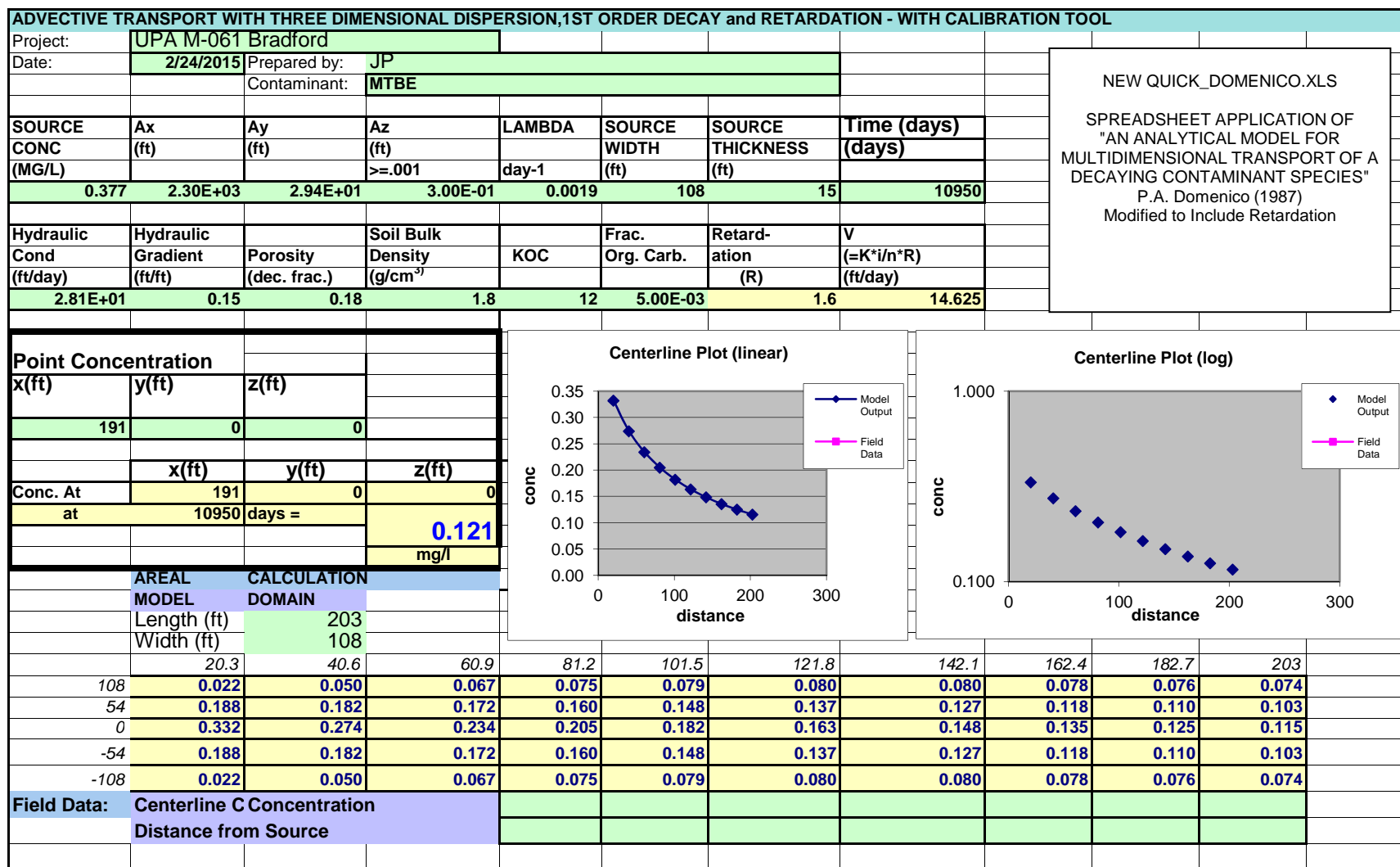
NEW QUICK_DOMENICO.XLS

SPREADSHEET APPLICATION OF
"AN ANALYTICAL MODEL FOR
MULTIDIMENSIONAL TRANSPORT OF A
DECAYING CONTAMINANT SPECIES"
P.A. Domenico (1987)
Modified to Include Retardation

Figure I-6

QD Model - MTBE - Concentration at Receptor

United Refining Company
Kwik Fill Station #M-061
227 East Main Street
Bradford, PA



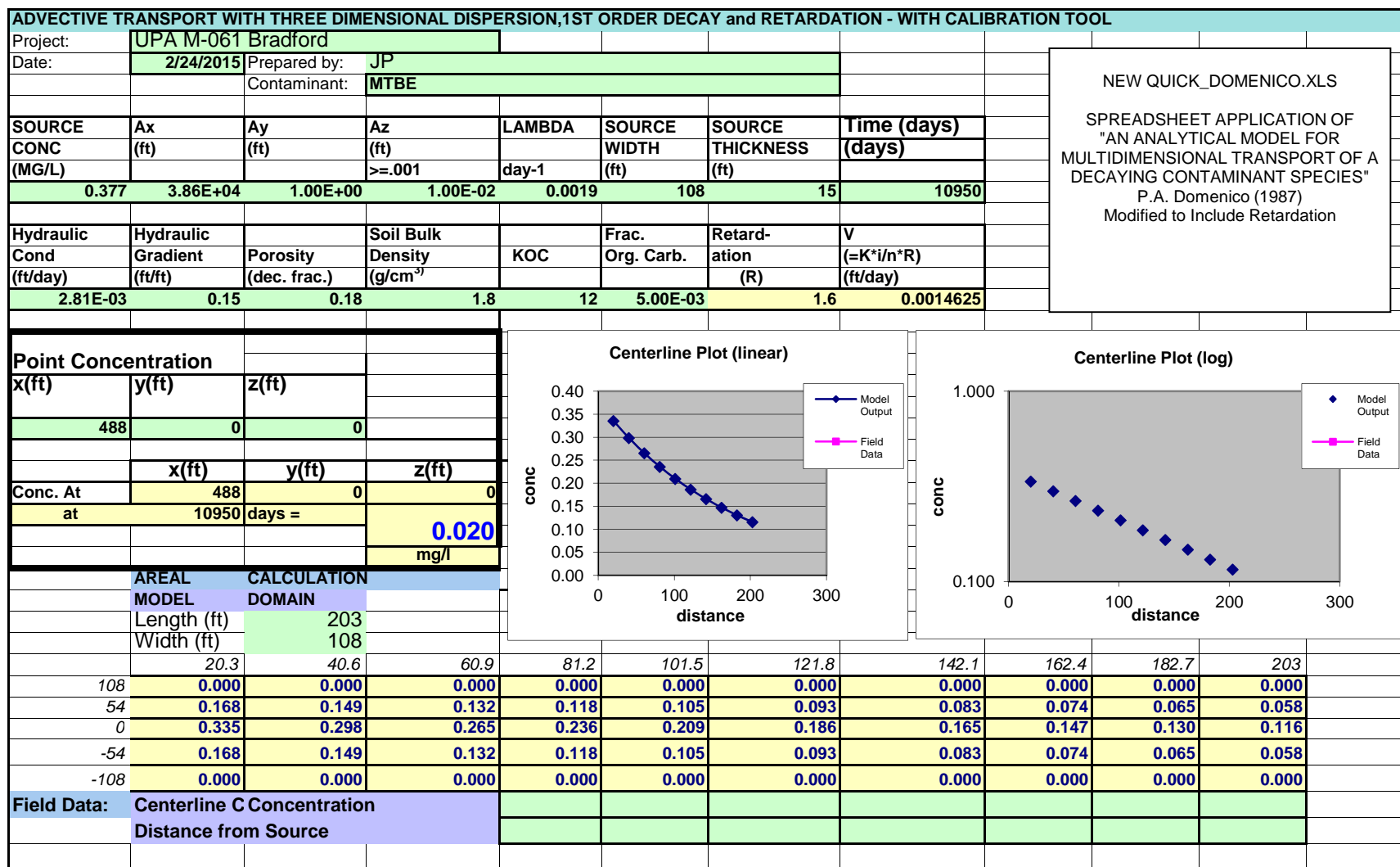
NEW QUICK_DOMENICO.XLS

SPREADSHEET APPLICATION OF
"AN ANALYTICAL MODEL FOR
MULTIDIMENSIONAL TRANSPORT OF A
DECAYING CONTAMINANT SPECIES"
P.A. Domenico (1987)
Modified to Include Retardation

Figure I-7

QD Model - MTBE - Distance to U/R MSC

United Refining Company
Kwik Fill Station #M-061
227 East Main Street
Bradford, PA


Field Data:

Centerline C Concentration
Distance from Source

Centerline Plot (linear)

Centerline Plot (log)

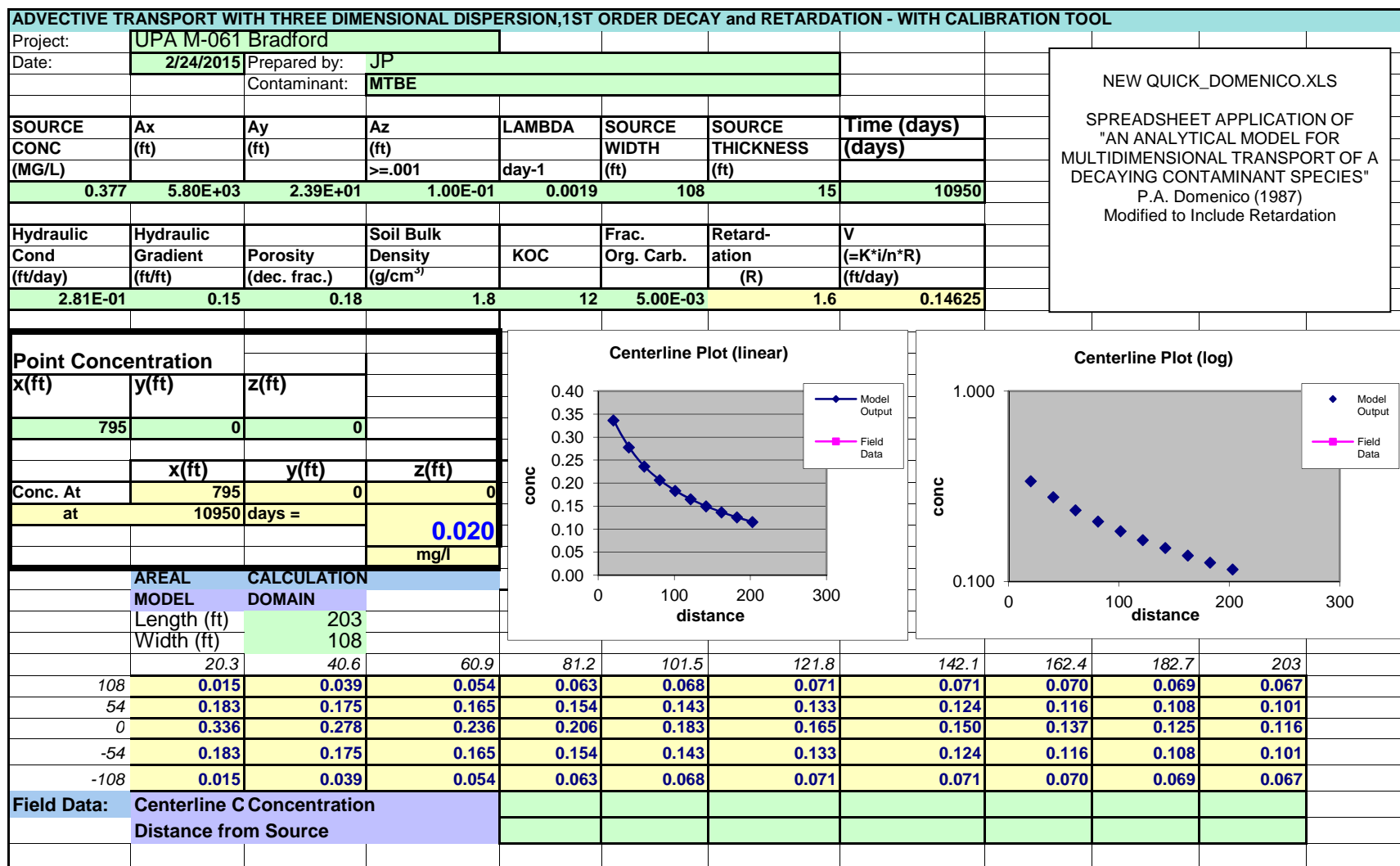
NEW QUICK_DOMENICO.XLS

SPREADSHEET APPLICATION OF
"AN ANALYTICAL MODEL FOR
MULTIDIMENSIONAL TRANSPORT OF A
DECAYING CONTAMINANT SPECIES"
P.A. Domenico (1987)
Modified to Include Retardation

Figure I-8

QD Model - MTBE - Distance to U/R MSC

United Refining Company
Kwik Fill Station #M-061
227 East Main Street
Bradford, PA



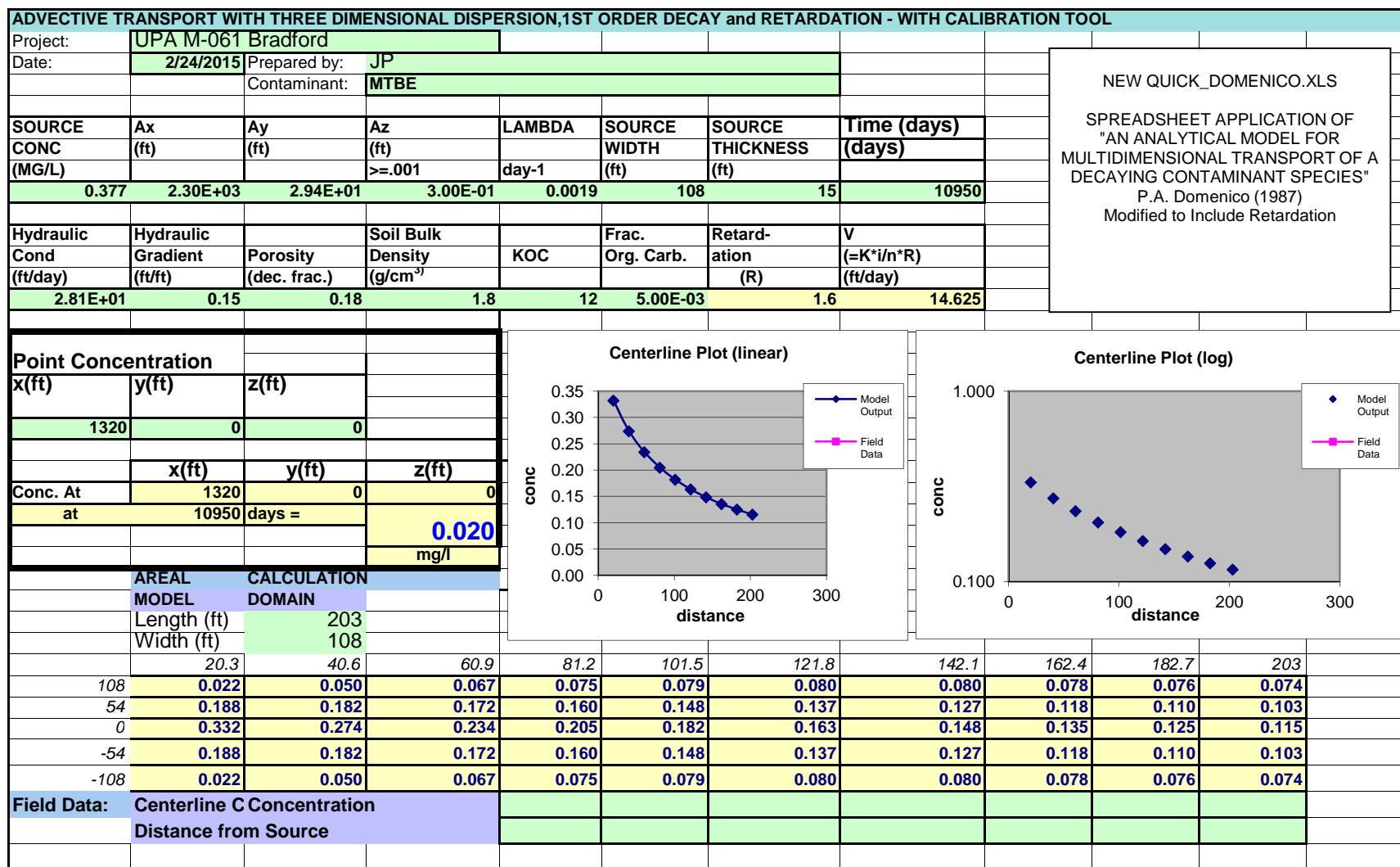
NEW QUICK_DOMENICO.XLS

SPREADSHEET APPLICATION OF
"AN ANALYTICAL MODEL FOR
MULTIDIMENSIONAL TRANSPORT OF A
DECAYING CONTAMINANT SPECIES"
P.A. Domenico (1987)
Modified to Include Retardation

Figure I-9

QD Model - MTBE - Distance to U/R MSC

United Refining Company
Kwik Fill Station #M-061
227 East Main Street
Bradford, PA



NEW QUICK_DOMENICO.XLS

SPREADSHEET APPLICATION OF
"AN ANALYTICAL MODEL FOR
MULTIDIMENSIONAL TRANSPORT OF A
DECAYING CONTAMINANT SPECIES"
P.A. Domenico (1987)
Modified to Include Retardation