APPLIED ENGINEERING, INC.
1161 WAYZATA BLVD E., STE #60
WAYZATA, MINNESOTA 55391-2533
Applied@AppliedEngineeringUSA.Com
PH # 952-939-9095

March 28, 2015

Roric Gilmer
Waste Management of Minnesota, Inc.
Savage, MN 55378
sent via email, rgilmer@wm.com

RE: MPCA Investigation Report; 12448 Pennsylvania Ave S., Savage, MN
AE #3D15, MPCA Leak #19157

Dear Roric:

Attached is a completed MPCA Remedial Investigation Report. In summary, Applied Engineering was at the referenced location to oversee the installation of Geoprobe soil borings and to perform related environmental work.

The results of our investigation are contained in the attached report along with our conclusions. Based on the results, we recommend no further action and MPCA file closure. However, our recommendation is subject to review by the MPCA.

Upon your review / comments, you should forward this report to the MPCA Project Manager, Katheryn Serier.

Please call me if you'd like to discuss this further, 952-939-9095.

Thomas A. Greene

Applied Engineering, Inc.
Thomas A. Greene, P.E.

Atch: Report

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MPCA INVESTIGATION REPORT

Location:

Waste Management
12448 Pennsylvania Ave S.
Savage, MN 55378

for

Roric Gilmer
Waste Management
12448 Pennsylvania Ave S.
Savage, MN 55378

Applied Engineering Proj #3D15
MPCA Site Leak #19157

March 18, 2015

Minnesota Pollution Control Agency

Investigation Report Form

Guidance Document 4-06

Complete this form to document site investigation activities, including Limited Site Investigations (LSIs) and Remedial Investigations (RIs). Do not revise or delete any text or questions from this report form. Include any additional information that is important for making a site management decision. If only an LSI is necessary, some questions do not need to be answered and have been identified in the form. Highlighted text contains instructions and references to related guidance documents for that section or question. Refer to Minnesota Pollution Control Agency (MPCA) Guidance Document 1-01 *Petroleum Remediation Program General Policy* for the overall site investigation objectives and to other MPCA guidance documents for details on investigation requirements and methods.

MPCA Site ID: Leak000 19157 Date: March 18, 2015

Responsible Party Information

Name: Waste Management of Minnesota, Inc. Phone #: 952-229-0081

Mailing Address: 12448 Pennsylvania Ave S.

City: Savage Zip Code: 55378

Alternate Contact (if any) for Responsible Party: Roric Gilmer Phone #: 952-229-0081

Leak Site Information

Leak Site Name: Waste Management Phone #: 952-229-0081

Leak Site Address: 12448 Pennsylvania Ave S., Savage, MN 55378

County: Dakota

Environmental Professional Information

By signing this document, I/we acknowledge that we are submitting this document on behalf of and as agents of the responsible person or volunteer for this leak site. I/we acknowledge that if information in this document is inaccurate or incomplete, it will delay the completion of remediation and may harm the environment and may result in a reduction in Petrofund reimbursement. In addition, I/we acknowledge on behalf of the responsible person or volunteer for this leak site that if this document is determined to contain a false material statement, representation, or certification, or if it omits material information, the responsible person or volunteer may be found to be in violation of Minn. Stat. § 115.075 (2007) or Minn. R. 7000.0300 (Duty of Candor), and that the responsible person or volunteer may be liable for civil penalties.

MPCA staff are instructed to reject unsigned reports and reports that have been altered.

Name and Title of Report Author(s)	Signature	Date Signed
Thomas Greene, Proj Mgr	Thomas A. Greene	03/18/2015

Name and Title of Report Reviewer(s)	Signature	Date Signed
Thomas Greene, Proj Mgr	Thomas A. Greene	03/18/2015

Name(s) of Field Technician(s): Thomas Greene

Company and Mailing Address: Applied Engineering, Inc.
1161 Wayzata Blvd E., Ste #60
Wayzata, MN 55391

Project Manager E-mail Address: tom@appliedengineeringusa.com
Phone: 952-939-9095
Fax: 952-939-0178

Emergency and High Priority Sites

A. Is an existing drinking water well impacted or likely to be impacted within a two-year travel time? ☐ *Yes* ☒ *No*

B. Is a hydrogeologically sensitive aquifer impacted that is tapped by water wells that are within 500 feet from the release source? **If *YES***, explain below. ☐ *Yes* ☒ *No*

C. Has the public water supply risk assessment concluded that the site is a high priority site with respect to a public water supply well (see Guidance Document 4-18 *Public Water Supply Risk Assessment at Petroleum Remediation Sites*)? ☐ *Yes* ☒ *No*

D. Is there an existing surface water impact as indicated by 1) a petroleum sheen on the surface water or 2) a petroleum sheen or volatile organic compounds in the part per million range observed in a ground water sample collected close to the surface water? ☐ *Yes* ☒ *No*

E. Has free product been detected at the site? **If *YES***, attach Guidance Document 2-03 *Free Product Recovery Report Worksheet* in Section 6. ☐ *Yes* ☒ *No*

F. Are there any existing field-detectable vapor impacts (photoionization detector, explosimeter, odors, etc.) to a receptor? ☐ *Yes* ☒ *No*

G. Did the vapor intrusion assessment detect contaminants in excess of acute intrusion screening values (see Guidance Document 4-01a *Vapor Intrusion Assessments Performed during Site Investigations*)? ☐ *Yes* ☒ *No*

If you answered ***YES*** to any of questions A through G above, describe below the actions taken to date to reduce or eliminate the risk posed by the release.

Section 1: Site Assessment

Site and Release Information

Complete Guidance Document 1-03a *Spatial Data Reporting Form,* Guidance Document 2-05 *Release Information Worksheet* if 3-02 *General Excavation Report Worksheet* was not completed, and include in Section 6.

1.1 Describe the land use and pertinent geographic features (e.g., topographic changes, surface waters, etc.) within 1,000 feet of the site. Illustrate these features using the Site Location Map, aerial photographs, and Sanborn Fire Insurance Maps™ for the various time periods they are available in Section 4.

The land use within 1,000 feet of the site is commercial, state highway, and undeveloped land. The area is generally level and there is a large wetland area beginning approximately 920 feet to the north.

1.2 Briefly describe the history of the site and any past site investigation work that may have been completed. If a Phase I or Phase II report has been prepared for this site, include a copy in Section 6.

According to the owner, the site was purchased by Waste Management in the early 1990's. They currently use an above ground storage tank for fueling their own vehicles. Prior to that, they used the underground diesel fuel storage tank.

The underground diesel storage tank was removed 6/27/13. As a result of the release detected during removal, follow-up soil borings were installed 5/5/14. The borings were accomplished by NCG Drilling, sub-contracted to Stevens Drilling, and overseen by Applied Engineering, Inc.

1.2 List other potential petroleum sources within 500 feet of the site and identify them on the Potential Receptor Map in Section 4.

The only other potential petroleum source is the on-site above ground diesel fuel storage tank.

1.3 Describe the status of the tank system(s) including current and former tanks, piping, and dispensers. Summarize the status and characteristics of all past and present tanks in Table 1 and identify all components on a Site Map.

The 10,000 gallon underground diesel fuel storage tank, two dispensers, product lines, and vent lines were removed in June, 2013 by B & H Petroleum Equipment Co. Details of the removal are contained in the MPCA Excavation Report attached to this report in Appendix A.

1.4 Briefly describe the known or suspected source(s) of the release and how it was discovered.

The initial release was identified on the groundwater in the tank basin during removal of the underground diesel fuel tank. The suspected source of the release is likely due to occasional overfills of the tank.

The highest DRO concentrations were identified beneath the two nearby removed pumps. The suspected source of this release is likely due to line leakage.

1.6 When did the release occur (if known)? Unknown

1.7 What was the volume and type(s) of petroleum product released (if known)?
Unknown gallons Released product type(s): Diesel Fuel

When a tank has been excavated, refer to Guidance Documents 3-01 *Excavation of Petroleum Contaminated Soil and Tank Removal Sampling* and 3-02 *General Excavation Report Worksheet* for reporting requirements. If a tank has been excavated or if contaminated soil was removed for off-site treatment prior to this investigation, include Guidance Document 3-02 in Section 6.

1.8 Was soil excavated for off-site treatment? ☐ *Yes* ☒ *No*

Date(s) soil was excavated: Total volume removed: cubic yards

Volume of total soil removed that was petroleum saturated: cubic yards

Soil treatment method:
☐ Land treatment
☐ Thermal treatment
☐ Composting/Biopiling
☐ Other ( )
Name and location of treatment facility:

If you checked "Other", describe how the soil was treated and attach applicable documentation at the end of the reporting form.

Site-Specific Geology and Hydrogeology

1.9 Discuss the soil borings drilled and provide rationale for their locations. Include boring logs in Section 6. Boring logs must include all the information required in Guidance Document 4-01 *Soil and Ground Water Assessments Performed during Site Investigations*.

Boring GP-1 was installed at the pump island, the worst-case location
Borings GP-2, 6, and 7 were installed east of the pump island to define the horizontal extent to the east
GP-7 not only assessed the point furtherst to the east, but was also in close proximity to the existing above ground storage tank
Boring GP-3 was installed to define the horizontal extent to the north
Boring GP-4 was installed to define the horizontal extent to the south
Boring GP-5 was installed to define the horizontal extent to the west
GP-Air1 was installed at the worst case location
GP-Air2 was installed to the north to assess the potential vapors in the direction of the on-site building

1.10 Indicate the locations and depths of soil samples submitted for grain size analysis.

Samples were submitted for grain size analysis from boring GP-1 at depths of 4, 10, and 16 feet deep, the interval considered most representative of estimated groundwater fluctuation.

1.11 Discuss in detail the site geology based on soil boring data, grain size analyses, cross sections, geologic logs of nearby water wells, and available published information. Include detailed descriptions of more porous lenses or stringers within tighter soil types.

Based on soil boring results, site stratigraphy consists of silts and clays to 6' deep, then sand to approximately 16’ deep, thereafter refusal was encountered. Groundwater was encountered in all borings around 2' deep.

According to the Scott County Geologic Atlas, the soil in the area is “Silty clay loam to sandy loam—Interbedded with layers of fine-grained sand and gravel. Organic debris may be disseminated in the sediments and/or form discrete peat beds. Sediment in the Minnesota River valley is generally finer-grained and consists of a mixture of silt and clay with variable amounts of very fine-grained sand and organic matter. Coarser-grained sediment may be present within the river channel. Floodplain alluvium.”

The nearest wells identified by the MDH CWI database are located approximately 700 feet north of the site. Unlike the on-site borings which identified lime rock at 16' deep, none of them identify lime rock until a depth of 115'. Unique well 811809 located approximately 2,000 feet south of the site indicates lime rock at 27' deep.

Based on information from the closest available water supply well logs identified in the County Well Index (CWI), soils are various combinations of clays, silts and sands until encountering lime rock, depths which vary as previously described.

The grain size analyses for the three collected samples indicate mostly fine sand with a combined component of silt and clay ranging from 3.1% to 4.2%.

Other than the shallower lime-rock observed on-site, the above sources of geologic information appear generally consistent with one another.

1.12 Discuss in detail the local and regional hydrogeology based geologic logs of nearby water wells and available published information.

According to the Scott County Geologic Atlas, the elevation of the regional groundwater table is approximately 700'. The surface elevation of the site is approximately 726', thus the depth to the regional groundwater is calculated to be approximately 26' below ground surface. The soil borings encountered water at approximately 2 feet, indicating it is apparently perched in the upper clay and silty soils.

According to the Scott County Geologic Atlas, the regional groundwater flow is to the north, toward the Minnesota River. Its associated wetlands are located approximately 1000 feet north of the site.

1.13 Discuss site ground water flow direction using soil boring data, monitoring well data if collected, plume geometry, and available published information.

The groundwater levels in the soil borings were measured and the boring locations were surveyed, resulting in a calculated groundwater flow direction to the east-southeast.

1.14 Describe any evidence of a fluctuating water table or a seasonal high water table (e.g., mottling, saturated soil color or gleyed soils, monitoring well observations). Also, from other sources of information describe the range of natural water table fluctuations in the area.

No mottling, gleyed soils, or other indicators of water table fluctuation were observed in the soil boring samples.

No other sources of information are identified and readily available that indicate the range of natural water table fluctuations in the area.

Extent and Magnitude of Soil Contamination

1.15 Were soil borings conducted in or adjacent to the following source areas?

Dispensers	☒ *yes* ☐ *no* ☐ *not present*	Piping	☒ *yes* ☐ *no* ☐ *not present*
Transfer areas	☐ *yes* ☐ *no* ☒ *not present*	Remote fill pipes	☐ *yes* ☐ *no* ☒ *not present*
UST basins	☒ *yes* ☐ *no* ☐ *not present*	Valves	☐ *yes* ☐ *no* ☒ *not present*
AST basins	☒ *yes* ☐ *no* ☐ *not present*	Known spill areas	☐ *yes* ☐ *no* ☒ *not present*

As shown on attached sketch

1.16 Horizontal Definition: Based on requirements described in Guidance Document 4-01, were a sufficient number of soil borings completed to define the horizontal extent of soil contamination in all directions? ☒ *Yes* ☐ *No*

1.17 Vertical Definition: Based on requirements described in Guidance Document 4-01, were all soil borings completed to the required depth? ☐ *Yes* ☒ *No*

1.18 Site Stratigraphy: Based on requirements described in Guidance Document 4-01, was the stratigraphy boring completed to the required depth? ☐ *Yes* ☒ *No*

If you answered ***NO*** to any of the four previous questions, explain why the borings were not conducted in the required locations or to the required depths. See Guidance Document 4-01 *Soil and Ground Water Assessments Performed during Site Investigations* regarding exceptions and MPCA approval for depth of drilling.

1.17 Vertical Definition – MPCA Document 4-01 states to complete at least one soil boring to 20 feet below the deepest site contamination. At this site, the deepest contamination was detected at 6 feet deep and the deepest boring was completed at 16 feet deep. Completing the boring any deeper was not possible due to refusal and what appeared to be weathered lime rock.

1.18 Site Stratigraphy – MPCA guidelines state to drill at least one boring to 20 feet below the water table. However, completing the boring any deeper than 16' was not possible due to refusal and what appeared to be weathered lime rock.

1.19 Describe the vertical and horizontal extent and magnitude of soil contamination based on field observations, soil headspace measurements (Table 2), and soil analytical results (Tables 3 and 4). If non-petroleum contaminants are present, discuss the possible sources of these compounds. Provide a map and two cross sections that illustrate both soil headspace and laboratory analytical results in Section 4. Include laboratory analytical reports and soil sampling methodology in Section 6.

The horizontal extent of the soil contamination appears to be limited to the area immediately adjacent to the tank basin area and pump island area plus the area extending approximately 76 feet east of the pumps, where the eastern-most soil

boring was installed. This is based on the assessment accomplished at the time of the tank removal and based on the seven soil borings installed.

The vertical extent of the contamination appeared to diminish to non-detect at 6 feet deep in all the borings where petroleum was detected, based on field PID measurements and confirmed by laboratory analysis.

1.20 Is contaminated soil in contact with ground water? ☒ *Yes* ☐ *No*

If *YES*, or if ground water contamination appears likely, then complete the **Aquifer Determination** section below.

If *NO*, complete question 1.21.

1.21 **a)** What is the distance separating the deepest contamination from the surface of the water table?

b) Was this distance measured during site activities, referenced from geologic information, or estimated based on professional opinion during a site visit?

c) In your judgment, is there a sufficient distance separating the petroleum contaminated soil from the underlying aquifer to prevent contamination of the aquifer? ☐ *Yes* ☐ *No*

Please explain in detail. In your explanation, consider the site-specific geology, the data in this section, and the nature of the petroleum release (i.e., volume, age, released product type).

If *YES*, the **Aquifer Determination** is not necessary as part of the LSI.

If *NO*, complete the **Aquifer Determination** section below.

1.22 Is contaminated surface soil (0-2 feet) present at the site? ☐ *Yes* ☒ *No*

If *YES*, delineate the extent of contaminated surface soil, identify the extent(s) of contaminated surface soil on a Site Map, and propose a corrective action in Section 3 to mitigate the impacts. If borings were used to define the extent, complete Table 5. See Guidance Document 3-01 *Excavation of Petroleum Contaminated Soil and Tank Removal Sampling* for more information regarding contaminated surface soil identification, delineation, and excavation.

Aquifer Determination

Complete this section if ground water has been contaminated or may become contaminated based on questions 1.20 and 1.21. Aquifer determination is made during the LSI. It is based upon the stratigraphy and a hydraulic conductivity measurement calculated from grain size analyses. The site stratigraphy gives the context within which the hydraulic conductivity measurement can be interpreted. Please refer to Guidance Document 4-01 *Soil and Ground Water Assessments Performed during Site Investigations* for methods and requirements. Provide the results of grain size analyses, calculations, and other information used for the determination of hydraulic conductivity in Section 6. Determine the aquifer thickness (b) from geologic logs of soil borings, water well logs, and available published information.

1.23 Calculate an average hydraulic conductivity Value (K). K = 306 ft/day
(Hazen Method)

Indicate the calculation method (e.g. Hazen, Masch and Denny, Kozeny-Carmen, etc.).

1.24 Calculate a range for aquifer transmissivity (T) using the equation T = Kb, where b is the thickness of the aquifer.
T_{High} = 4,287 ft^2/day
T_{Low} = 4,287 ft^2/day
(based on groundwater at 2' deep and weathered lime-rock at 16' deep)

If the transmissivity of a contaminated hydrogeologic unit is greater than 50 ft^2/day, it is considered an aquifer for the purpose of the Petroleum Remediation Program. If the hydrogeologic unit meets the definition of an aquifer, then monitoring wells are required if any of the following conditions are met: 1) ground water is impacted at or above Minnesota Department of Health (MDH) Health Risk Limits (HRLs) or 1,000 µg/L GRO or DRO; 2) ground water is impacted below the HRLs but levels are likely to reach the HRLs; or 3) there is an insufficient distance separating the petroleum contaminated soil (or an impacted non-aquifer) from an underlying aquifer. If monitoring wells were installed complete the **Aquifer Characterization** section below as part of an RI.

Aquifer Characterization

1.25 Discuss the drilling and installation of monitoring wells including the rationale for their locations. Summarize their construction in Table 9. Attach boring logs, well construction diagrams, and well logs in Section 6.

N/A- Temporary wells area used for data in this section; no permanent monitoring wells were installed

1.26 Is there a clean or nearly clean (below HRLs) downgradient monitoring well located along the longitudinal axis of the contaminant plume (approximately 20 degrees plus or minus the axis)? ☒ *Yes* ☐ *No*

1.27 Is there a worst case well completed through the source area(s) of the release? ☒ *Yes* ☐ *No*

If you answered ***NO*** to any of the above two questions, please explain why a well was not completed in the required location.

1.28 Provide an estimate of the longitudinal length of the dissolved contaminant plume: 170 feet

1. 29 Calculate ground water flow velocity (based on Darcy's Law) using the average hydraulic conductivity (K), average horizontal hydraulic gradient (dh/dl), and effective porosity (n). Provide documentation and show calculations in Section 6.

Hydraulic conductivity (K) = 306 ft/day
(Method if different than that used in 1.23: N/A)
Porosity (n) = 0.33 method/reference - McWorter and Sunada (1977).
Average horizontal gradient (dh/dl) = 0.0084 (unitless)
Calculated ground water velocity (v) = 5.24 ft/day

1.30 Using the calculated ground water flow velocity from question 1.29, is there a receptor(s) located within a five-year travel time from the source area? ☒ *Yes* ☐ *No*

If *YES*, describe the location and type of receptor(s).
Commercial wells are located approximately ¼ mile north of the release.

1.31 Were any deep monitoring wells completed at the site? ☐ *Yes* ☒ *No*

If *YES*, list them and indicate their depths:

Contact the MPCA project hydrologist before installing a deep monitoring well. A deep monitoring well **may** be necessary if: 1) contamination exists more than 10 feet below the water table or 2) the impacted aquifer is a drinking water aquifer or is hydraulically connected to the aquifer(s) presently used by a water supply well located within 500 feet of the release source.

If contamination is present at depth in the aquifer or in deeper aquifers, additional deep wells may be required. Provide the following information if deep wells were installed:

Vertical gradient (dv/dl)
Inferred ground water flow direction

Provide the following information for the deep aquifer unit if it appears to be hydrogeologically distinct from the upper unit.

Porosity (n):
Hydraulic conductivity (K) ft/day

Submit this RI report after completing a minimum of *two quarterly sampling events*. Quarterly ground water monitoring and sampling should continue until MPCA response is received.

Extent and Magnitude of Ground Water Contamination

1.32 Describe the extent and magnitude of ground water contamination based on the analytical results of samples collected as part of an LSI (Tables 6, 7, and 8) and, if applicable, monitoring well samples collected as part of an RI (Tables 10, 11, and 12). Provide Site Maps that illustrate both the laboratory analytical results and, if applicable, ground water gradients in Section 4.

The groundwater impact appears to be generally defined by the temporary wells installed during the investigation. The plume geometry indicated an easterly flow based on field readings during the boring installations. Follow-up groundwater elevation calculations indicated a similar flow direction with more of a southerly component resulting in more of an east-southeast flow direction.

This direction is not consistent with the regional flow which is depicted in the county Geologic atlas as north. This is likely explained due to the observed water being an independent perched aquifer, not part of the regional water table system.

The highest magnitude of groundwater impact was detected in the worst-case boring, GP-1, with DRO concentrations of 10,200 ppb. DRO concentrations diminished to 1,530 ppb in GP-7, 93 feet to the east. Toluene concentrations were detected in GP-1at 1.81 ppb.

No other BTEX concentrations were detected in borings GP-1 to GP-6.

BTEX concentrations appeared in boring GP-7 at 1.41 ppb benzene; 172 ppb ethylbenze; 2.65 ppb toluene; and 1170 ppb xylenes. GP-7 is closest to the newer above ground storage tank which may account for the BTEX detections.

All detected concentrations are below Minnesota Department of Health drinking water standards.

1.33 If non-petroleum contaminants are present, discuss the possible sources of these compounds.

4-Chlorotoluene was detected at a concentration of 4.48 ug/l in GP-7. Readily available information does not identify 4-Chlorotoluene as a component of gasoline, however due to the vast number of gasoline formulations and additives, there is a possibility it may be a component. The MDH drinking water criteria for it is 100 ug/l.

1.34 Provide a discussion on QA/QC, including information on the samples collected and laboratory analyses performed. Include laboratory analytical reports and ground water sampling methodology in Section 6.

The samples were collected following prescribed MPCA guidelines as described in Appendix G. There were no known deviations to the prescribed guidelines between sample collection and relinquishment to the laboratory.

Based on review of the laboratory reports, fixed base laboratory control samples (LCS) and lab control samples duplicate (LCSD) results in general appear to adequately meet method criteria, i.e., process extraction was ideal, neither biased high nor low.

1.35 Laboratory certification number:

Pace Analytical, MN Certification # 027-053-137 (UST closure)
TestAmerica, MN Certification # 019-999-319 (LSI investigation)

Evaluation of Natural Attenuation

Refer to the Guidance Document 4-03 *Assessment of Natural Attenuation at Petroleum Release Sites.* **Note**: Evaluation of natural attenuation is not required unless requested by MPCA staff.

1.36 Discuss the results of the natural attenuation assessment (Table 13). Specifically, compare the concentrations of the inorganic parameters inside and outside the plume and whether the data indicate natural biodegradation is occurring at the site.

1.37 If active remediation is anticipated, discuss reasons why natural attenuation (including biodegradation) can not adequately remediate the contaminants to acceptable risk levels.

Extent and Recovery of Free Product

If free product is encountered during the investigation, include Guidance Document 2-03 *Free Product Recovery Report Worksheet* in Section 6. See Guidance Document 2-02 *Free Product: Evaluation and Recovery* for additional information.

1.38 If free product was encountered during the site investigation, describe the work completed to delineate the extent of the free product zone and what efforts were or are being completed to recover it. Tabulate the volume of product recovered in Table 14. Illustrate the estimated horizontal extent of the free product zone on a Site Map in Section 4.

N/A

Section 2: Risk Assessment

Well Receptors

List all properties located within 500 feet of the site in Table 15. Identify all properties listed in Table 15 on the Potential Receptor Map in Section 4.

List all wells located within 500 feet of the site and any municipal or industrial wells within ½ mile in Table 16. All water wells within 500 feet of the release source must be listed even if construction information was not obtained or available. Include all available water supply well logs obtained from Minnesota Geological Survey, MDH, drillers, or county well management authorities, and any other well construction documentation in Section 6. Identify all wells listed in Table 16 on the Well Receptor Survey Map in Section 4.

2.1 Were all property owners within 500 feet of the site successfully contacted to determine if water wells are present? ☒ *Yes* ☐ *No*

If *NO*, please explain.

All addresses within 500 feet of the site were mailed letters requesting a response if a water well is present at the address. Non-responses and non-deliverable returned letters are assumed verification that no wells are on-site.

2.2 Discuss any physical limitation to the inspection of properties within the 500-foot survey radius.

The physical inspection was limited to what was readily visible on the properties from the public street and cannot account for wells blocked by structures, vegetation, or other obstructions on the property.

2.3 Discuss the results of the ground water receptor survey. Comment on the risks to water supply wells identified within 500 feet from the site as well as the risk posed by or to any municipal or industrial wells found within ½ mile. Specifically indicate whether identified water supply wells use the impacted aquifer. (Note: an impacted aquifer separated from another aquifer by a clay lens may not be considered a separate aquifer).

There are no wells identified within 500 feet of the site.

A municipal well is located approximately ½ mile southwest of the site. The well does not use the impacted aquifer.

Commercial well 211815, approximately 700' northwest and commercial well 207946 approximately 700' northeast do not appear to use the same aquifer. These wells are not likely impacted based on their distance from the source and the low to non-detect BTEX concentrations detected in the collected groundwater samples.

2.4 If water samples were collected from nearby water wells, discuss the analytical results below and tabulate them in Tables 11 and 12.

2.5 Is municipal water available in the area? ☒ *Yes* ☐ *No*

2.6 Based on the public water supply risk assessment, is the site located in a Source Water Assessment Area or Drinking Water Supply Management Area (see Guidance Document 4-18 *Public Water Supply Risk Assessment at Petroleum Remediation Sites*)? ☐ *Yes* ☒ *No*

If *YES*, provide the name of the area and include the required documentation in Section 6.

2.7 Are there any plans for ground water development in the impacted aquifer within ½ mile of the site or one mile downgradient of the site if the aquifer is fractured? ☐ *Yes* ☒ *No*

Provide the name, title and telephone number of the person that was contacted for this information.

Name: Mike Klimers Title: Savage Utility Services Superintendent Tel: 952-224-3440

Surface Water Receptors

2.8 Are there any surface waters or wetlands located within ¼ mile of the site? ☒ *Yes* ☐ *No*

If *YES*, list them along with their distance and direction from the site in Table 17.

There is a large wetlands area located about 1,200 feet north of the release.

Also, list below any potential pathways such as ditches, drain tiles, storm sewers, etc., that may lead to the identified surface water features.

The local storm sewer discharges into the wetlands area.

2.9 If surface water is present downgradient of the site, is there a clean downgradient soil boring or monitoring well located between the site and the surface water? ☒ *Yes* ☐ *No* ☐ *NA*

If *YES*, identify the clean downgradient boring or well, distance to the surface water feature, and discuss the contamination risk potential.

The "clean" boring is GP-3, north of worst-case boring GP-1. The groundwater sample analytical results detected no BTEX compounds. DRO concentrations were detected at 480 ppb. The wetlands is located 1,200 feet away and therefore any risk of impact does not appear significant.

If *NO*, and ground water from a downgradient boring or well is contaminated, we assume that contamination discharges to the surface water. Therefore, provide the following information:

Name of receiving water:	
Plume width, (W):	feet
Plume thickness, (H):	feet
Hydraulic conductivity, (K):	gal/day/ft^2
Horizontal gradient, (dh/dl):	(unitless)
Discharge, (Q) = H*W*K*(dh/dl)/1440	gal/min

Utilities and Subsurface Structures

2.10 Compare the relationship between the distribution of contaminant phases (soil, ground water, vapor, and non-aqueous phase liquid) to the location of all underground utility lines, utility service lines, and nearby basements and sumps. Include all identified utilities in Table 18. Show all utilities, utility service lines, and other subsurface structures on applicable cross sections in Section 4.

The building water service, sewer service, and gas service enter the building on its east side, approximately 100 to 150 feet northeast of the release. Water, sewer, and storm sewer mains are located 90' to 110' east of the eastern release source (pump island). The shallow groundwater at this site being approximately 2' deep covers most of the vertical profile of all the various utility trenches. Compacted native soil in the upper utility trenches would result in diminished expected preferential pathways. The contaminant is diesel fuel which is non-explosive at ambient temperatures. No free product was identified. Based on the preceding, the potential impact of explosive vapors on any underground utilities does not appear significant.

2.11 Is there any evidence that free product or contaminated ground water may be traveling off site within the utility corridors? ☐ *Yes* ☒ *No*

If *YES*, a utility backfill investigation is required (refer to Guidance Document 4-01). Discuss the investigation rationale and results.

2.12 Is there a history of field-detectable vapor impacts in the vicinity of the site? ☐ *Yes* ☒ *No*

If *YES*, describe:

Conduct a vapor survey if the vapor receptor survey and risk evaluation indicate a risk of vapor impact or an infiltration risk from contaminated ground water or free product to utilities or subsurface structures. See Guidance Document 4-02 *Potential Receptor Surveys and Risk Evaluation Procedures at Petroleum Release Sites*. Identify all vapor monitoring locations on the Vapor Survey Map by labeling each monitoring location with a number that corresponds to vapor monitoring locations listed in Table 19. Vapor monitoring methods, including instruments used, must be discussed in Section 6.

2.13 Provide a detailed description of each vapor monitoring location and indicate if vapors were detected.

Vapor Intrusion Receptors

When vapor intrusion receptors are present, a preliminary vapor intrusion risk assessment must be completed (see Guidance Document 4-01a *Vapor Intrusion Assessments Performed during Site Investigations*). If completed, include the Vapor Intrusion Assessment Map in Section 4 that identifies all vapor intrusion samples and receptors at and within the 100-foot preliminary assessment area.

2.14 Was a preliminary vapor intrusion risk assessment completed? ☒ *Yes* ☐ *No*

If *NO*, explain why.

2.15 Do any of the soil gas samples from locations near inhabited buildings exceed the ISVs by ten times (10X) for petroleum related compounds? ☐ *Yes* ☒ *No*

If you answered ***YES***, is additional characterization of the vapor intrusion pathway needed for these buildings (e.g. sub-slab soil gas, an indoor building survey, or indoor air sampling)? **If *YES***, complete question 3.4. **If *NO***, explain why. ☐ *Yes* ☐ *No*

2.16 Have sufficient data been collected to propose a Conceptual Corrective Action Design for buildings that are likely to be impacted by petroleum vapors? N/A ☐ *Yes* ☐ *No*

If *YES*, describe your justification for corrective action.

2.17 Based on the horizontal extent of impacted ground water or free product from the release, is additional soil gas sampling required beyond the 100-foot preliminary assessment area near inhabited buildings? ☐ *Yes* ☒ *No*

If *YES*, describe your proposal for additional vapor intrusion sampling.

If *NO*, explain why.

In consideration of the diminished concentrations detected in the two borings, the extent of the vapor migration appears to be adequately defined.

2.18 Were recommended field sampling procedures and laboratory QA/QC from Guidance Document 4-01a followed? ☒ *Yes* ☐ *No*

If *NO*, explain why and discuss implications on data quality.

Site Conceptual Model Discussion

2.19 Provide a detailed site conceptual model (SCM). The SCM should integrate site-specific geology, hydrogeology, and the contaminant distribution with respect to identified exposure pathways (well receptors, surface water receptors, utilities and subsurface receptors, and vapor intrusion receptors). For additional information on SCM development, see Guidance Document 1-01 *Petroleum Remediation Program General Policy*.

The site geology is generally characterized as silt, clay and sandy soil to approximately 6' deep, then fine sand to 16' deep where refusal was encountered, presumabley lime-rock. Groundwater is observed at approximately 2' deep. Based on the Dakota County Geologic Atlas, the regional groundwater flow is to the north. Based on the soil borings plume geometry and calculated flow direction, the local groundwater flow is to the east, indicating the upper perched groundwater is not connected to the regional aquifer.

Due to the fine-grained soil of silts and clays, the horizontal extent of the impacted soil appears limited to close proximity to the two release source areas, the tank basin and pump island. The horizontal extent of the impacted groundwater is limited to the north, south, and west directions and extends approximately 70 feet to the east.

In all borings, there appears to be a background soil DRO concentration of approximately 0.50 mg/l. The exact source of these concentrations is unkown. It may be from the most recent release, the previous release, or some other unknown source associated with the nature of operations at this location. The reason is unknown for the elevated BTEX concentrations in the eastern-most boring, GP-7. However, the concentrations are within drinking water standards and therefore not considered to be of significant concern. Further investigation of either of these contaminants would not appear to be cost-effective.

The release appears to have migrated through two feet of soil to the groundwater which is found in silty, clayey soil. The extent of the impact in the soil appears to be stable. The extent of the impact in the groundwater also appears to be stable based on the diminishing concentrations.

Nearby wells were identified. Nearby wells include Municipal wells 11 & 12 approximately ½ mile to the southwest and commercial wells 211815, 207946, and 209940 to the north. Based on distance, contaminant concentration, and groundwater flow direction, these wells appear not to be at risk of being impacted by the release identified at this location. The facility at 12481 Rhode Island Ave, located approximately 500' northwest of the site, is not billed for water suggesting it may use well water. However, no well is readily identified for that site. In any case, there appears to be no significant risk of impact at that site based on its distance and direction from the release.

Surface Waters were identified approximately 1,000 feet to the north. Identified surface waters were the wetlands area of the Minnesota river flood plain. This surface water receptor appears not to be at risk of being impacted by the release identified at this location.

Underground utilities were identified. The nearest identified utilities include the sanitary storm sewer main, sanitary sewer main, and water main located in Pennsylvania Ave. S., approximately 90 feet east of the eastern release source (the pump island). These utilities appear not to be at risk of being impacted by the release identified at this location.

Vapor intrusion samples were collected at the source and near the on-site building. The building does not apper to be at risk of vapor intrusion by the release identified at this location.

2.20 Discuss any other site concerns not included in the above discussion

N/A

Section 3: Site Management Decision

The site management decision should be based on the Program's objectives described in Guidance Document 1-01 *Petroleum Remediation Program General Policy*.

3.1 Recommendation for site:

- ☒ site closure
- ☐ additional ground water monitoring
- ☐ additional field-detectable vapor monitoring
- ☐ additional soil gas/vapor intrusion investigation
- ☐ corrective action

3.2 If closure is recommended, summarize significant investigative events and describe how site-specific exposure pathways identified in question 2.19 have been adequately addressed.

Seven Geoprobe soil borings and two soil gas borings were installed to investigate the fuel oil release from the 10,000 gallon fiberglass underground tank. Field PID and laboratory results indicate the release was limited mainly to the tank and pump island areas. Samples from the shallow groundwater table indicate the plume migrated to the east, but no concentrations were identified in any of the water samples exceeding MDH drinking water standards.

Soil gas vapor intrusion levels are all within the 10x industrial vapor intrusion screening values.

Contaminant concentrations appear low enough that there are no identified exposure pathways for groundwater receptors, explosive vapor receptors, and vapor intrusion receptors.

3.3 If additional ground water or field-detectable vapor monitoring is recommended, indicate the proposed monitoring locations, sampling frequency, and target analytes. Conduct quarterly ground water monitoring and sampling until the MPCA responds to this report.

N/A

3.4 If additional vapor intrusion investigation is recommended, provide details of proposed activities such as completing an indoor building survey, sub-slab vapor sampling, indoor air sampling, or locations for additional soil gas sampling.

N/A

3.5 If corrective action is recommended, provide a conceptual approach by completing Guidance Document 4-19 *Conceptual Corrective Action Design Worksheet* and include in Section 6. See Guidance Document 4-10 *Elements of the Corrective Action Design* for more information on the corrective action design process and other requirements. (Note: MPCA staff will review this report at a higher-than-normal priority to determine if corrective action is required.)

Section 4: Figures

Attach the following figures in order of discussion in the text. All figures must include a north arrow, scale, and legend. Approximate scales are not acceptable.

☒ Site Location Map using a U.S. Geological Survey 7.5 minute quadrangle map.

☐ Aerial photos and Sanborn Fire Insurance Maps™ (if available) of the immediate area.

☒ One or more Site Maps showing:

- Structures
- Locations and depths of on-site buried utilities
- All past and present petroleum storage tanks, piping, dispensers, and transfer areas
- Extent of soil excavation
- Boring and well locations (including any drinking water wells on site)
- Horizontal extent of soil contamination
- Extent of contaminated surface soil
- Horizontal extent of ground water contamination
- Horizontal extent of NAPL
- Location of end points for all geologic cross sections
- Potential pathways that lead to surface water features within ¼ mile of the site

Distinguish sequential elements of investigations by dates, symbols, etc. in the key.

☒ At least two (2) geologic cross sections depicting stratigraphy, soil headspace results, laboratory analytical results, water table elevation, and underground utilities.

☒ Groundwater Flow Direction Map

☒ Potential Receptor Map (scale 1 inch = 50 to 100 feet), centered on the release area, showing property boundaries and roads, and potential receptors such as buildings, water wells, underground utilities (distinguish between water, storm sewer, and sanitary sewer), surface waters, ditches, and any other pertinent items within 500 feet of the release source.

☒ Well Receptor Survey Map showing ½-mile radius, 500-foot radius, water supply wells, and other potential sources of contamination on a U.S. Geological Survey 7.5 minute quadrangle map.

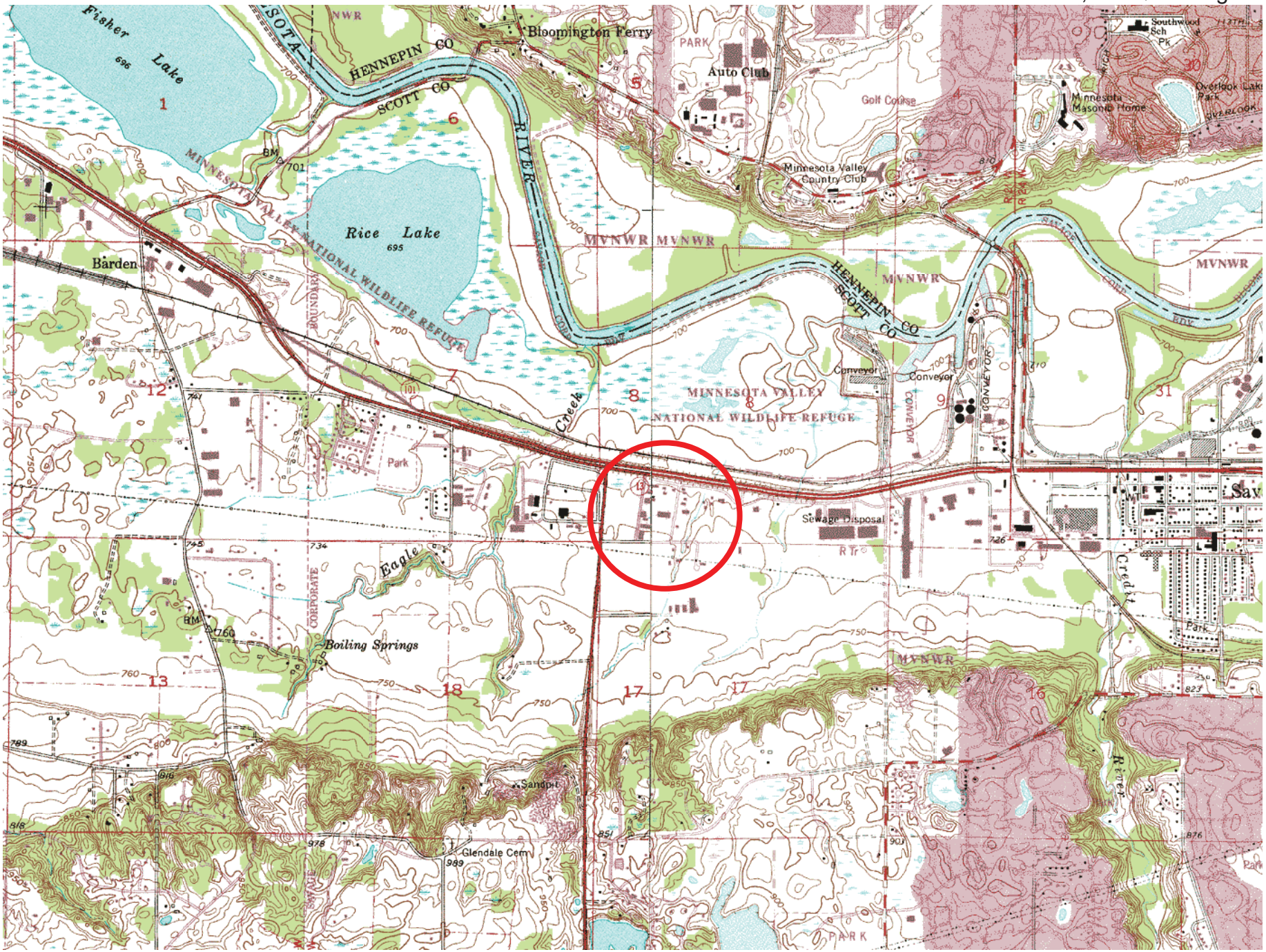
☐ Vapor Survey Map showing utilities and buildings with basements and monitoring locations within 500 feet (if a survey was required). If the survey area has been expanded beyond 500 feet, adjust the map to encompass the entire surveyed area.

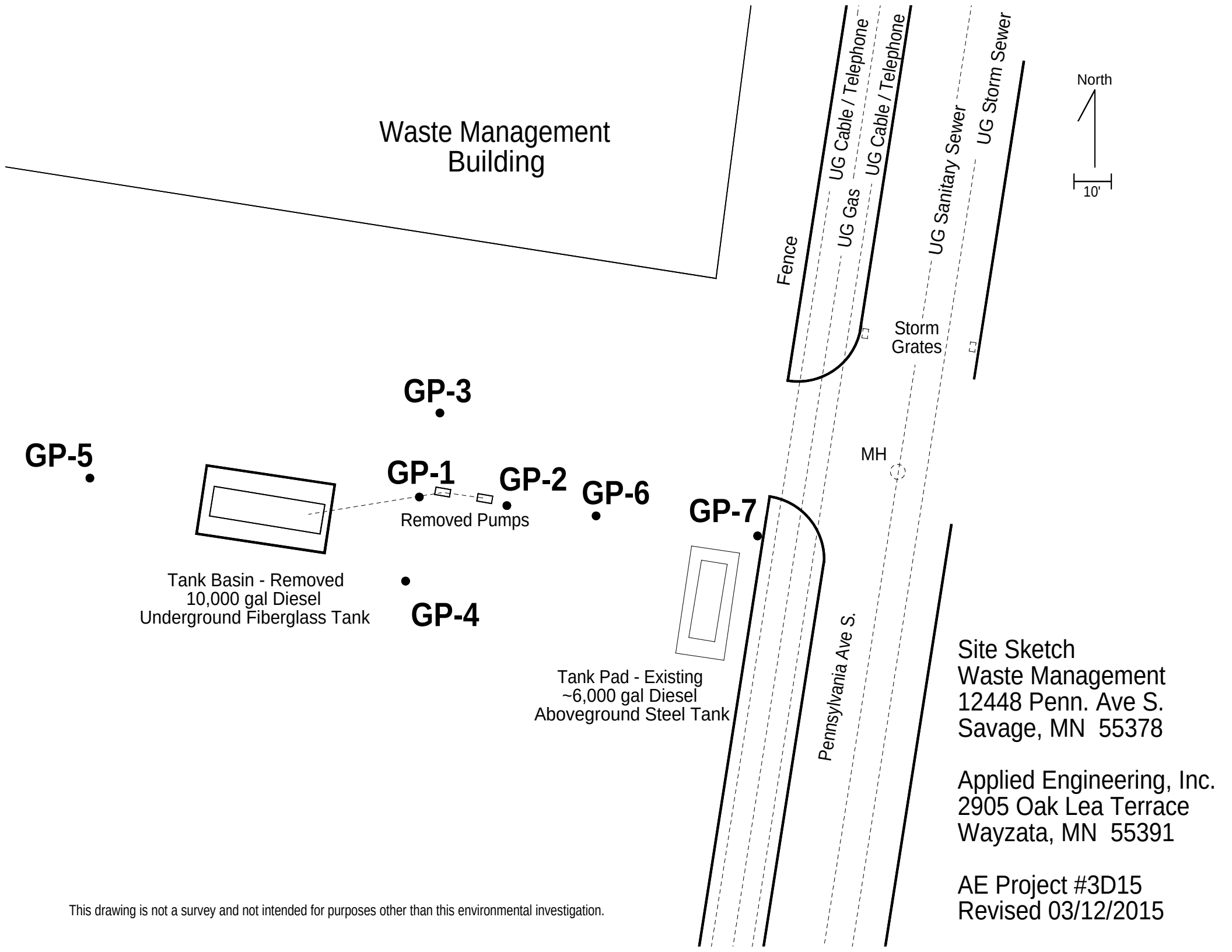
☒ Vapor Intrusion Assessment Map showing all vapor intrusion samples and receptors at and within the 100-foot preliminary assessment area. If the assessment area has been expanded beyond 100 feet, adjust the map to encompass the entire assessment area.

Site Location Map

Minnesota DNR - ToMO Service

USGS 1:24,000 Quadrangles





Site Sketch
Waste Management
12448 Penn. Ave S.
Savage, MN 55378

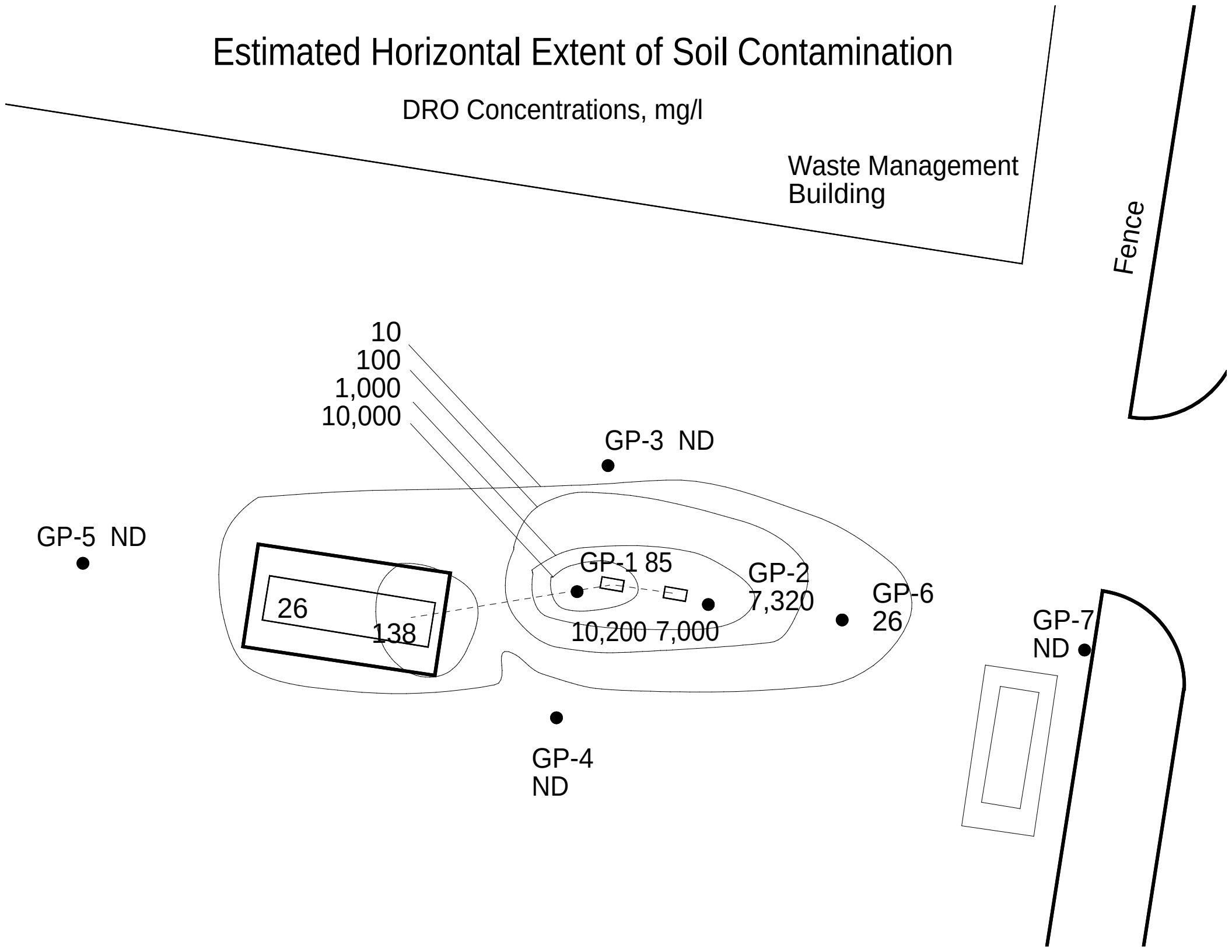
Applied Engineering, Inc.
2905 Oak Lea Terrace
Wayzata, MN 55391

AE Project #3D15
Revised 03/12/2015

This drawing is not a survey and not intended for purposes other than this environmental investigation.

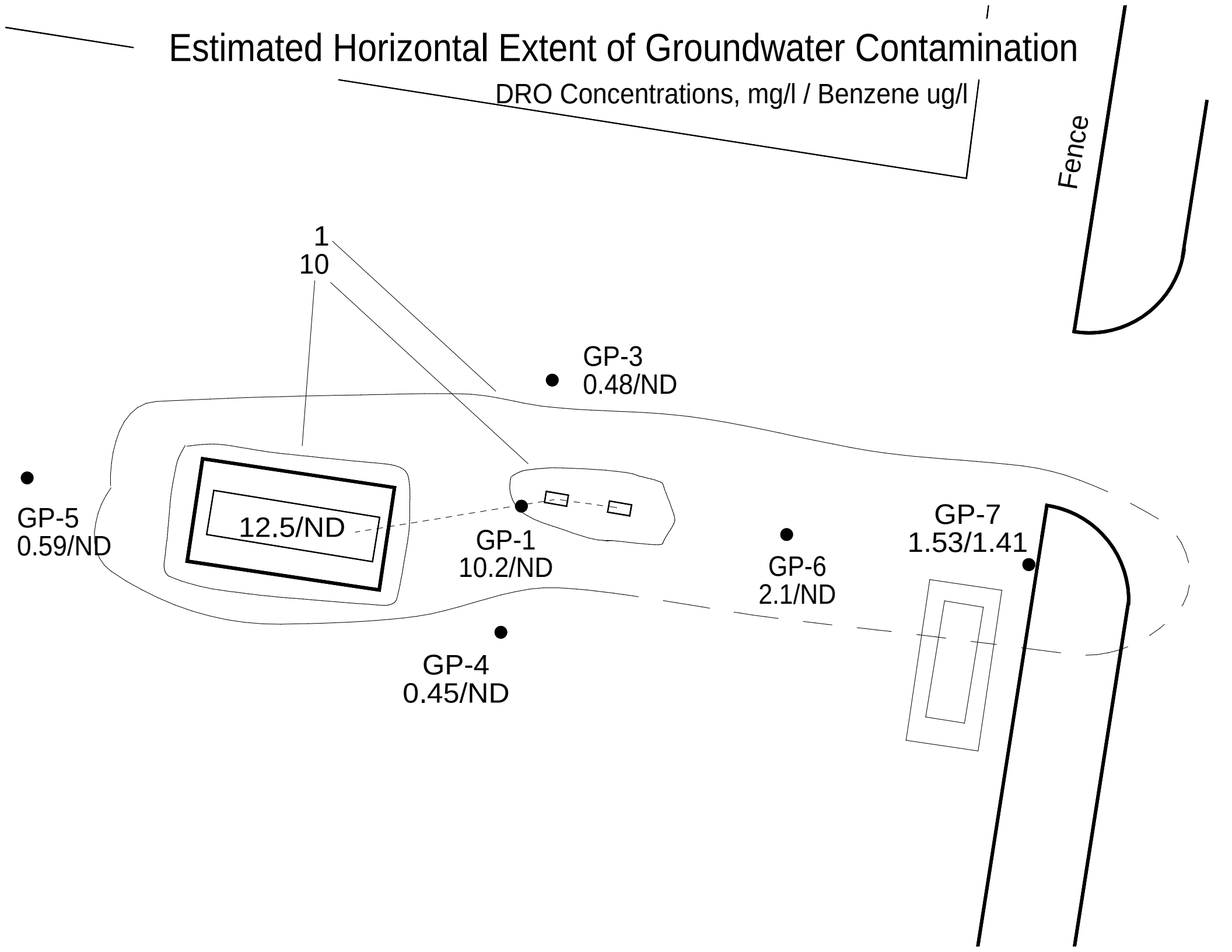
Estimated Horizontal Extent of Soil Contamination

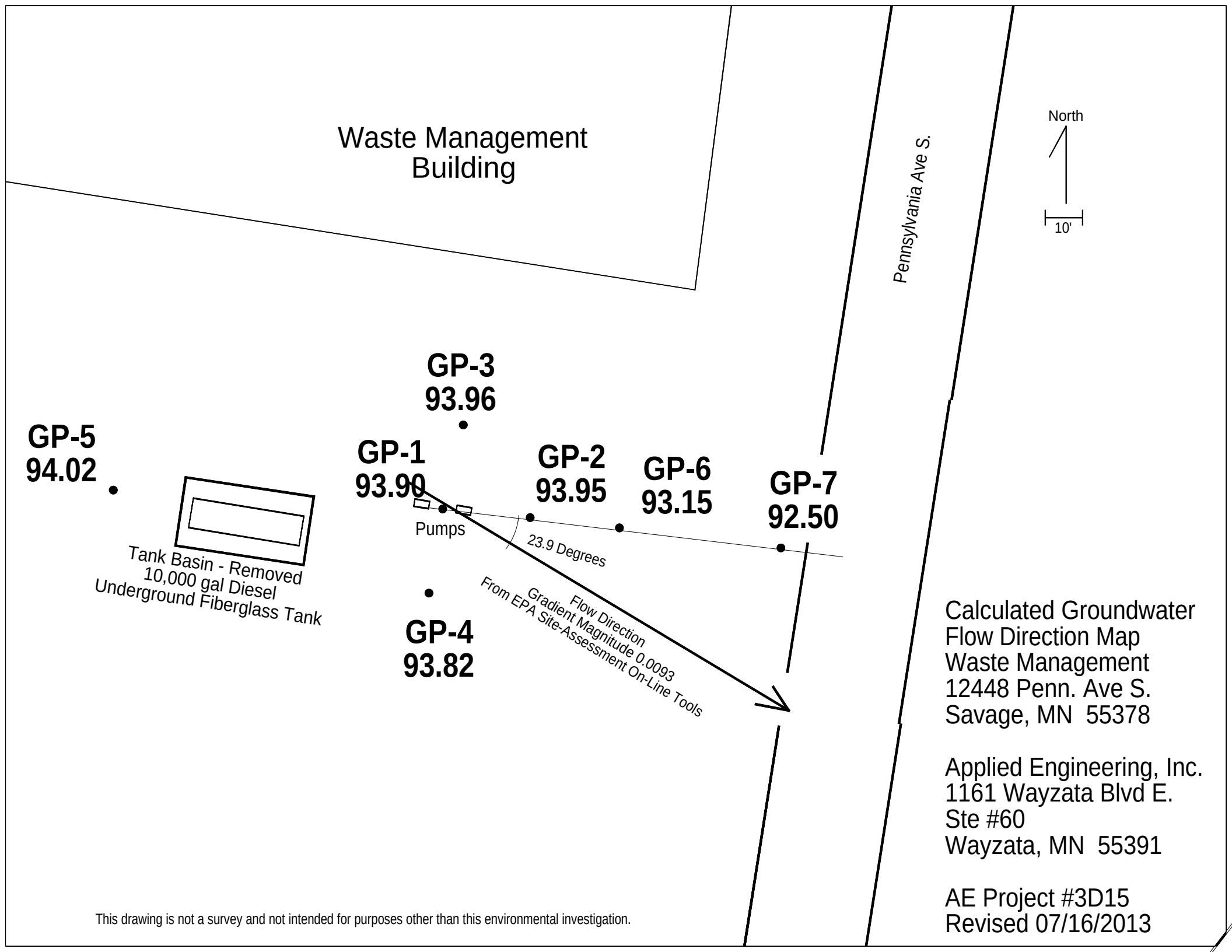
DRO Concentrations, mg/l



Estimated Horizontal Extent of Groundwater Contamination

DRO Concentrations, mg/l / Benzene ug/l





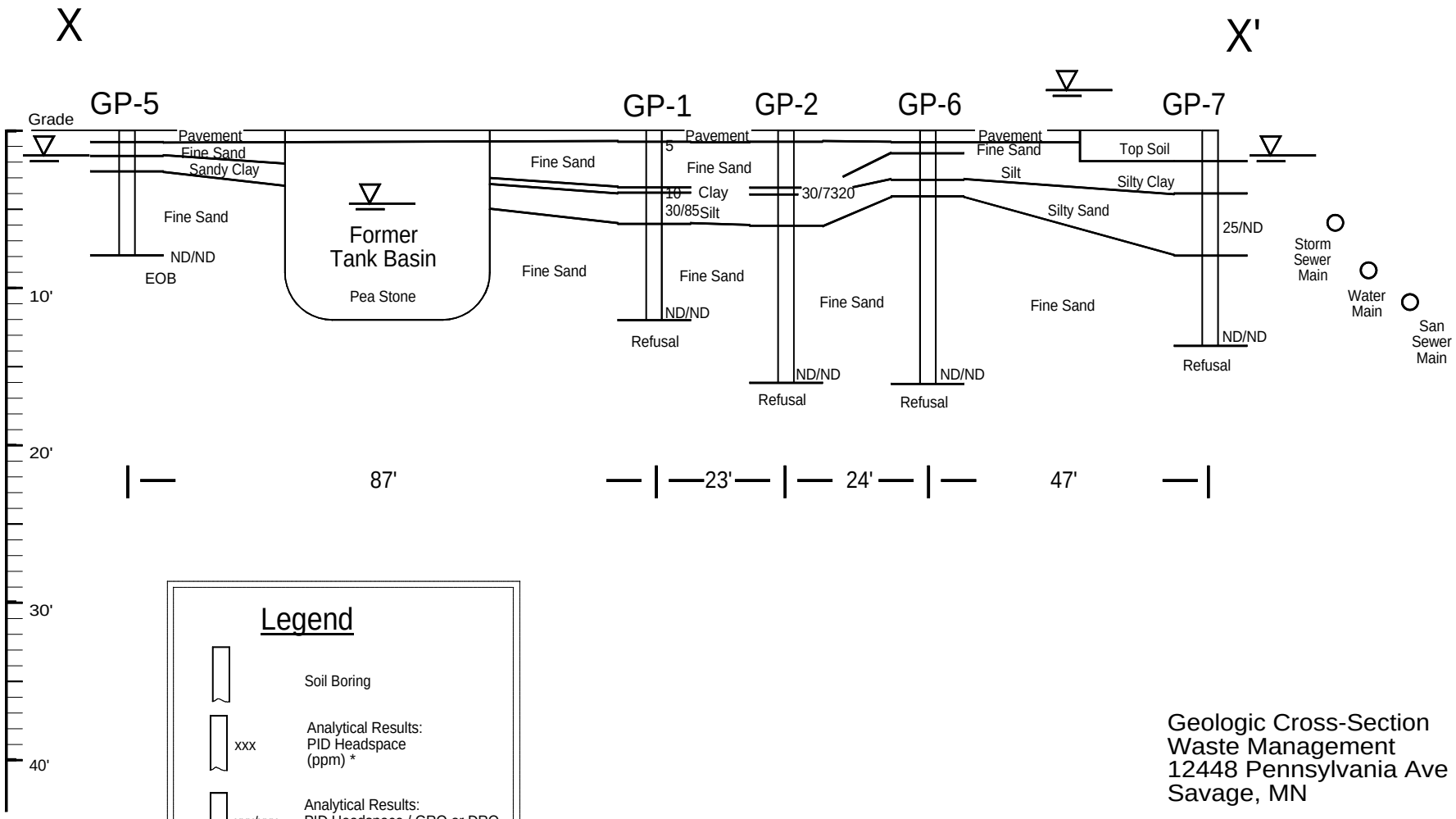
Calculated Groundwater
Flow Direction Map
Waste Management
12448 Penn. Ave S.
Savage, MN 55378

Applied Engineering, Inc.
1161 Wayzata Blvd E.
Ste #60
Wayzata, MN 55391

AE Project #3D15
Revised 07/16/2013

This drawing is not a survey and not intended for purposes other than this environmental investigation.

Geologic Cross-Section X - X'



Legend

- Soil Boring
- xxx — Analytical Results: PID Headspace (ppm) *
- xxx/xxx — Analytical Results: PID Headspace / GRO or DRO (ppm/ppm) *
- Groundwater Level

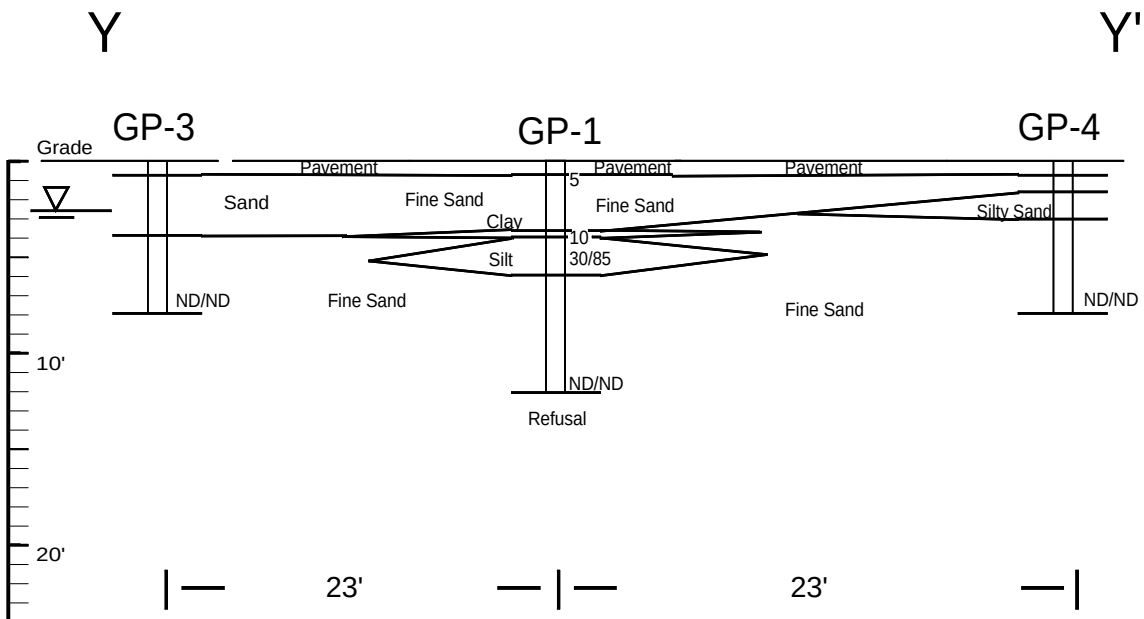
*The numerous non-detect results are not annotated

Geologic Cross-Section
Waste Management
12448 Pennsylvania Ave S.
Savage, MN

Applied Engineering, Inc.
1161 Wayzata Blvd E., Ste #60
Wayzata, MN 55391

AE #3D15
Drawn 03/19/2015

Geologic Cross-Section Y - Y'



Legend

- Soil Boring
- xxx — Analytical Results: PID Headspace (ppm) *
- xxx/xxx — Analytical Results: PID Headspace / GRO or DRO (ppm/ppm) *
- Groundwater Level

*The numerous non-detect results are not annotated

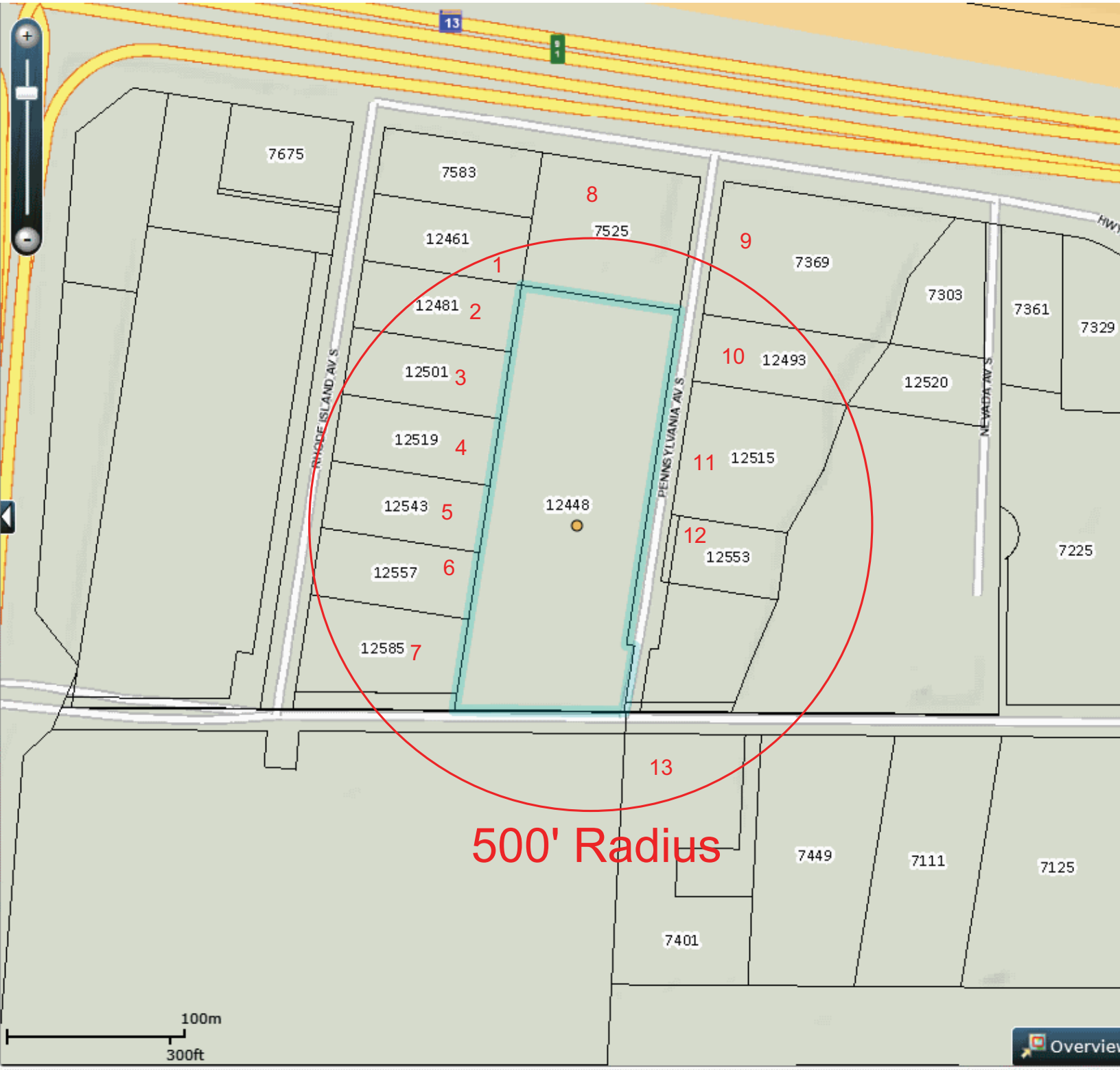
Geologic Cross-Section
Waste Management
12448 Pennsylvania Ave S.
Savage, MN

Applied Engineering, Inc.
1161 Wayzata Blvd E., Ste #60
Wayzata, MN 55391

AE #3D15
Drawn 03/13/2015

Potential Receptor Map

Labeled Property Identification Map



Well Receptor Map

Vapor Intrusion Assessment Map

Section 5: Tables

Table 1
Tank Information

Tank #	Tank ** Material	UST or AST	Capacity (gallons)	Contents (product type)	Year installed	Tank Status*	Condition of Tank
1	F	UST	10k	Diesel	Unknown	Removed 6/27/13	No holes, No Oxidation
2	S	AST	10k	Diesel	approx 2012	current-ly used	No visible oxidation or holes

*Indicate: *removed (date), abandoned in place (date), or currently used, upgraded tank, installation of new tank. ** F for fiberglass or S for Steel*
Notes:

Table 2
Results of Soil Headspace Screening

Depth (ft)	Soil Boring ID									
	GP-1	GP-2	GP-3	GP-4	GP-5	GP-6	GP-7			
2	**5**	ND	ND	ND	ND	ND	ND			
4	**10**	**30**	ND	ND	ND	ND	ND			
6	**30**	**12**	ND	ND	ND	ND	**25**			
8	ND	ND	ND	ND	ND	ND	ND			
10	ND	ND				ND	ND			
12	ND	ND				ND	ND			
14		ND				ND	ND			
16		ND				ND				

List instruments used and discuss field methods and procedures in Section 6. Add additional rows as needed, and copy the entire table if more columns are needed.
Notes:

Table 3
Analytical Results of Soil Samples[1]

Boring ID	Sampled Depth (ft)	Date Sampled	Benzene	Toluene	Ethyl-benzene	Xylenes	MTBE	GRO	DRO	Lab Type[2]
GP-1	6	**05/05/14**	<0.121	<0.121	<0.121	**<0.362**	<0.121		85.2	fixed
GP-1	12	**05/05/14**	<0.123	<0.123	<0.123	<0.369	<0.123		<6.71	fixed
GP-2	5	**05/05/14**	<0.113	<0.113	<0.113	0.385	<0.113		7230	fixed
GP-2	16	**05/05/14**	<0.119	<0.119	<0.119	<0.356	<0.119		<4.76	fixed
GP-3	8	**05/05/14**	<0.122	<0.122	<0.122	<0.367	<0.122		<7.50	fixed
GP-4	8	**05/05/14**	<0.122	<0.122	<0.122	<0.367	<0.122		<8.60	fixed
GP-5	8	**05/05/14**	<0.122	<0.122	<0.122	<0.365	<0.122		<4.84	fixed
GP-6	6	**05/05/14**	<0.123	<0.123	0.498	2.41	<0.123		25.6	fixed
GP-6	16	**05/05/14**	<0.119	<0.119	<0.119	<0.356	<0.119		<6.68	fixed
GP-7	6	**05/05/14**	<0.122	<0.122	<0.122	<0.366	<0.122		<8.50	fixed
GP-7	13.5	**05/05/14**	<0.119	<0.119	<0.119	<0.358	<0.119		<8.63	fixed

[1] Report results in mg/kg. Use less than symbols to show detection limit.
[2] Indicate "mobile" or "fixed" in the lab type column.
Add additional rows as needed.
Notes:

Table 4
Other Contaminants Detected in Soils (Petroleum or Non-petroleum Derived)[1]

Boring ID	Sampled Depth (ft)	Date Sampled								Lab Type[2]

[1] Report results in mg/kg. Use less than symbols to show detection limit.
[2] Indicate "mobile" or "fixed" in the lab type column.
Indicate other contaminants (either petroleum or non-petroleum derived) detected in soil collected from borings. Add additional rows as needed, and copy the entire table if more columns are needed.
Notes:

Table 5
Contaminated Surface Soil Results

Sample ID	Headspace 10 ppm or Greater[1] (Y/N)	Petroleum Saturated (Y/N)

[1] As measured with a photoionization detector (PID).
Add additional rows as needed.
Notes:

Table 6
Water Level Measurements and Depths of Water Samples Collected from Borings

	Soil Boring									
	GP-1	GP-2	GP-3	GP-4	GP-5	GP-6	GP-7			
Static Water Level Depth[1] (ft)	2.30	2.03	1.74	2.61	2.33	2.61	3.17			
Sampled Depth (ft)	2.30	2.03	1.74	2.61	2.33	2.61	3.17			
Sampling Method[2]										

[1] Describe the methods used to measure water levels in borings in Section 6.
[2] Refer to Guidance Document 4-05 for acceptable ground water sampling methods.
Notes: Sampling Method described in Appendix G, Methods

Table 7
Analytical Results of Water Samples Collected from Borings[1]

Boring ID	Date Sampled	Sampled Depth (ft)	Benzene	Toluene	Ethyl-benzene	Xylenes	MTBE	GRO	DRO	Lab Type[2]
GP-1	**05/05/14**	2.3	<0.500	1.83	<1.00	<3.00	<1.00		10.2	fixed
GP-3	**05/05/14**	1.74	<0.500	<1.00	<1.00	<3.00	<1.00		0.476	fixed
GP-4	**05/05/14**	2.61	<0.500	<1.00	<1.00	<3.00	<1.00		0.447	fixed
GP-5	**05/05/14**	2.33	<0.500	<1.00	<1.00	<3.00	<1.00		0.587	fixed
GP-6	**05/05/14**	2.61	<0.500	<1.00	<1.00	<3.00	<1.00		2.11	fixed
GP-7	**05/05/14**	3.17	1.41	2.65	172	1170	<1.00		1.53	fixed
Trip Blank										
Equip. Blank										
Lab Blank										
HRL[3]										

[1] Report results in µg/L. Use less than symbols to show detection limit.
[2] Indicate "mobile" or "fixed" in the lab type column.
[3] See http://www.health.state.mn.us/divs/eh/groundwater/hrltable.html for list of current HRLs.
Add additional rows as needed.
Notes:

Table 8a
Other Contaminants Detected in Water Samples
Collected from Borings (Petroleum or Non-petroleum Derived)[1]

Boring ID	Date Sampled	Sampled Depth (ft)	Acetone	1,2,3-Trichloropropane	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	4-Chlorotoluene	Isopropylbenzene	Naphthalene	Lab Type[2]
GP-1	05/05/14	2.3	20.9							fixed
GP-3	05/05/14	1.74	12.1							fixed
GP-4	05/05/14	2.61	14.2							fixed
GP-5	05/05/14	2.33	14.3							fixed
GP-6	05/05/14	2.61	10.4							fixed
GP-7	05/05/14	3.17	14.7	1.78	637	43	4.48	22.3	104	fixed
Trip Blank										
Equip. Blank										
Lab Blank										
HRL[3]										

[1] Report results in µg/L. Use less than symbols to show detection limit.
[2] Indicate "mobile" or "fixed" in the lab type column.
[3] See http://www.health.state.mn.us/divs/eh/groundwater/hrltable.html for list of current HRLs.
Indicate other contaminants (either petroleum or non-petroleum derived) detected in water samples collected from soil borings and temporary wells. Add additional rows as needed, and copy the entire table if more columns are needed.
Notes:

Table 8b
Other Contaminants Detected in Water Samples
Collected from Borings (Petroleum or Non-petroleum Derived)[1]

Boring ID	Date Sampled	Sampled Depth (ft)	n-Butylbenzene	N-Propylbenzene	p-so-propyltoluene	sec-Butylbenzene				Lab Type[2]
GP-1										
GP-3										
GP-4										
GP-5										
GP-6										
GP-7	05/05/14	3.17	5.71	57	1.63	3.93				fixed
Trip Blank										
Equip. Blank										
Lab Blank										
HRL[3]										

[1] Report results in µg/L. Use less than symbols to show detection limit.
[2] Indicate "mobile" or "fixed" in the lab type column.
[3] See http://www.health.state.mn.us/divs/eh/groundwater/hrltable.html for list of current HRLs.
Indicate other contaminants (either petroleum or non-petroleum derived) detected in water samples collected from soil borings and temporary wells. Add additional rows as needed, and copy the entire table if more columns are needed.
Notes:

Table 9
Monitoring Well Completion Information[1]

Well Number	MDH Unique Well Number	Date Installed	Surface Elevation	Top of Casing Elevation	Bottom of Well Elevation	Screen Interval (Elev. - Elev.)	Total Well Depth from Surface (ft)

[1] Include well construction diagrams and MDH well logs in Section 6.
Add additional rows as needed.
Notes: (location and elevation of benchmark)

Table 10
Water Level Measurements in Wells[1]

Well Number	Date Sampled	Depth to Water from Top of Riser	Product Thickness	Depth to Water Below Grade	Relative Groundwater Elevation	Water Level Above Screen (Y/N)

[1] Describe the methods used to measure water levels in Section 6.
Add additional rows as needed.
Notes:

Table 11
Analytical Results of Water Samples Collected from Wells[1]

Well Number	Date Sampled	Benzene	Toluene	Ethyl-benzene	Xylenes	MTBE	GRO	DRO	Lab Type[2]
MW-1									
MW-2									
MW-3									
MW-4									
Trip Blank									
Equip. Blank									
Lab Blank									
HRL[3]									

[1] Report results in µg/L. Use less than symbols to show detection limit.
[2] Indicate "mobile" or "fixed" in the lab type column.
[3] See http://www.health.state.mn.us/divs/eh/groundwater/hrltable.html for list of current HRLs.
Add additional rows as needed.
Notes:

Table 12
Other Contaminants Detected in Water Samples
Collected from Wells (Petroleum or Non-petroleum Derived)[1]

Well Number	Date Sampled								Lab Type[2]
MW-1									
MW-2									
MW-3									
MW-4									
Trip Blank									
Equip. Blank									
Lab Blank									
HRL[3]									

[1] Report results in µg/L. Use less than symbols to show detection limit.
[2] Indicate "mobile" or "fixed" in the lab type column.
[3] See http://www.health.state.mn.us/divs/eh/groundwater/hrltable.html for list of current HRLs.
Indicate other contaminants (either petroleum or non-petroleum derived) detected in water samples collected from wells.
Add additional rows as needed, and copy the entire table if more columns are needed.
Notes:

Table 13
Natural Attenuation Parameters

Well Number	Sample Date	Temp. °C	pH	Dissolved Oxygen (mg/L)	Nitrate (mg/L)	(Fe II) (mg/L)	(H_2S, HS^-) (mg/L)
MW-1							
MW-2							
MW-3							
MW-4							

Describe the methods and procedures used in Section 6. Add additional rows as needed
Notes:

Table 14
Free Product Recovery

Recovery Location ID	Recovery Date	Pre-Recovery Measurements				Recovery Method	Event Recovery[3]		Cumulative Recovery[4]		Comments
		Depth to FP[1] (ft)	Depth to GW[2] (ft)	FP Thickness (ft)	FP Volume (gal)		FP (gal)	GW (gal)	FP (gal)	GW (gal)	
MW-1											
MW-2											
MW-3											
MW-4											

[1] FP = Free Product
[2] GW = Ground Water
[3] Volume recovered during individual recovery event for that location.
[4] Cumulative volume recovered at each recovery location (i.e., keep a running total for each recovery point).
Describe the methods and procedures used in Section 6. Add additional rows as needed.
Notes:

Table 15
Properties Located within 500 feet of the Release Source

Prop ID[1]	Property Address	Distance From Site (ft)	Water Supply Well			Public Water Supply		Base-ment (Y/N)	Sump (Y/N)	Possible Petroleum Sources (Y/N)	Comments (including property use)
			Well Present (Y/N)	How Determined[2]	Well Use[3]	Utilized (Y/N)	Confirmed by City (Y/N)				
1	12461 Rhode Island Ave	see map	N	Visual	N/A	Y	Y			N	Commercial
2	12481 Rhode Island Ave	see map	N	Visual	N/A	*N*	Y			N	Commercial
3	12501 Rhode Island Ave	see map	N	Visual	N/A	Y	Y			N	Commercial
4	12519 Rhode Island Ave	see map	N	Visual	N/A	Y	Y			N	Commercial
5	12543 Rhode Island Ave	see map	N	Visual	N/A	Y	Y			N	Commercial
6	12557 Rhode Island Ave	see map	N	Visual	N/A	Y	Y			N	Commercial
7	12585 Rhode Island Ave	see map	N	Visual	N/A	Y	Y			N	Commercial
8	7525 Hwy 13 W	see map	N	Visual	N/A	Y	Y			N	Commercial
9	7369 Hwy 13 W	see map	N	Visual	N/A	Y	Y			N	Commercial
10	12493 Pennsylvania Ave	see map	N	Visual	N/A	Y	Y			N	Commercial
11	12515 Pennsylvania Ave	see map	N	Visual	N/A	Y	Y			N	Commercial
12	12553 Pennsylvania Ave	see map	N	Visual	N/A	Y	Y			N	Commercial
13	7401 126th St W.	see map	N	Visual	N/A	Y	Y			N	Commercial

[1] Property IDs should correspond to labeled properties in the Potential Receptor Map.
[2] For example, visual observation, personal contact, telephone, returned postcard, assumed (i.e., no postcard returned).
[3] For example, domestic, industrial, municipal, livestock, lawn/gardening, irrigation.
Add additional rows as needed.
Notes:

Table 16
Water Supply Wells Located within 500 feet of the Release Source and Municipal or Industrial Wells within ½ mile

Property ID[1]	MDH Unique Well Number	Ground Elevation	Total Depth (ft)	Base of Casing (ft)	Static Elevation	Aquifer	Use	Owner	Distance and Direction from Source (ft)
1A	Savage #11	743	840	595	90'	Mt Simon	Municipal	City of Savage	½ mile SW
2A	Savage #12	743	520	313	15'	Francon-ia Ironton-Gales-ville	Municipal	City of Savage	½ mile SW
3A	209940	715	225	165	0	Jordan	Commercial	Skelly Station	800' NNE
4A	207946	710	40	37	16	"Quat Buried Artes"	Commercial	B&M Motors	750' NE
5A	407647	737	25	20	8.5	"Quat Water Table Aquifer"	Commercial	Eppler's Rental Property	1,700' S
6A	211812	725	135	130	0	"Quat Buried Artes"	Commercial	Rubber Specialites	1,000' SE

[1] Property IDs should correspond to properties listed in Table 15 and labeled properties in the Potential Receptor Map if known or applicable. Add additional rows as needed.

Notes: * indicates that no letter was returned (Letter instructed no need to return unless well existed; therefore, assume no well exists at this address)

Table 17
Surface Water Receptor Information

Map ID[1]	Name and Type[2]	Distance and Direction from Plume Edge (ft)	Clean Boring/Well Between?[3] (Y or N)

[1] Map ID should correspond to a surface water feature ID on the Potential Receptor Map.
[2] Type includes, but is not limited to, lake, retention pond, infiltration pond, ditch, intermittent stream, river, creek, rain garden, etc.
[3] If the surface water feature is upgradient or cross-gradient from the site, indicate so with "NA" for not applicable.
Add additional rows as needed.
Notes:

Table 18
Utility Receptor Information

Utility ID[1]	Description	Construction Material	Depth to Top of Structure	Diameter	Flow Direction (for liquids)	Year Installed	Backfill Material	Distance to Water Table
Ex 1	*Sanitary sewer main between Main St and 1st Ave*	*PVC*	*7 ft*	*2 ft*	*West*	*1984*	*Sand*	*Top of structure at water table*
Ex 2	*Water main between Main St and 1st Ave*	*Polyethylene*	*8 ft*	*4 in*	*West*	*1996*	*Sand*	*1 ft below water table*
Ex 3	*On-site water service line*	*Copper*	*6 ft*	*2 in*	*South*	*1980*	*Native soils*	*1 ft above water table*
1	Water Main on Pennsylvania between S. Frontage Rd & 126th St	Ductile Iron	8'	8"		~1979		6 ft below
2	Sanitary Sewer Main on Pennsylvania between S. Frontage Rd & 126th St	PVC	<10'	8"		1979		<8 ft below
3	Storm Sewer Main on Pennsylvania between S. Frontage Rd & 126th St	Perforated Plastic	<5'	8"	North	unk		<3' below
4								
5								
6								
10								

[1] ID should correspond to an identified utility line on the Potential Receptor Map.
Add more rows as needed.
Notes: Information obtained from Savage Utility Supt.

Utility ID[1]	Name, title, and telephone number for public entity contacted to obtain information or other source of information
Ex 1, 2	Mary Smith, City Engineer, XXX-XXX-XXXX
Ex 3	Site owner

[1] IDs should correspond to the same IDs in the above table.
Add more rows as needed.
Notes:

Table 19
Vapor Survey Results

Location ID[1]	Description[2]	Monitoring Date	PID Reading (ppm)	Percent of the LEL[3]

[1] Location IDs must match labeled locations on the Vapor Survey Map.
[2] Provide a brief description of the monitoring point (e.g., sump, basement corner, sanitary sewer manhole, storm sewer basin, etc.).
[3] LEL = Lower Explosive Limit.
Add additional rows as needed.
Notes:

Table 20
Results of Soil Gas Sampling for Vapor Intrusion Screening[1]

Sample ID[2]			Air 1		Air 2						10x Industrial Intrusion Screening Value[3]
Date			05/05/14		05/05/14						
Depth (feet)			3		3						
PID (ppm)			10		2						
COMPOUNDS	CAS No.		Result	Report Limit	Result	Report Limit	Result	Report Limit	Result	Report Limit	
1,2,4-Trimethylbenzene	95-63-6		<1.97	0.983	5.15	0.983					200
1,3,5-Trimethylbenzene	108-67-8		10.5	0.983	<2.98	0.983					200
1,3-Butadiene	106-99-0		7.12	0.442	1.62	0.442					10
2-Butanone (MEK)	78-93-3		5.00	1.47	<4.47	1.47					100,000
Acetone	67-64-1		43.5	11.9	125	11.9					870,000
Benzene	71-43-2		2.51	0.639	4.33	0.639					130
Chlorobenzene	108-90-7		24.1	0.921	<2.79	0.921					1,000
Chloroform	67-66-3		<1.95	0.977	12.0	0.977					3,000
Ethylbenzene	100-41-4		<1.74	0.868	2.78	0.868					30,000
m&p-Xylene	179601-23-1		4.55	2.17	7.26	2.17					3,000 a
n-Heptane	142-82-5		<1.64	0.820	2.53	0.820					N/A
n-Hexane	110-54-3		<1.41	0.705	3.42	0.705					60,000
Propylene	115-07-1		72.6	8.61	<26.1	8.61					80,000
Tetrachloroethene	127-18-4		<2.71	1.36	25.1	1.36					600
Toluene	108-88-3		7.27	0.754	11.1	0.754					100,000
Trichlorofluoromethane	75-69-4		2.72	1.12	<3.40	1.12					20,000

[1] Report results in µg/m^3.
[2] Sample IDs should correspond to labeled locations on the Vapor Intrusion Assessment Map.
[3] The Intrusion Screening Values can be found in Guidance Document 4-01a *Vapor Intrusion Assessments Performed during Site Investigations*.
Add additional rows as needed, and copy the entire table if more columns are needed.
Notes:

Section 6: Appendices

Attach all required or applicable appendices in the following order. Indicate those appendices that are included in this report by marking the check box. All reproduced data must be legible. Reports missing required documentation are subject to rejection.

☒	*Appendix A*	Guidance Document 3-02 *General Excavation Report Worksheet*.
☒	*Appendix B*	Guidance Document 1-03a *Spatial Data Reporting Form*.
☒	*Appendix C*	Guidance Document 2-05 *Release Information Worksheet*.
☐	*Appendix D*	Copies of applicable Phase I and Phase II reports or supplemental sampling information such as aboveground storage tank (AST) upgrading and decommissioning sampling.
☒	*Appendix E*	Geologic Logs of Soil Borings, Including Construction Diagrams of Temporary and Permanent Wells, and Copies of the Minnesota Department of Health Well Record.
☒	*Appendix F*	Laboratory Analytical Reports for Soil, Soil Gas/Sub-slab Vapor/Indoor Air/Ambient Air, and Ground Water. Include laboratory QA/QC data, Chromatograms, and laboratory certification number.
☒	*Appendix G*	Methodologies and Procedures, Including Field Screening of Soil, Other Field Analyses, Soil Boring, Soil Sampling, Soil Gas/Sub-Slab/Indoor air/Ambient Air Sampling, Vapor Monitoring, Well Installation, and Water Sampling.
☐	*Appendix H*	Field or sampling data sheets (sampling forms, field crew notes, etc.).
☒	*Appendix I*	Grain Size Analysis, Hydraulic Conductivity Measurements, and Other Calculations.
☐	*Appendix J*	Guidance Document 2-03 *Free Product Recovery Report Worksheet.*
☒	*Appendix K*	Copies of Water Supply Well Logs with Legible Unique Numbers.
☐	*Appendix L*	Results of the Public Water Supply Risk Assessment. If the site is within a designated source water protection area, include a copy of the MDH Source Water Assessment and a map from the MPCA Petroleum Remediation Program Maps Online website.
☐	*Appendix M*	Guidance Document 4-19 *Conceptual Corrective Action Design Worksheet*.

Appendix A

Guidance Document 3-02 *General Excavation Report Worksheet.*

General Excavation Report Worksheet

Guidance Document 3-02

Complete the worksheet below to document excavation and treatment of petroleum contaminated soil removed **prior to** a Site Investigation and/or during tank removals and/or upgrades. If soil is excavated as an MPCA-approved corrective action **after** a Site Investigation is conducted, complete Guidance Document 3-02a *Corrective Action Excavation Report Worksheet*. Conduct excavations in accordance with Guidance Document 3-01 *Excavation of Petroleum Contaminated Soil*. Please type or print clearly. Do not revise or delete text or questions from this report form.

The excavation worksheet 3-02 deadline is 10 months from the date of receipt of the MPCA "Petroleum Storage Tank Release Investigation and Corrective Action" letter. MPCA staff may establish a shorter deadline for high priority sites.

PART I: BACKGROUND

A. Site:
MPCA Site ID#: LEAK00019157
Waste Management
Street: 12448 Pennsylvania Ave S.
City, Zip: Savage, 55378
County: Dakota

B. Tank Owner/Operator: Waste Management

Mailing Address: Attn: Roric Gilmer
Waste Management
Street/Box: 12448 Pennsylvania Ave S.
City, Zip: Savage, 55378
Telephone: 952-229-0081

C. Excavating Contractor: B&H Petroleum

Contact: Gary Eckert
Telephone: 507-387-6629
Tank Contractor Certification Number:

D. Consultant: Applied Engineering, Inc.

Contact: Thomas Greene
Street/Box: 1161 Wayzata Blvd E., Ste #60
City, Zip: Wayzata, MN 55391
Telephone: 952-939-9095

E. Others on-site during site work (e.g., fire marshal, local officials, MPCA staff, etc.): John Babin, Fire Inspector

F. Site Location Information: Attach Guidance Document 1-03a *Spatial Data Reporting Form* if it has not already been submitted or will not be submitted as part of Guidance Document 4-06 *Investigation Report Form*.
This information is provided in the follow-up MPCA Report.

Note: If person other than tank owner and/or operator is conducting the cleanup, provide name, address, and relationship to site on a separate attached sheet.

PART II: DATES

A. Date release reported to MPCA: 6/27/2013

B. Dates site work performed (tanks removed, piping removed, soil excavation, soil borings, etc.):

Work Performed	Date
One Tank & two pump removed, soil samples collected	6/27/2013

PART III: SITE AND RELEASE INFORMATION

A. Describe the land use and pertinent geographic features within 1,000 feet of the site. (i.e. residential property, industrial, wetlands, etc.)

The site and surrounding area is developed as commercial business to the east, south, and west. To the north of the site is highway 13. North of highway 13 is a wetland area.

B. Provide the following information for all tanks removed and any remaining at the site:

Table 1.

Tank #	Tank ** Material	UST or AST	Capacity (gallons)	Contents (product type)	Year installed	Tank Status*	Condition of Tank
1	F	UST	10k	Diesel	Unknown	Removed 6/27/13	No holes, No Oxidation
2	S	AST	10k	Diesel	approx 2012	current-ly used	No visible oxidation or holes

*Indicate: *removed (date), abandoned in place (date), or currently used, upgraded tank, installation of new tank. ** F for fiberglass or S for Steel*
Notes:

Piping Material (check all that apply): ☐ Steel, ☒ Fiberglass, ☐ Flexible Plastic, ☐ Copper, ☐ Other

C. Describe the location and status of the other components of the tank system(s) (i.e., transfer locations, valves, piping and dispensers) for those tanks listed above.

The tank, vent, dispensers, and product lines were removed.

D. Identify the source(s) of the release or contamination encountered. Only check those options that were verified, if source is unknown check Other and describe:
☐ Piping, ☐Tank, ☐ Dispenser, ☐ Pump/Turbine, ☐ Delivery Problem, ☒ Other - the exact source was not readily apparent, therefore it is presumably due to occasional overfills.

E. Identify the cause of the release (tank and/or piping).
Check all that apply: ☐ Corrosion, ☐ Install Problem, ☐ Spill, ☐ Unknown,
☐ Mechanical or Physical Damage, ☒ Other See D. above

F. Identify the method the release was detected.
Check all that apply: ☒Removal, ☐ Line Leak Detection, ☐ Tank Leak Detection,
☐ Visual/Olfactory, ☐ Site Assessment, ☐ Other

G. Identify any surface soil contamination.

H. What was the volume of the release? (if known): unknown gallons

I. Historic contamination present (unknown origin?). ☐ Yes, ☒ No

J. When did the release occur? (if known): Unknown

K. Describe source of on-site drinking water. Municipal water is supplied to the site

L. Has the site ever, at any point had an E-85 tank? ☐ Yes, ☒ No

PART IV: EXCAVATION INFORMATION

A. Dimensions of excavation(s): Length **31** feet Width **15** feet Depth 13 feet

B. Original tank backfill material (sand, gravel, etc.), if applicable: Peastone

C. Native soil type (clay, sand, etc.): Sandy Silt

D. Quantity of contaminated soil removed for treatment (cubic yards): N/A
(Indicate on the site map where the petroleum contaminated soil was excavated)

How many cubic yards of the removed soil was petroleum saturated? N/A
(Indicate on the site map where the petroleum saturated soil was excavated)

[**Note**: If the volume removed is more than allowed in Guidance Document 3-01 *Excavation of Petroleum Contaminated Soil*, please document MPCA staff approval.]

E. Were new tanks and/or piping and dispensers installed? (**No**) If yes, what volume of contaminated soil was excavated to accommodate the installation of the new tanks and piping?

F. If contaminated soil was removed to accommodate the installation of new tanks and/or piping, show your calculations for the amount of soil removal allowed using Table 3 in Guidance Document 3-01 *Excavation of Petroleum Contaminated Soil*.
N/A

G. Was ground water encountered or a suspected perched water layer or was there evidence of a seasonally high ground water table (i.e. mottling)? **Yes** At what depth? observed at 5 ft. deep.

H. If ground water was not encountered during the excavation, what is the expected depth of ground water?

I. Additional investigation to determine the need for a Limited Site Investigation is necessary at sites with sandy or silty sandy soil, a water table within 25 feet of the ground surface, and visual or other evidence of soil remaining contamination. See Table 2 in Guidance Document 3-01 *Excavation of Petroleum Contaminated Soil.* If a soil boring is necessary, describe the soil screening and analytical results. Attach the boring logs and laboratory results to this report.

J. If no soil boring was performed, explain.

This information is provided in the follow-up MPCA Report.

K. If ground water was encountered or if a soil boring was conducted, was there evidence of ground water contamination? (**Unknown**) Describe this evidence of contamination, e.g., free product (specify thickness), product sheen, ground water in contact with petroleum contaminated soil, water analytical results, etc. **Note**: If you observe free product, contact MPCA staff immediately, as outlined in Guidance Document 2-02 *Free Product: Evaluation and Recovery*.

A tank basin water sample was collected for laboratory analysis; foam appeared on the water surface in the tank basin indicating diesel fuel impact.

L. Was bedrock encountered in the excavation? (☐yes/ ☒no) At what depth?

M. Were other unique conditions associated with this site? (☐yes/ ☒no) If so, explain.

PART V: SAMPLING INFORMATION

A. Briefly describe the field screening methods used to distinguish contaminated from uncontaminated soil:

B. List soil vapor headspace analysis results collected during excavation of tanks, lines and dispensers, valves, and transfer locations. (i.e., soils left in place when excavation is complete). Code the samples with sampling depths in parentheses as follows: sidewall samples S-1 (8 feet), S-2 (4 feet), etc.; bottom samples B-1 (13 feet), B-2 (14 feet), removed soil R-1 (4 feet), R-1 (8 feet), etc.; stockpile samples SP-1, etc; line samples L-1, L2, etc.; transfer locations T-1 (4 feet), T-1 (8 feet), etc.; dispensers D-1 (4 feet), etc. **Be sure the sample codes correspond with the site map in part VI, below.**

Sample Code	Soil Type	Reading ppm	Sample Code	Soil Type	Reading ppm
S-1 (13')	Pea gravel	40			
S-2 (13')	Pea Gravel	100			
S-3 (4')	Sandy Silt	79			
S-4 (4')	Sandy Silt	61			

C. Was the "removed soil" placed back into the excavation basin? (☒yes/ ☐no)
If no, please complete Part VIII: Soil Treatment Information section. If yes, a Limited Site Investigation is necessary (see Guidance Document 4-01 *Soil and Ground Water Assessments Performed during Site Investigations*).

D. Briefly describe the soil analytical sampling and handling procedures used:

Soil sampling followed MPCA recommended procedures including Wisconsin Department of Natural Resources modified Gasoline Range Organics (GRO) and modified Diesel Range Organics (DRO) methods as applicable, including cold storage until delivered to the laboratory. According to the laboratory, all analyses were performed using EPA or other accepted methodologies.

E. List below all soil sample analytical results from bottom and side wall samples collected after excavation of tanks, lines and dispensers, valves, and transfer locations (i.e., soils left in place when excavation is complete). Code the samples with sampling depths in parentheses as follows: sidewall samples S-1 (8 feet), S-2 (4 feet), etc.; bottom samples B-1 (13 feet), B-2 (14 feet), removed soil R-1 (4 feet), R-1 (8 feet), etc.; stockpile samples SP-1, etc; line samples L-1, L2, etc.; transfer locations T-1 (4 feet), T-1 (8 feet), etc.; dispensers D-1 (4 feet), etc.; **Be sure the sample codes correspond to the site map required in part VI.**

Sample Code	GRO/ DRO	Benzene mg/kg	Ethyl-benzene mg/kg	Toluene Mg/kg	Xylene mg/kg	MTBE mg/kg	Lead mg/kg
S-1	24.6/138	<0.051	0.058	<0.051	<0.15	<0.25	n/a
S-2	53.1/26.4	<0.052	0.086	<0.052	0.24	<0.26	n/a
S-3	44.3/7,000	<0.053	0.078	<0.53	0.21	<0.26	n/a
S-4	33.6/10,200	<0.061	0.070	<0.061	<0.18	<0.31	n/a

Note: Attach copies of laboratory reports and chain of custody forms.

PART VI: FIGURES

Attach the following figures to this report:

1. Site location map. This information is provided in the follow-up MPCA Report.
2. Site map(s) drawn to scale illustrating the following:
   a. Location of all present and former tanks, piping, and dispensers;
   b. Location of surface soil contamination
   c. Location of other structures (buildings, canopies, etc.);
   d. Adjacent city, township, or county roadways;
   e. Dimensions of excavation(s), including contour lines (maximum 2-foot contour intervals) to represent the depths of the final excavation(s);
   f. Location of soil screening samples (e.g. R-1), soil analytical samples (e.g., S-1 or B-1), and any soil borings (e.g., SB-1). Also, attach all boring logs.
   g. North arrow, bar scale and map legend.
   h. Provide location of any on-site water wells. If on-site water wells exist, please provide well logs and/or construction diagrams.
   i. Locations of new tanks, piping and dispensers, if installed.

PART VII: CONCLUSIONS AND RECOMMENDATIONS

Recommendation for site: ☐ site closure
☒ additional investigation

Justify the recommendations for the site. If no further action is necessary, the MPCA staff will review this report following notification of soil treatment.

Additional information is provided in the follow-up MPCA Report.

PART VIII: SOIL TREATMENT INFORMATION

A. Soil treatment method used (thermal, land application, composting, other). If you choose "other" specify treatment method: N/A

B. Location of treatment site/facility: N/A

C. Date MPCA approved soil treatment (if thermal treatment was used, indicate date that the MPCA-permitted thermal treatment facility agreed to accept soil): N/A

D. Identify the location of stockpiled contaminated soil:
N/A

PART IX: CONSULTANT (OR OTHER) PREPARING THIS REPORT

By signing this document, I/we acknowledge that we are submitting this document on behalf of and as agents of the responsible person or volunteer for this leak site. I/we acknowledge that if information in this document is inaccurate or incomplete, it will delay the completion of remediation and may harm the environment and may result in reduction of reimbursement awards. In addition, I/we acknowledge on behalf of the responsible person or volunteer for this leak site that if this document is determined to contain a false material statement, representation, or certification, or if it omits material information, the responsible person or volunteer may be found to be in violation of Minn. Stat. § 115.075 (1994) or Minn. 7000.0300 (Duty of Candor), and that the responsible person or volunteer may be liable for civil penalties.

MPCA staff are instructed to reject unsigned excavation reports or if the report form has been altered.

Name and Title:	Signature:	Date signed:
Thomas A. Greene, P.E. Project Manager		March 3, 2015

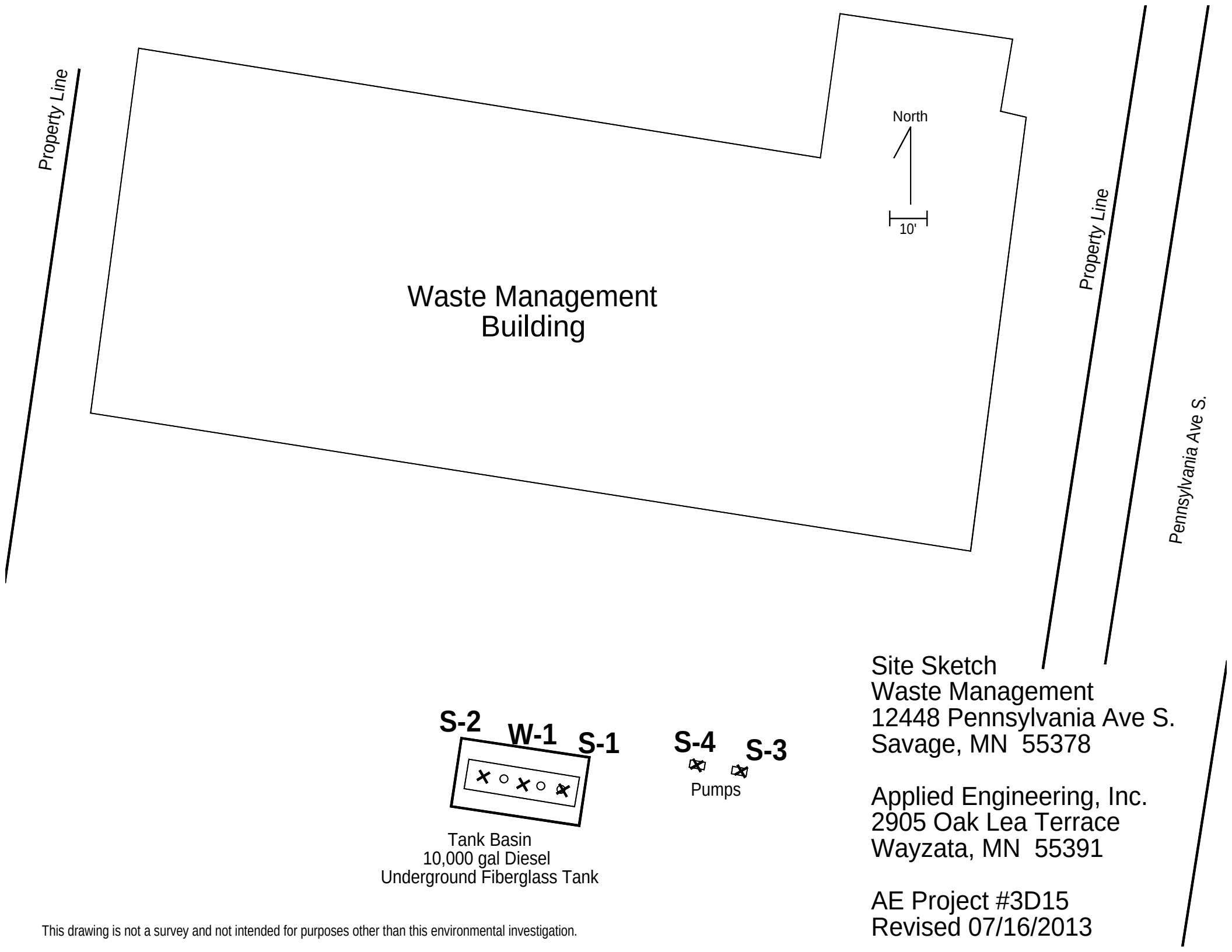
Company and mailing address: Applied Engineering, Inc.
1161 Wayzata Blvd E., Ste #60
Wayzata, MN 55391

Telephone: 952-939-9095 Fax: 952-939-0178

If additional investigation is not necessary, please mail this form and all necessary attachments to the MPCA project manager. If additional investigation is necessary, include this form as an appendix to Guidance Document 4-06 *Investigation Report Form*. **MPCA staff will not review excavation reports indicating a limited site investigation is necessary unless the limited site investigation has been completed.**

Web pages and phone numbers

MPCA staff	http://pca.state.mn.us/pca/staff/index.cfm
MPCA toll free	**1-800-657-3864**
Petroleum Remediation Program web page	http://www.pca.state.mn.us/programs/lust_p.html
MPCA Infor. Request	http://www.pca.state.mn.us/about/inforequest.html
MPCA Petroleum Brownfields Program	http://www.pca.state.mn.us/programs/vpic_p.html
PetroFund Web Page	http://www.state.mn.us/cgi-bin/portal/mn/jsp/content.do?id=-536881377&agency=Commerce
PetroFund Phone	**651-297-1119**, or **1-800-638-0418**
State Duty Officer	**651-649-5451 or 1-800-422-0798**



Site Sketch
Waste Management
12448 Pennsylvania Ave S.
Savage, MN 55378

Applied Engineering, Inc.
2905 Oak Lea Terrace
Wayzata, MN 55391

AE Project #3D15
Revised 07/16/2013

This drawing is not a survey and not intended for purposes other than this environmental investigation.

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

July 12, 2013

Mr. Thomas Greene
Applied Engineering
2905 Oak Lea Terrace
Wayzata, MN 55391

RE: Project: 3D15 WASTE MANAGEMENT
Pace Project No.: 10233818

Dear Mr. Greene:
Enclosed are the analytical results for sample(s) received by the laboratory on June 28, 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,

Carol Davy for
Diane J. Anderson
diane.anderson@pacelabs.com
Project Manager

Enclosures

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

CERTIFICATIONS

Project: 3D15 WASTE MANAGEMENT
Pace Project No.: 10233818

Minnesota Certification IDs

1700 Elm Street SE Suite 200, Minneapolis, MN 55414
A2LA Certification #: 2926.01
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
Florida/NELAP Certification #: E87605
Georgia Certification #: 959
Hawaii Certification #Pace
Idaho Certification #: MN00064
Illinois Certification #: 200011
Kansas Certification #: E-10167
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

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

SAMPLE SUMMARY

Project: 3D15 WASTE MANAGEMENT
Pace Project No.: 10233818

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10233818001	**S-1**	Solid	06/27/13 15:00	06/28/13 14:15
10233818002	**S-2**	Solid	06/27/13 15:00	06/28/13 14:15
10233818003	**S-3**	Solid	06/27/13 15:00	06/28/13 14:15
10233818004	**S-4**	Solid	06/27/13 15:00	06/28/13 14:15
10233818005	**W1**	Water	06/27/13 15:00	06/28/13 14:15

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

SAMPLE ANALYTE COUNT

Project: 3D15 WASTE MANAGEMENT
Pace Project No.: 10233818

Lab ID	Sample ID	Method	Analysts	Analytes Reported
10233818001	**S-1**	WI MOD DRO	MT	2
		WI MOD GRO	KT1	7
		ASTM D2974	CMS2	1
10233818002	**S-2**	WI MOD DRO	MT	2
		WI MOD GRO	KT1	7
		ASTM D2974	CMS2	1
10233818003	**S-3**	WI MOD DRO	MT	2
		WI MOD GRO	KT1	7
		ASTM D2974	CMS2	1
10233818004	**S-4**	WI MOD DRO	MT	2
		WI MOD GRO	KT1	7
		ASTM D2974	CMS2	1
10233818005	**W1**	WI MOD DRO	JRH	2
		WI MOD GRO	KT1	7

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: 3D15 WASTE MANAGEMENT
Pace Project No.: 10233818

Sample: S-1 **Lab ID: 10233818001** Collected: 06/27/13 15:00 Received: 06/28/13 14:15 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
WIDRO GCS	Analytical Method: WI MOD DRO		Preparation Method: WI MOD DRO					
Diesel Range Organics	**138**	mg/kg	10.4	1	07/03/13 09:42	07/08/13 20:57		
Surrogates								
n-Triacontane (S)	86	%	50-150	1	07/03/13 09:42	07/08/13 20:57	638-68-6	
WIGRO GCV	Analytical Method: WI MOD GRO		Preparation Method: TPH GRO/PVOC WI ext.					
Benzene	ND	mg/kg	0.051	1	07/07/13 14:54	07/10/13 01:27	71-43-2	
Ethylbenzene	**0.058**	mg/kg	0.051	1	07/07/13 14:54	07/10/13 01:27	100-41-4	
Gasoline Range Organics	**24.6**	mg/kg	5.1	1	07/07/13 14:54	07/10/13 01:27		
Methyl-tert-butyl ether	ND	mg/kg	0.25	1	07/07/13 14:54	07/10/13 01:27	1634-04-4	
Toluene	ND	mg/kg	0.051	1	07/07/13 14:54	07/10/13 01:27	108-88-3	
Xylene (Total)	ND	mg/kg	0.15	1	07/07/13 14:54	07/10/13 01:27	1330-20-7	
Surrogates								
a,a,a-Trifluorotoluene (S)	95	%	80-125	1	07/07/13 14:54	07/10/13 01:27	98-08-8	
Dry Weight	Analytical Method: ASTM D2974							
Percent Moisture	**3.0**	%	0.10	1		07/05/13 00:00		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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(612)607-1700

ANALYTICAL RESULTS

Project: 3D15 WASTE MANAGEMENT
Pace Project No.: 10233818

Sample: S-2 **Lab ID: 10233818002** Collected: 06/27/13 15:00 Received: 06/28/13 14:15 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
WIDRO GCS	Analytical Method: WI MOD DRO		Preparation Method: WI MOD DRO					
Diesel Range Organics	**26.4**	mg/kg	10.1	1	07/03/13 09:42	07/08/13 20:50		
Surrogates								
n-Triacontane (S)	87	%	50-150	1	07/03/13 09:42	07/08/13 20:50	638-68-6	
WIGRO GCV	Analytical Method: WI MOD GRO		Preparation Method: TPH GRO/PVOC WI ext.					
Benzene	ND	mg/kg	0.052	1	07/07/13 14:54	07/10/13 05:02	71-43-2	
Ethylbenzene	**0.086**	mg/kg	0.052	1	07/07/13 14:54	07/10/13 05:02	100-41-4	
Gasoline Range Organics	**53.1**	mg/kg	5.2	1	07/07/13 14:54	07/10/13 05:02		
Methyl-tert-butyl ether	ND	mg/kg	0.26	1	07/07/13 14:54	07/10/13 05:02	1634-04-4	
Toluene	ND	mg/kg	0.052	1	07/07/13 14:54	07/10/13 05:02	108-88-3	
Xylene (Total)	**0.24**	mg/kg	0.16	1	07/07/13 14:54	07/10/13 05:02	1330-20-7	
Surrogates								
a,a,a-Trifluorotoluene (S)	88	%	80-125	1	07/07/13 14:54	07/10/13 05:02	98-08-8	
Dry Weight	Analytical Method: ASTM D2974							
Percent Moisture	**2.6**	%	0.10	1		07/05/13 00:00		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 3D15 WASTE MANAGEMENT
Pace Project No.: 10233818

Sample: S-3 **Lab ID: 10233818003** Collected: 06/27/13 15:00 Received: 06/28/13 14:15 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
WIDRO GCS	Analytical Method: WI MOD DRO		Preparation Method: WI MOD DRO					
Diesel Range Organics	**7000**	mg/kg	1040	100	07/03/13 09:42	07/09/13 09:51		
Surrogates								
n-Triacontane (S)	0	%	50-150	100	07/03/13 09:42	07/09/13 09:51	638-68-6	S4
WIGRO GCV	Analytical Method: WI MOD GRO		Preparation Method: TPH GRO/PVOC WI ext.					
Benzene	ND	mg/kg	0.053	1	07/07/13 14:54	07/10/13 04:43	71-43-2	
Ethylbenzene	**0.078**	mg/kg	0.053	1	07/07/13 14:54	07/10/13 04:43	100-41-4	
Gasoline Range Organics	**44.3**	mg/kg	5.3	1	07/07/13 14:54	07/10/13 04:43		
Methyl-tert-butyl ether	ND	mg/kg	0.26	1	07/07/13 14:54	07/10/13 04:43	1634-04-4	
Toluene	ND	mg/kg	0.053	1	07/07/13 14:54	07/10/13 04:43	108-88-3	
Xylene (Total)	**0.21**	mg/kg	0.16	1	07/07/13 14:54	07/10/13 04:43	1330-20-7	
Surrogates								
a,a,a-Trifluorotoluene (S)	88	%	80-125	1	07/07/13 14:54	07/10/13 04:43	98-08-8	
Dry Weight	Analytical Method: ASTM D2974							
Percent Moisture	**3.6**	%	0.10	1		07/05/13 00:00		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 3D15 WASTE MANAGEMENT
Pace Project No.: 10233818

Sample: S-4 **Lab ID: 10233818004** Collected: 06/27/13 15:00 Received: 06/28/13 14:15 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
WIDRO GCS	Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO							
Diesel Range Organics	**10200**	mg/kg	1210	100	07/03/13 09:42	07/09/13 09:58		
Surrogates								
n-Triacontane (S)	0	%	50-150	100	07/03/13 09:42	07/09/13 09:58	638-68-6	S4
WIGRO GCV	Analytical Method: WI MOD GRO Preparation Method: TPH GRO/PVOC WI ext.							
Benzene	ND	mg/kg	0.061	1	07/07/13 14:54	07/10/13 01:47	71-43-2	
Ethylbenzene	**0.070**	mg/kg	0.061	1	07/07/13 14:54	07/10/13 01:47	100-41-4	
Gasoline Range Organics	**33.6**	mg/kg	6.1	1	07/07/13 14:54	07/10/13 01:47		
Methyl-tert-butyl ether	ND	mg/kg	0.31	1	07/07/13 14:54	07/10/13 01:47	1634-04-4	
Toluene	ND	mg/kg	0.061	1	07/07/13 14:54	07/10/13 01:47	108-88-3	
Xylene (Total)	ND	mg/kg	0.18	1	07/07/13 14:54	07/10/13 01:47	1330-20-7	
Surrogates								
a,a,a-Trifluorotoluene (S)	97	%	80-125	1	07/07/13 14:54	07/10/13 01:47	98-08-8	
Dry Weight	Analytical Method: ASTM D2974							
Percent Moisture	**16.3**	%	0.10	1		07/05/13 00:00		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 3D15 WASTE MANAGEMENT
Pace Project No.: 10233818

Sample: W1 **Lab ID: 10233818005** Collected: 06/27/13 15:00 Received: 06/28/13 14:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
WIDRO GCS	Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO							
Diesel Range Organics	**12.5**	mg/L	0.52	5	07/03/13 07:19	07/06/13 16:07		
Surrogates								
n-Triacontane (S)	86	%	50-150	5	07/03/13 07:19	07/06/13 16:07	638-68-6	
WIGRO GCV	Analytical Method: WI MOD GRO							
Benzene	ND	ug/L	1.0	1		07/10/13 12:31	71-43-2	
Ethylbenzene	**1.3**	ug/L	1.0	1		07/10/13 12:31	100-41-4	
Gasoline Range Organics	ND	ug/L	100	1		07/10/13 12:31		
Methyl-tert-butyl ether	ND	ug/L	5.0	1		07/10/13 12:31	1634-04-4	
Toluene	**3.3**	ug/L	1.0	1		07/10/13 12:31	108-88-3	
Xylene (Total)	**6.1**	ug/L	3.0	1		07/10/13 12:31	1330-20-7	
Surrogates								
a,a,a-Trifluorotoluene (S)	101	%	80-125	1		07/10/13 12:31	98-08-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 3D15 WASTE MANAGEMENT
Pace Project No.: 10233818

QC Batch: GCV/11009 Analysis Method: WI MOD GRO
QC Batch Method: TPH GRO/PVOC WI ext. Analysis Description: WIGRO Solid GCV
Associated Lab Samples: 10233818001, 10233818002, 10233818003, 10233818004

METHOD BLANK: 1472754 Matrix: Solid
Associated Lab Samples: 10233818001, 10233818002, 10233818003, 10233818004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	mg/kg	ND	0.050	07/09/13 15:27	
Ethylbenzene	mg/kg	ND	0.050	07/09/13 15:27	
Gasoline Range Organics	mg/kg	ND	5.0	07/09/13 15:27	
Methyl-tert-butyl ether	mg/kg	ND	0.25	07/09/13 15:27	
Toluene	mg/kg	ND	0.050	07/09/13 15:27	
Xylene (Total)	mg/kg	ND	0.15	07/09/13 15:27	
a,a,a-Trifluorotoluene (S)	%	102	80-125	07/09/13 15:27	

LABORATORY CONTROL SAMPLE & LCSD: 1472755 1472756

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Benzene	mg/kg	5	4.5	4.8	91	96	80-120	6	20	
Ethylbenzene	mg/kg	5	4.8	4.9	96	99	80-120	3	20	
Gasoline Range Organics	mg/kg	50	51.2	50.8	102	102	80-120	.8	20	
Methyl-tert-butyl ether	mg/kg	5	4.3	4.6	85	91	80-120	7	20	
Toluene	mg/kg	5	4.7	4.9	93	97	80-120	4	20	
Xylene (Total)	mg/kg	15	14.5	14.9	96	99	80-120	3	20	
a,a,a-Trifluorotoluene (S)	%				98	98	80-125			

MATRIX SPIKE SAMPLE: 1472757

Parameter	Units	10234249007 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Benzene	mg/kg	<0.055	5.7	5.4	95	80-120	
Ethylbenzene	mg/kg	<0.055	5.7	5.6	99	80-120	
Gasoline Range Organics	mg/kg	<5.5	56.6	60.8	108	80-120	
Methyl-tert-butyl ether	mg/kg	<0.27	5.7	5.4	96	80-120	
Toluene	mg/kg	<0.055	5.7	5.5	97	80-120	
Xylene (Total)	mg/kg	<0.16	17	16.9	100	80-120	
a,a,a-Trifluorotoluene (S)	%				94	80-125	

SAMPLE DUPLICATE: 1472758

Parameter	Units	10234249008 Result	Dup Result	RPD	Max RPD	Qualifiers
Benzene	mg/kg	<0.058	ND		20	
Ethylbenzene	mg/kg	<0.058	0.092		20	
Gasoline Range Organics	mg/kg	31.5	62.0	65	20	D6
Methyl-tert-butyl ether	mg/kg	<0.29	ND		20	
Toluene	mg/kg	<0.058	.011J		20	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 3D15 WASTE MANAGEMENT
Pace Project No.: 10233818

SAMPLE DUPLICATE: 1472758

Parameter	Units	10234249008 Result	Dup Result	RPD	Max RPD	Qualifiers
Xylene (Total)	mg/kg	0.20	0.40	69	20	
a,a,a-Trifluorotoluene (S)	%	95	82	13		

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QUALITY CONTROL DATA

Project: 3D15 WASTE MANAGEMENT
Pace Project No.: 10233818

QC Batch: GCV/11012
QC Batch Method: WI MOD GRO
Analysis Method: WI MOD GRO
Analysis Description: WIGRO GCV Water
Associated Lab Samples: 10233818005

METHOD BLANK: 1473883 Matrix: Water
Associated Lab Samples: 10233818005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	07/10/13 07:19	
Ethylbenzene	ug/L	ND	1.0	07/10/13 07:19	
Gasoline Range Organics	ug/L	ND	100	07/10/13 07:19	
Methyl-tert-butyl ether	ug/L	ND	5.0	07/10/13 07:19	
Toluene	ug/L	ND	1.0	07/10/13 07:19	
Xylene (Total)	ug/L	ND	3.0	07/10/13 07:19	
a,a,a-Trifluorotoluene (S)	%	102	80-125	07/10/13 07:19	

LABORATORY CONTROL SAMPLE & LCSD: 1473884 1473885

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Benzene	ug/L	100	104	100	104	100	80-120	3	20	
Ethylbenzene	ug/L	100	104	101	104	101	80-120	3	20	
Gasoline Range Organics	ug/L	1000	1150	1070	115	107	80-120	7	20	
Methyl-tert-butyl ether	ug/L	100	102	104	102	104	80-120	2	20	
Toluene	ug/L	100	104	101	104	101	80-120	3	20	
Xylene (Total)	ug/L	300	317	309	106	103	80-120	3	20	
a,a,a-Trifluorotoluene (S)	%				99	97	80-125			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1473886 1473887

Parameter	Units	10234146001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Benzene	ug/L	16500	10000	10000	26900	27900	105	114	80-120	4	20	
Ethylbenzene	ug/L	2450	10000	10000	13000	13300	105	109	80-120	3	20	
Gasoline Range Organics	ug/L	103000	100000	100000	211000	214000	108	111	80-120	1	20	
Methyl-tert-butyl ether	ug/L	ND	10000	10000	9950	10500	99	105	80-120	5	20	
Toluene	ug/L	31000	10000	10000	40800	42100	98	110	80-120	3	20	
Xylene (Total)	ug/L	11800	30000	30000	43100	43900	104	107	80-120	2	20	
a,a,a-Trifluorotoluene (S)	%						98	100	80-125			

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 3D15 WASTE MANAGEMENT
Pace Project No.: 10233818

QC Batch: MPRP/40396 Analysis Method: ASTM D2974
QC Batch Method: ASTM D2974 Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 10233818001, 10233818002, 10233818003, 10233818004

SAMPLE DUPLICATE: 1472187

Parameter	Units	10233935005 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	10.5	10.9	4	30	

SAMPLE DUPLICATE: 1472188

Parameter	Units	10233860006 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	13.7	13.0	6	30	

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QUALITY CONTROL DATA

Project: 3D15 WASTE MANAGEMENT
Pace Project No.: 10233818

QC Batch: OEXT/22175 Analysis Method: WI MOD DRO
QC Batch Method: WI MOD DRO Analysis Description: WIDRO GCS
Associated Lab Samples: 10233818001, 10233818002, 10233818003, 10233818004

METHOD BLANK: 1471056 Matrix: Solid
Associated Lab Samples: 10233818001, 10233818002, 10233818003, 10233818004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range Organics	mg/kg	ND	10.0	07/08/13 14:27	
n-Triacontane (S)	%	88	50-150	07/08/13 14:27	

LABORATORY CONTROL SAMPLE & LCSD: 1471057 1471058

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Diesel Range Organics	mg/kg	80	64.3	62.7	80	78	70-120	3	20	
n-Triacontane (S)	%				87	83	50-150			

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QUALITY CONTROL DATA

Project: 3D15 WASTE MANAGEMENT
Pace Project No.: 10233818

QC Batch: OEXT/22170 Analysis Method: WI MOD DRO
QC Batch Method: WI MOD DRO Analysis Description: WIDRO GCS
Associated Lab Samples: 10233818005

METHOD BLANK: 1470948 Matrix: Water
Associated Lab Samples: 10233818005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range Organics	mg/L	ND	0.10	07/06/13 13:56	
n-Triacontane (S)	%	99	50-150	07/06/13 13:56	

LABORATORY CONTROL SAMPLE & LCSD: 1470949 1470950

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Diesel Range Organics	mg/L	2	1.7	1.7	85	83	75-115	2	20	
n-Triacontane (S)	%				89	83	50-150			

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QUALIFIERS

Project: 3D15 WASTE MANAGEMENT
Pace Project No.: 10233818

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

D6	The relative percent difference (RPD) between the sample and sample duplicate exceeded laboratory control limits.
S4	Surrogate recovery not evaluated against control limits due to sample dilution.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 3D15 WASTE MANAGEMENT
Pace Project No.: 10233818

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10233818001	**S-1**	WI MOD DRO	OEXT/22175	WI MOD DRO	GCSV/11628
10233818002	**S-2**	WI MOD DRO	OEXT/22175	WI MOD DRO	GCSV/11628
10233818003	**S-3**	WI MOD DRO	OEXT/22175	WI MOD DRO	GCSV/11628
10233818004	**S-4**	WI MOD DRO	OEXT/22175	WI MOD DRO	GCSV/11628
10233818005	**W1**	WI MOD DRO	OEXT/22170	WI MOD DRO	GCSV/11609
10233818001	**S-1**	TPH GRO/PVOC WI ext.	GCV/11009	WI MOD GRO	GCV/11010
10233818002	**S-2**	TPH GRO/PVOC WI ext.	GCV/11009	WI MOD GRO	GCV/11010
10233818003	**S-3**	TPH GRO/PVOC WI ext.	GCV/11009	WI MOD GRO	GCV/11010
10233818004	**S-4**	TPH GRO/PVOC WI ext.	GCV/11009	WI MOD GRO	GCV/11010
10233818005	**W1**	WI MOD GRO	GCV/11012		
10233818001	**S-1**	ASTM D2974	MPRP/40396		
10233818002	**S-2**	ASTM D2974	MPRP/40396		
10233818003	**S-3**	ASTM D2974	MPRP/40396		
10233818004	**S-4**	ASTM D2974	MPRP/40396		

To Laboratory:

Pace Analytical Labs
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Minneapolis, MN 55414

1123

LAB SAMPLE CHAIN OF CUSTODY and REQUEST FOR ANALYSES 10233818

AE Proj / P.O. # 3D15 (Lab - PLEASE ensure this Project# appears on Lab Report)

Site Name WASTE MANAGEMENT

Site Address 12448 Pennsylvania Ave
SAVAGE, MN

Sampler Signature: J. A. Greene

From:
Applied Engineering, Inc.
2905 Oak Lea Terrace
Wayzata, MN 55391-2533
Tel 952-939-9095 Fax 952-939-0178

#	Sample Code	2013 Date	Time	Soil Water or Air	Location (all samples grab unless noted)	Depth	Type Soil	HNU Level	Presr-vative (b)	#Con-tain-ers	REQUESTED ANALYSES: GRO (c)	DRO (c)	MTBE & BTEX	VOCs 465 (d)	Lead (d)	Metals &PCBs (a,d)	
1	S-1	6-27	1500	S	BELOW E. END tk	13'	Pea Gravel	40	M	5	✓	✓	✓				001
2	S-2				" W. " "	13'	" "	100	M	5	✓	✓	✓				002
3	S-3				" E. ~~DISPEN~~ PUMP	4'	Sandy Silt	79	M	5	✓	✓	✓				003
4	S-4				" W. "	4'	" "	61	M	4	✓	✓	✓				004
5	W1	6-27	1500	W	TANK BASIN	5'					✓	✓	✓				005
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	
18																	
19																	
20																	

Comments:

Samples shipped on ice: [X] yes [ ] no
Lab: Provide Chromatograms per MPCA requirements: [X] yes [ ] no
Lab: Provide results in MPCA Report Table: [X] yes [ ] no
Lab: Provide Hard Copy of Lab Report [X] yes [ ] no

a Metals to be analyzed include Arsenic, Barium, Cadmium, Chromium, Lead, Mercury, Selenium, and Silver. Also analyze for PCB's
b Type Preservative: M = Methanol; H = Hydrochloric Acid (HCl)
c Analyze sample constituents per Wisconsin DNR GRO and/or DRO Methods; Also perform Dry Weight Analysis
d All water samples to be FILTERED upon arrival by LABORATORY
e California Modified EPA Method 8015

Relinquished by:

1. Sig., Date, & Time J. A. Greene 6-28-13 1030
Applied Engineering, Inc.

2. Sig., Date, Time [signature] 6/28/13 1415
Print Name Beneath Sig.

Received by

Sig., Company: [signature] PACE 6/28/13 T=1
Print Name Beneath Sig.:

Sig., Company: [signature] PACE 6/28 1411
Print Name Beneath Sig.:

chain-tg 03/07

Pace Analytical	Document Name: **Sample Condition Upon Receipt Form**	Document Revised: 28Jan2013 Page 1 of 1
	Document No.: **F-MN-L-213-rev.06**	Issuing Authority: Pace Minnesota Quality Office

Sample Condition Upon Receipt

Client Name: Applied

Project #: WO#: 10233818

10233818

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☑ Pace ☐ Other: _____

Tracking Number: _____

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: _____ **Temp Blank?** ☑ Yes ☐ No

Thermom. Used: ☑ B88A912167504 ☐ 80512447 ☐ 72337080 **Type of Ice:** ☑ Wet ☐ Blue ☐ None ☑ Samples on ice, cooling process has begun

Cooler Temp Read (°C): 1.4 **Cooler Temp Corrected (°C):** 1.4 **Biological Tissue Frozen?** ☐ Yes ☐ No

Temp should be above freezing to 6°C **Correction Factor:** true **Date and Initials of Person Examining Contents:** JHE 6/28/13

				Comments:
Chain of Custody Present?	☑ Yes	☐ No	☐ N/A	1.
Chain of Custody Filled Out?	☑ Yes	☐ No	☐ N/A	2.
Chain of Custody Relinquished?	☑ Yes	☐ No	☐ N/A	3.
Sampler Name and/or Signature on COC?	☑ Yes	☐ No	☐ N/A	4.
Samples Arrived within Hold Time?	☑ Yes	☐ No	☐ N/A	5.
Short Hold Time Analysis (<72 hr)?	☐ Yes	☑ No	☐ N/A	6.
Rush Turn Around Time Requested?	☐ Yes	☑ No	☐ N/A	7.
Sufficient Volume?	☑ Yes	☐ No	☐ N/A	8.
Correct Containers Used?	☑ Yes	☐ No	☐ N/A	9.
-Pace Containers Used?	☑ Yes	☐ No	☐ N/A	
Containers Intact?	☑ Yes	☐ No	☐ N/A	10.
Filtered Volume Received for Dissolved Tests?	☐ Yes	☐ No	☐ N/A	11.
Sample Labels Match COC? -Includes Date/Time/ID/Analysis Matrix: WT + SC	☐ Yes	☑ No	☐ N/A	12. Some labels don't match what's written on Bottles
All containers needing acid/base preservation have been checked? Noncompliances are noted in 13.	☐ Yes	☐ No	☑ N/A	13. ☐ HNO_3 ☐ H_2SO_4 ☐ NaOH ☐ HCl Sample #
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, HCl<2; NaOH>12)	☐ Yes	☐ No	☑ N/A	
Exceptions: VOA, Coliform, TOC, Oil and Grease, WI-DRO (water)	☐ Yes	☑ No		Initial when completed: _____ Lot # of added preservative: _____
Headspace in VOA Vials (>6mm)?	☐ Yes	☐ No	☑ N/A	14.
Trip Blank Present?	☐ Yes	☑ No	☐ N/A	15.
Trip Blank Custody Seals Present?	☐ Yes	☑ No	☐ N/A	
Pace Trip Blank Lot # (if purchased): _____				

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** ☐ Yes ☐ No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

Project Manager Review: DMT **Date:** 7/1/13

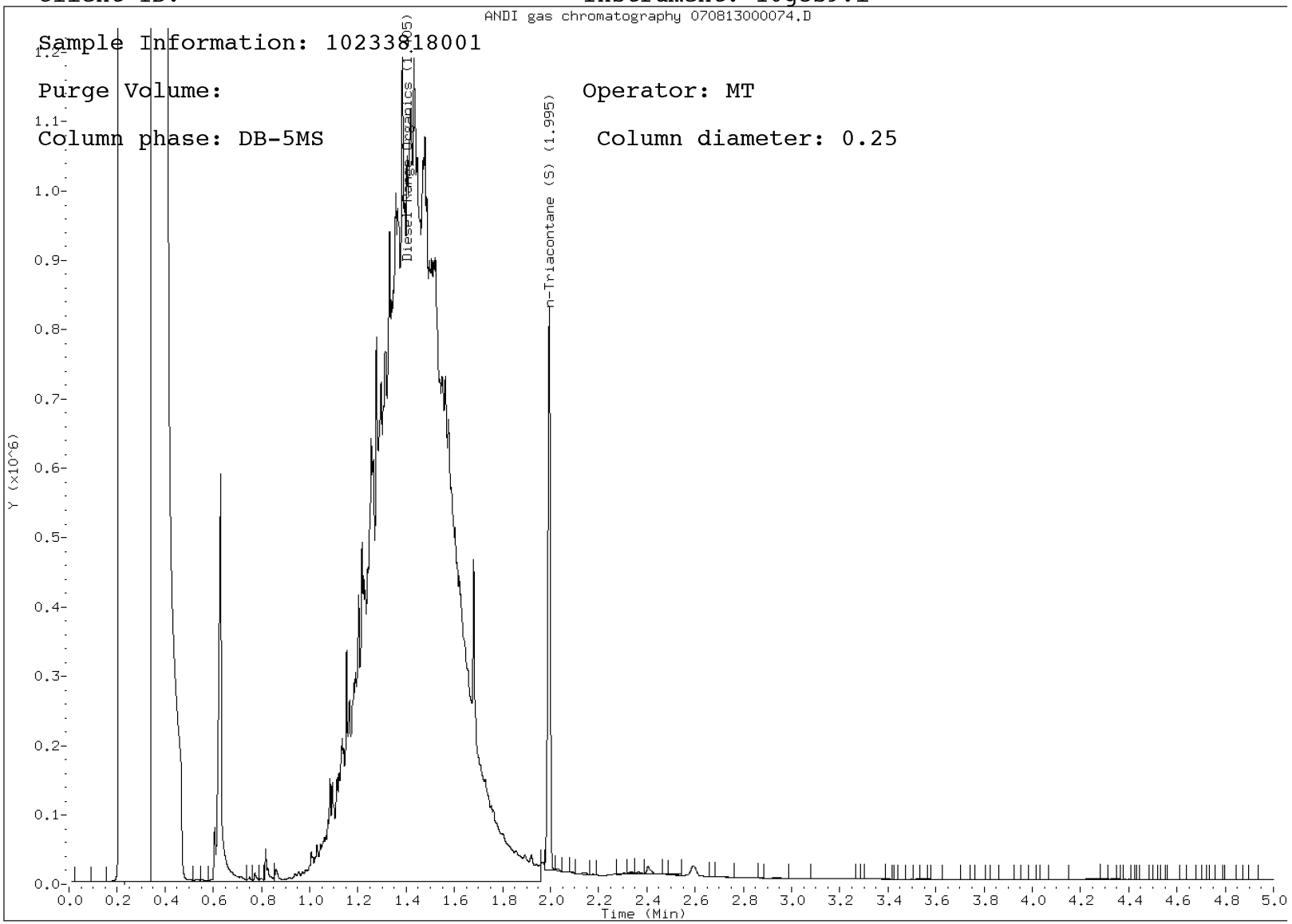
Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

Data File: \\192.168.10.12\chem\10gcs9.i\070813dro.b/070813000074.D

Report Date: 07/09/2013

Sample ID: 10233818001

Client ID: Instrument: 10gcs9.i



Sample Information: 10233818001

Purge Volume: Operator: MT

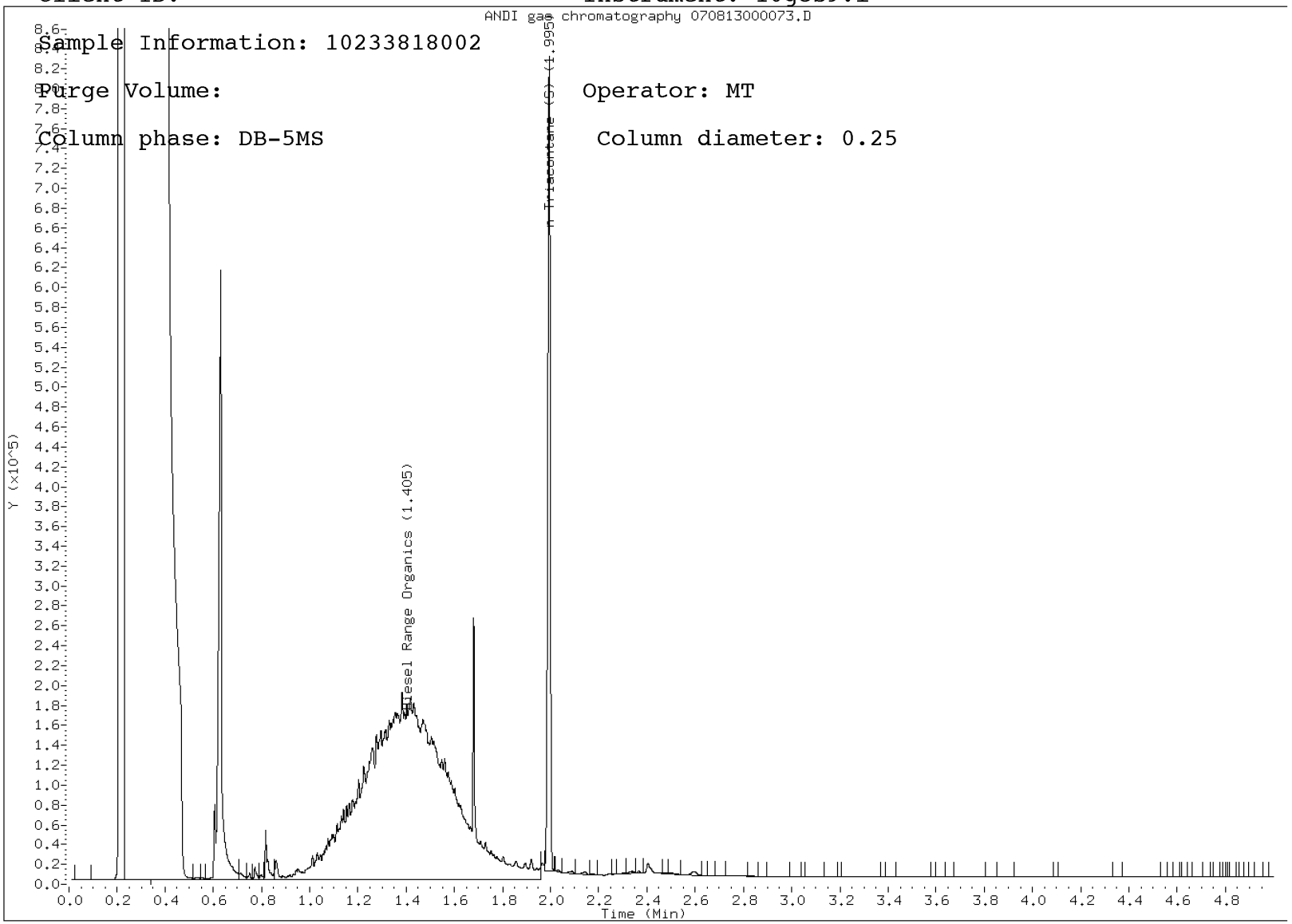
Column phase: DB-5MS Column diameter: 0.25

Data File: \\192.168.10.12\chem\10gcs9.i\070813dro.b/070813000073.D

Report Date: 07/09/2013

Sample ID: 10233818002

Client ID: Instrument: 10gcs9.i



Sample Information: 10233818002

Purge Volume: Operator: MT

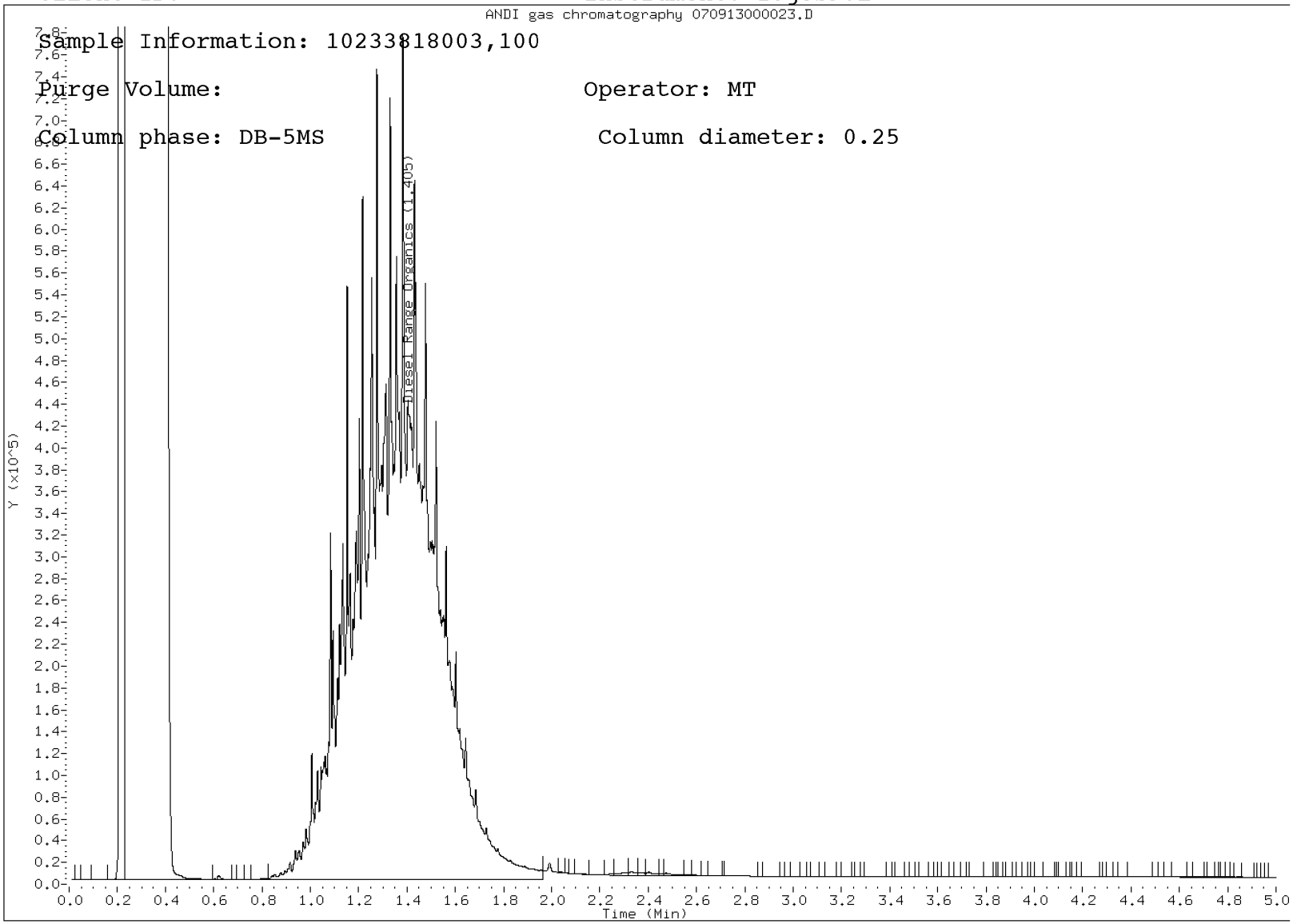
Column phase: DB-5MS Column diameter: 0.25

Data File: \\192.168.10.12\chem\10gcs9.i\070913dro.b/070913000023.D

Report Date: 07/09/2013

Sample ID: 10233818003

Client ID: Instrument: 10gcs9.i



Sample Information: 10233818003,100

Purge Volume: Operator: MT

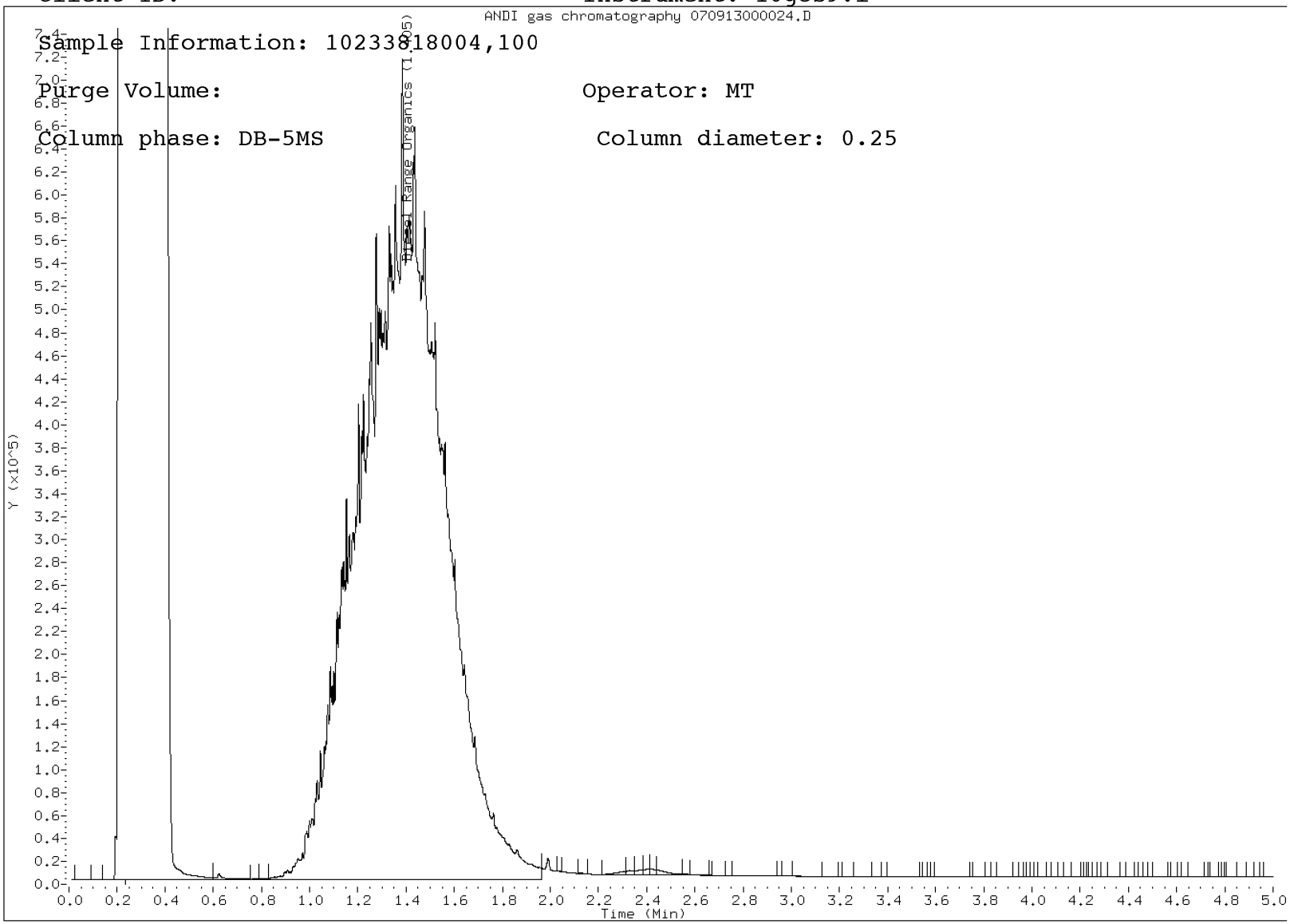
Column phase: DB-5MS Column diameter: 0.25

Data File: \\192.168.10.12\chem\10gcs9.i\070913dro.b/070913000024.D

Report Date: 07/09/2013

Sample ID: 10233818004

Client ID: Instrument: 10gcs9.i



Sample Information: 10233818004,100

Purge Volume: Operator: MT

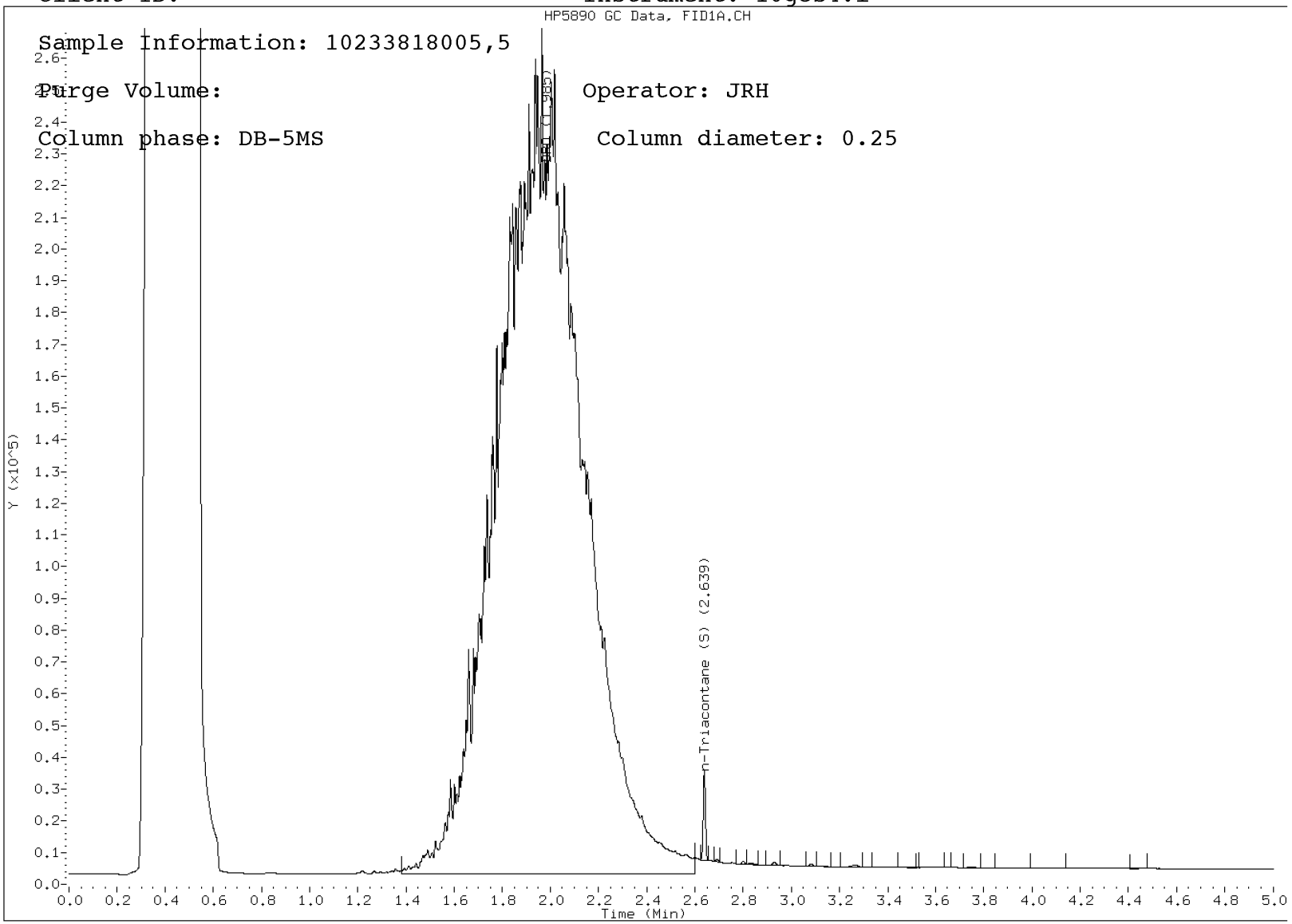
Column phase: DB-5MS Column diameter: 0.25

Data File: \\192.168.10.12\chem\10gcs4.i\070613dro.b/0706F027.D

Report Date: 07/06/2013

Sample ID: 10233818005

Client ID: Instrument: 10gcs4.i



Sample Information: 10233818005,5

Purge Volume: Operator: JRH

Column phase: DB-5MS Column diameter: 0.25

Data File: \\192.168.10.12\chem\10gcv3.i\070913a-1.b/G1-19040.d

Report Date: 07/11/2013

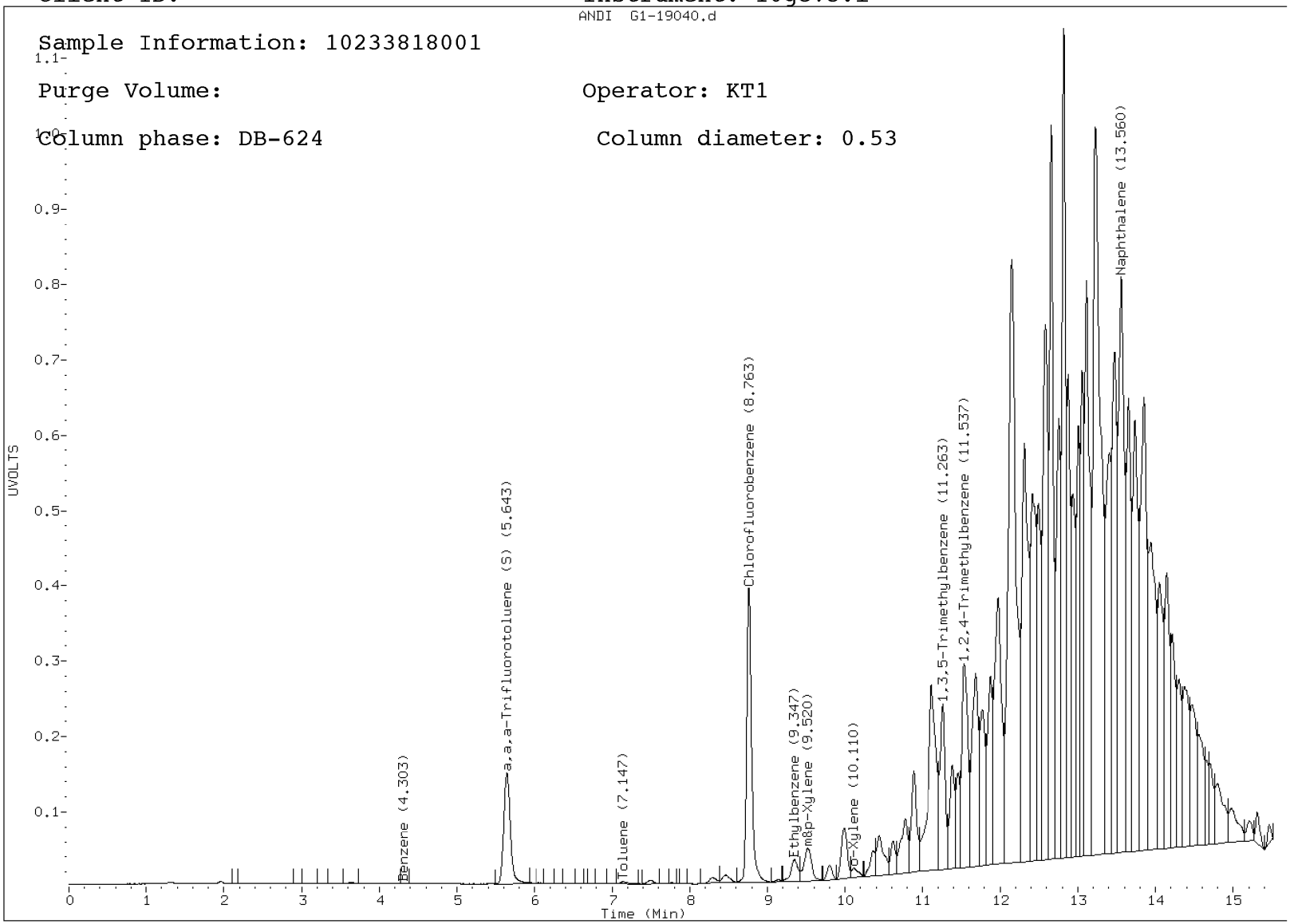
Sample ID: 10233818001

Client ID: Instrument: 10gcv3.i

Sample Information: 10233818001

Purge Volume: Operator: KT1

Column phase: DB-624 Column diameter: 0.53



Data File: \\192.168.10.12\chem\10gcv3.i\070913a-2.b/G1-19040.d

Report Date: 07/11/2013

Sample ID: 10233818001

Client ID:

Instrument: 10gcv3.i

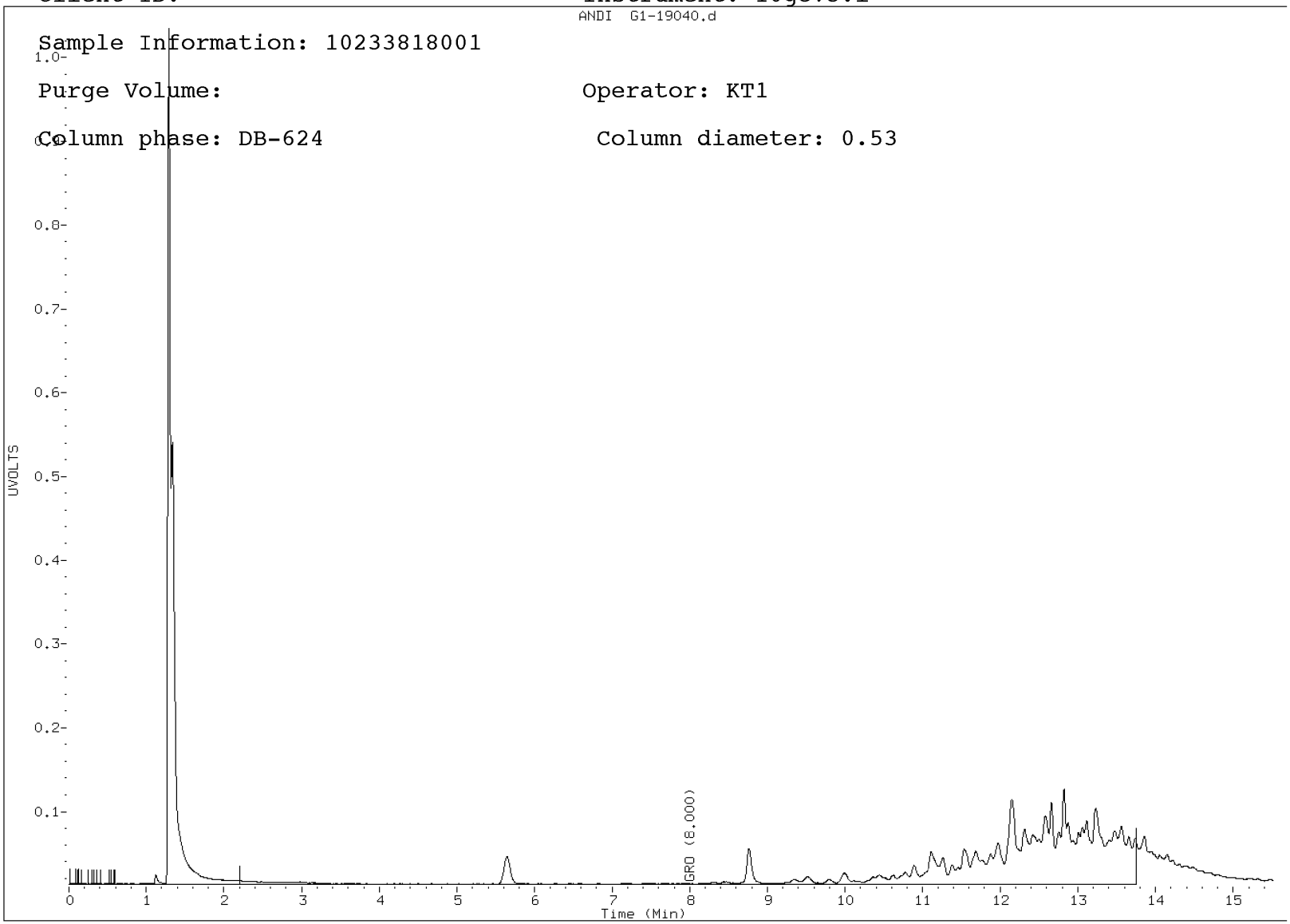
Sample Information: 10233818001

Purge Volume:

Operator: KT1

Column phase: DB-624

Column diameter: 0.53



Data File: \\192.168.10.12\chem\10gcv3.i\070913a-1.b/G1-19051.d

Report Date: 07/11/2013

Sample ID: 10233818002

Client ID:

Instrument: 10gcv3.i

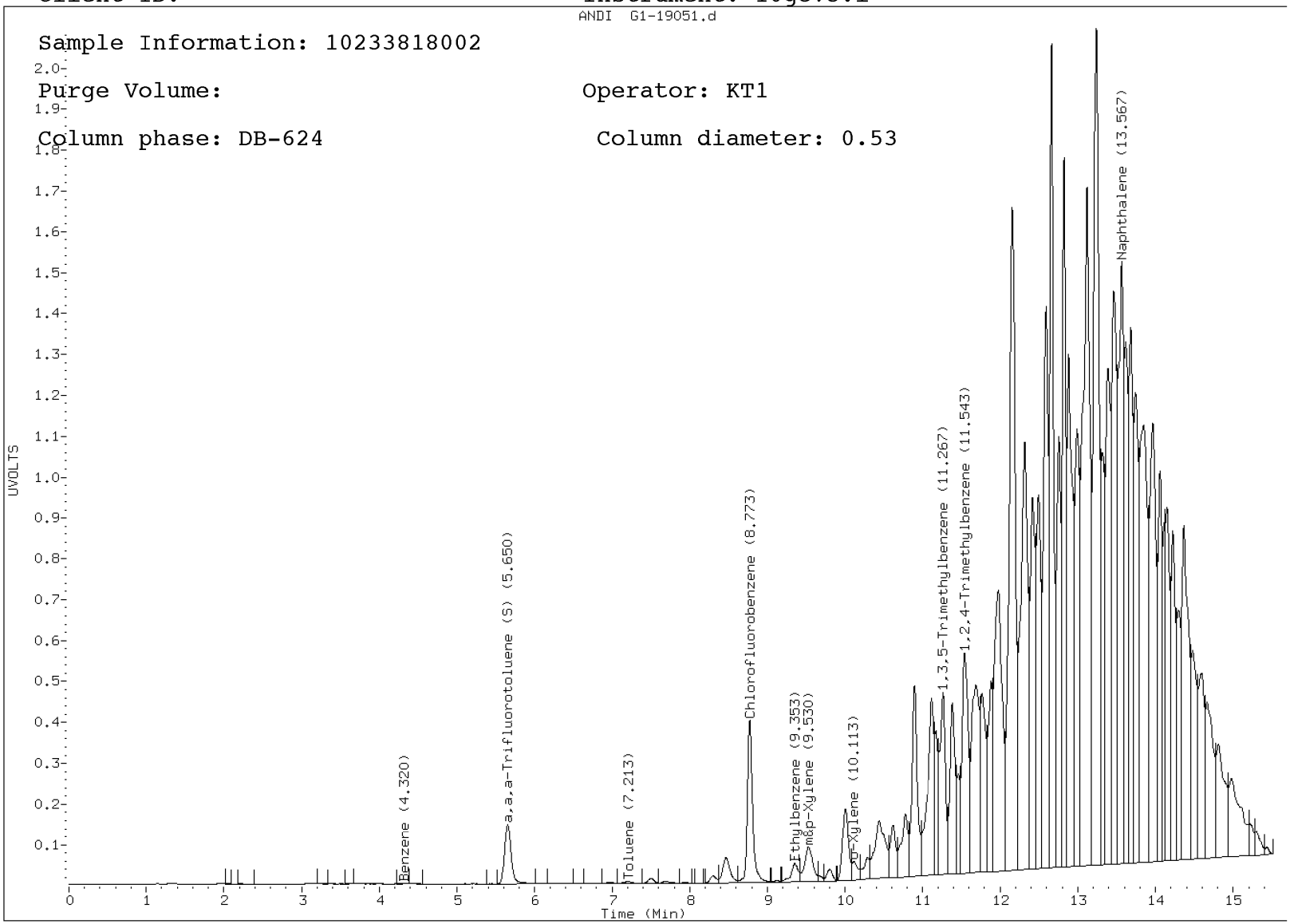
Sample Information: 10233818002

Purge Volume:

Operator: KT1

Column phase: DB-624

Column diameter: 0.53



Data File: \\192.168.10.12\chem\10gcv3.i\070913a-2.b/G1-19051.d

Report Date: 07/11/2013

Sample ID: 10233818002

Client ID:

Instrument: 10gcv3.i

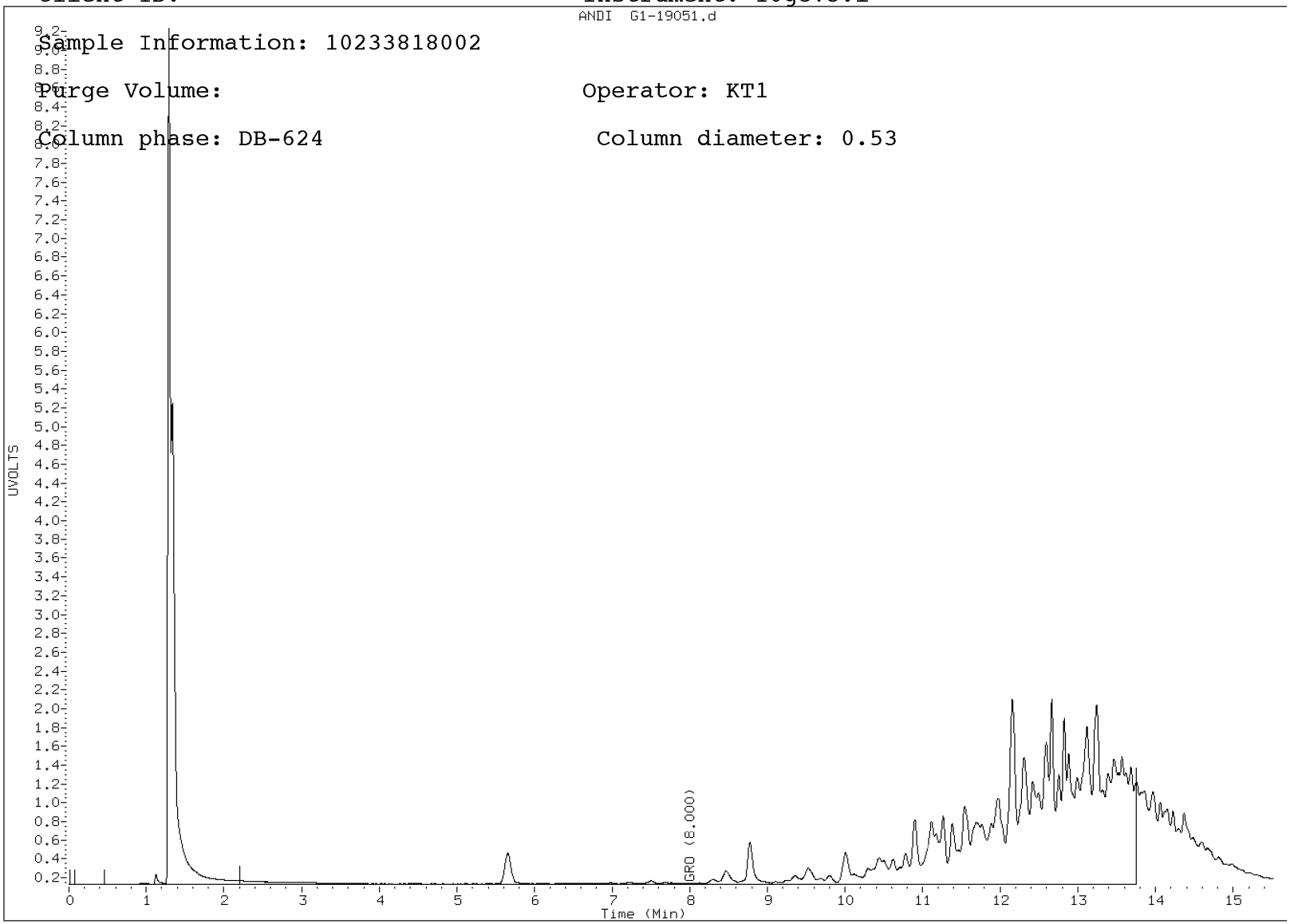
Sample Information: 10233818002

Purge Volume:

Operator: KT1

Column phase: DB-624

Column diameter: 0.53



Data File: \\192.168.10.12\chem\10gcv3.i\070913a-1.b/G1-19050.d

Report Date: 07/11/2013

Sample ID: 10233818003

Client ID:

Instrument: 10gcv3.i

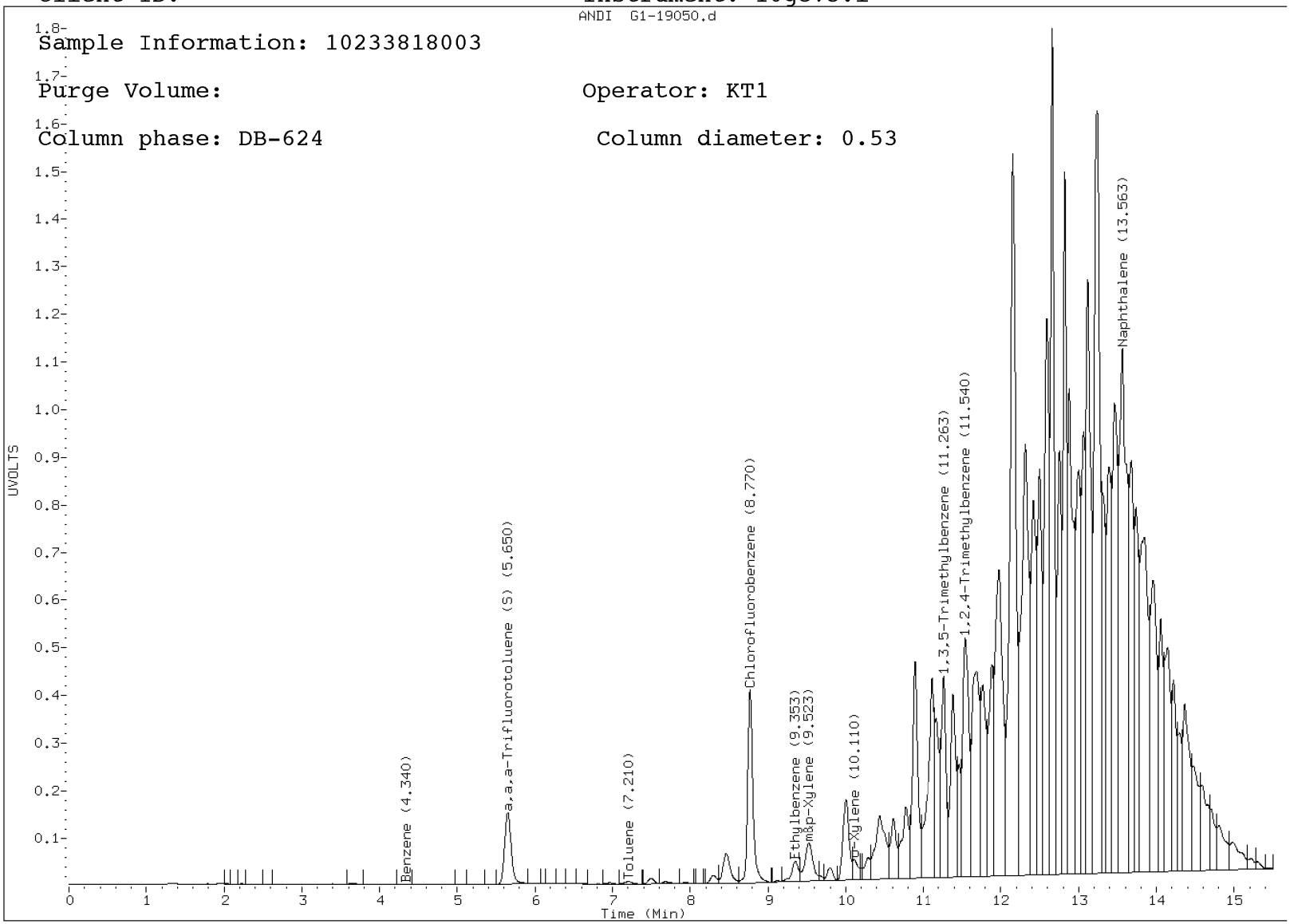
Sample Information: 10233818003

Purge Volume:

Operator: KT1

Column phase: DB-624

Column diameter: 0.53



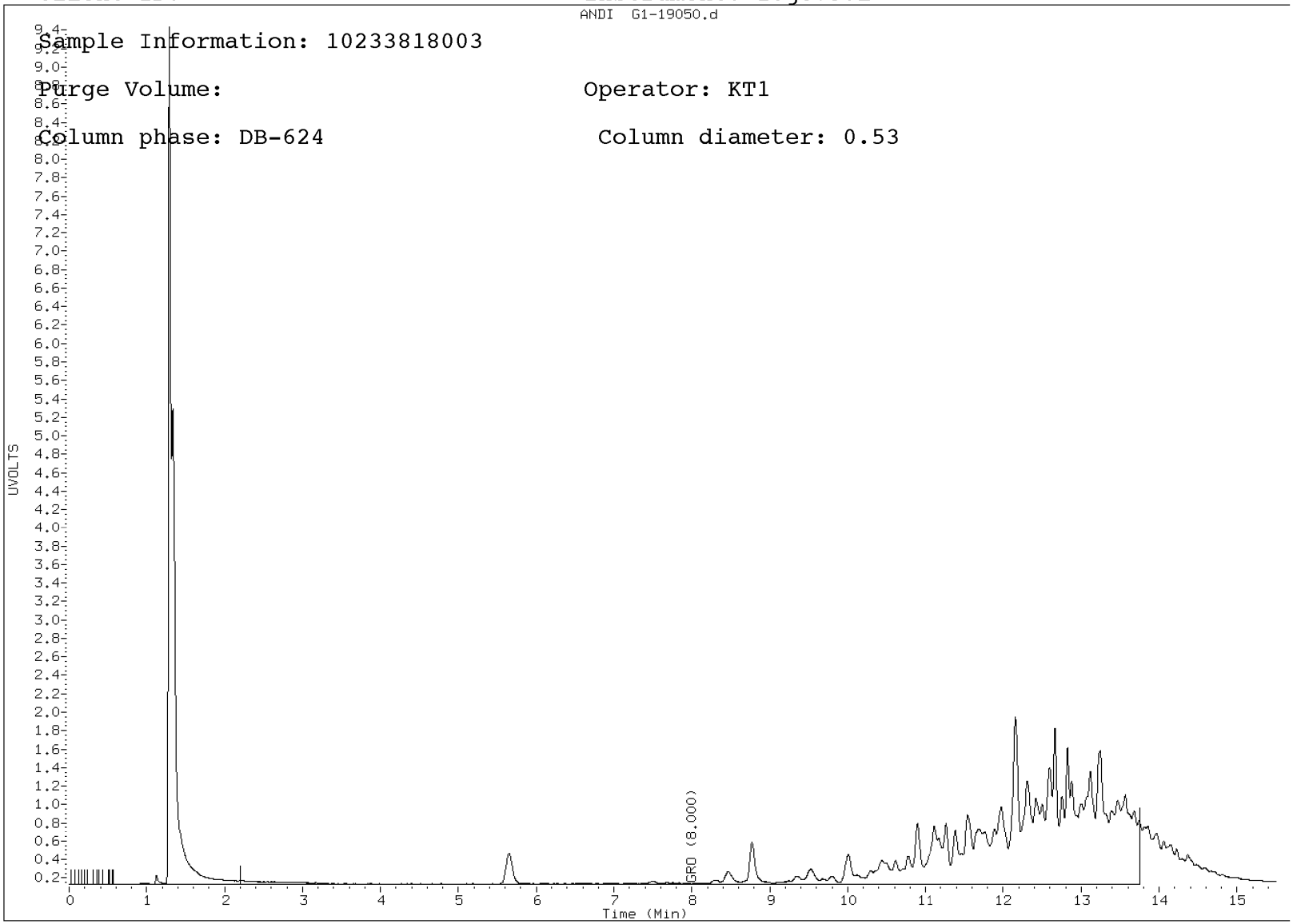
Data File: \\192.168.10.12\chem\10gcv3.i\070913a-2.b/G1-19050.d

Report Date: 07/11/2013

Sample ID: 10233818003

Client ID:

Instrument: 10gcv3.i



Sample Information: 10233818003

Purge Volume:

Operator: KT1

Column phase: DB-624

Column diameter: 0.53

Data File: \\192.168.10.12\chem\10gcv3.i\070913a-1.b/G1-19041.d

Report Date: 07/11/2013

Sample ID: 10233818004

Client ID:

Instrument: 10gcv3.i

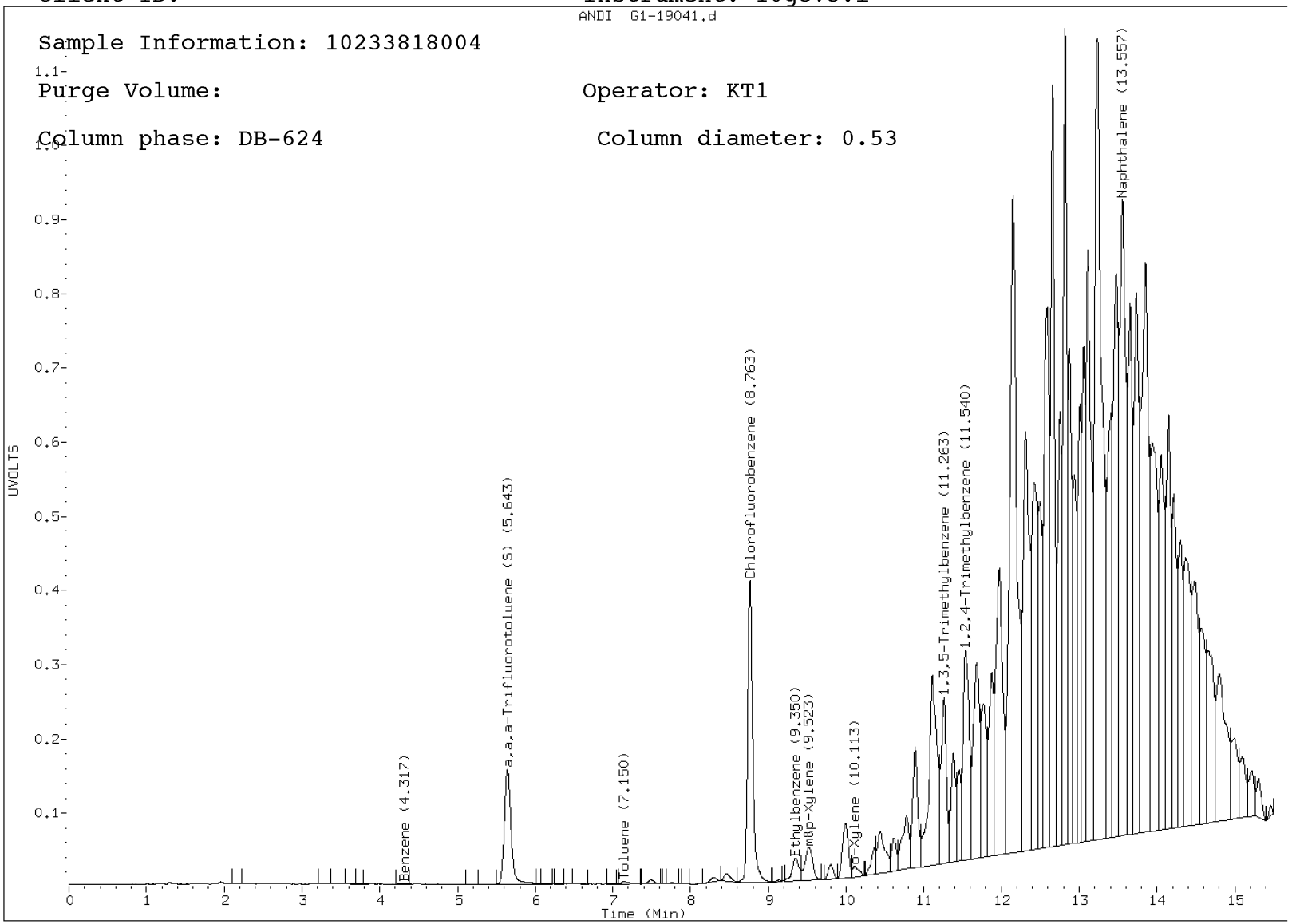
Sample Information: 10233818004

Purge Volume:

Operator: KT1

Column phase: DB-624

Column diameter: 0.53



Data File: \\192.168.10.12\chem\10gcv3.i\070913a-2.b/G1-19041.d

Report Date: 07/11/2013

Sample ID: 10233818004

Client ID:

Instrument: 10gcv3.i

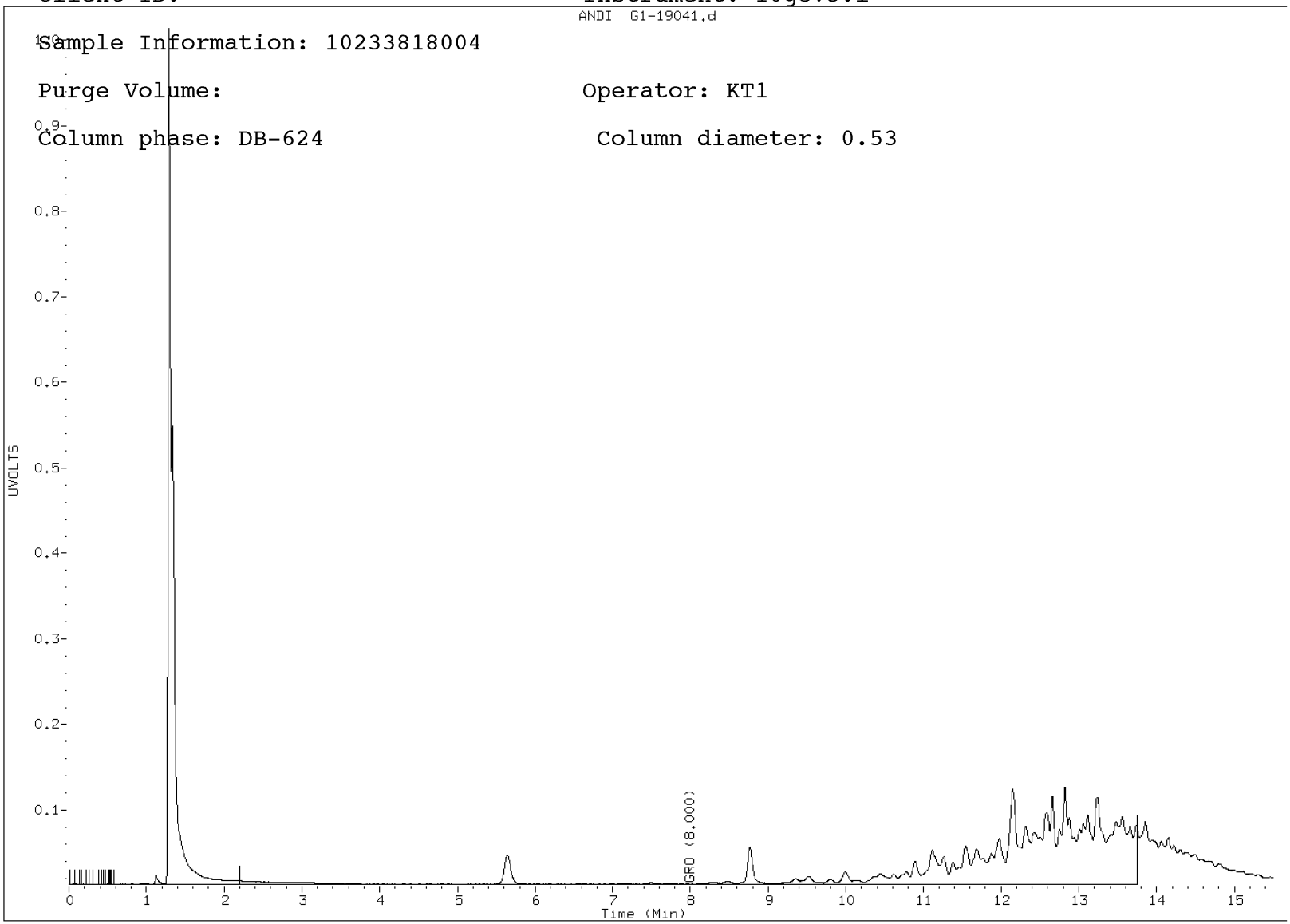
Sample Information: 10233818004

Purge Volume:

Operator: KT1

Column phase: DB-624

Column diameter: 0.53



Data File: \\192.168.10.12\chem\10gcv3.i\070913b-1.b/G1-19074.d

Report Date: 07/10/2013

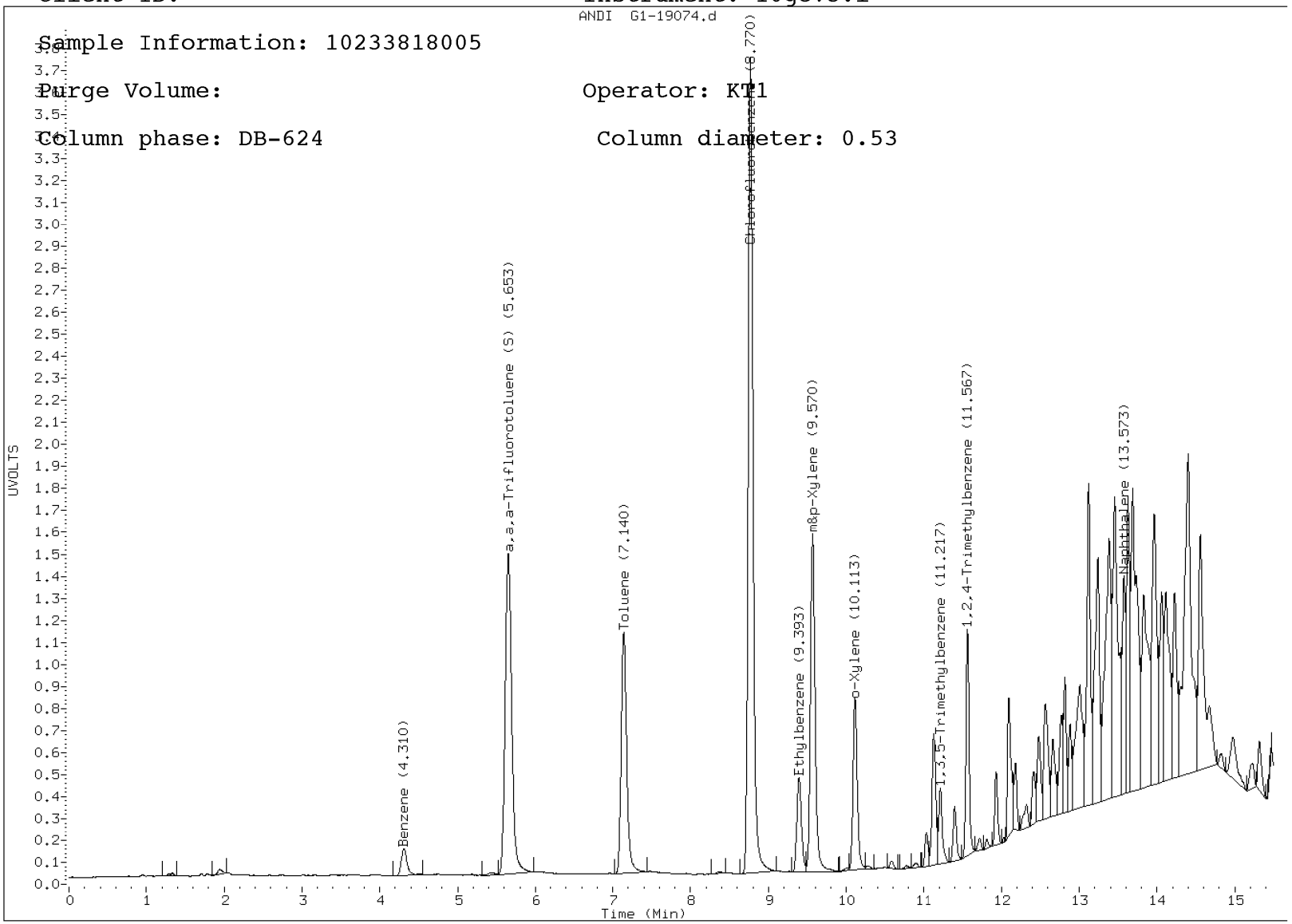
Sample ID: 10233818005

Client ID: Instrument: 10gcv3.i

Sample Information: 10233818005

Purge Volume: Operator: KTT1

Column phase: DB-624 Column diameter: 0.53



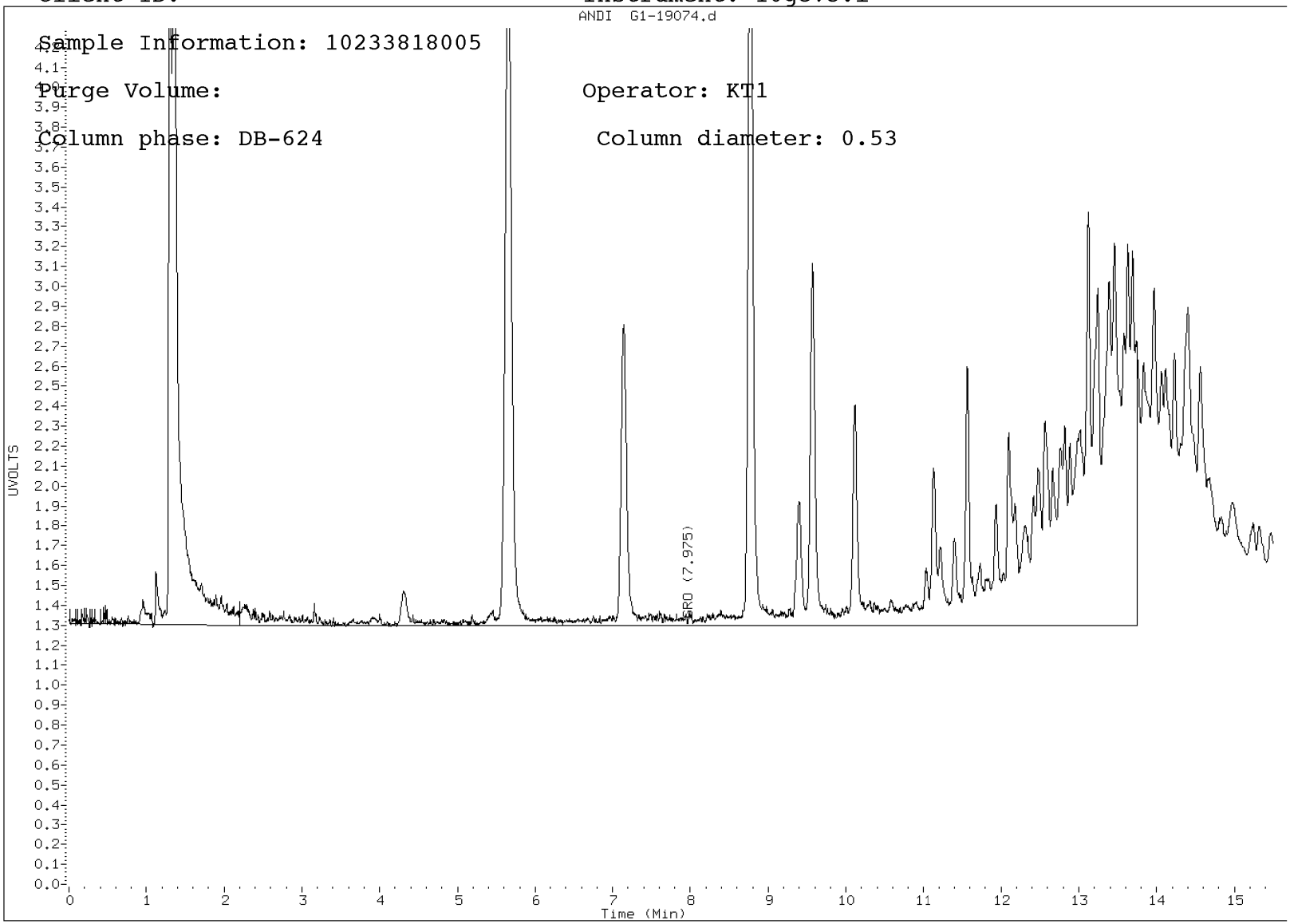
Data File: \\192.168.10.12\chem\10gcv3.i\070913b-2.b/G1-19074.d

Report Date: 07/10/2013

Sample ID: 10233818005

Client ID:

Instrument: 10gcv3.i



Sample Information: 10233818005

Purge Volume:

Operator: KT1

Column phase: DB-624

Column diameter: 0.53

Appendix B

Guidance Document 1-03a *Spatial Data Reporting Form*.

Petroleum Remediation Program
Minnesota Pollution Control Agency
http://www.pca.state.mn.us/programs/lust_p.html

Spatial Data Reporting Form

Guidance Document 1-03a
(For complete instructions, see Guidance Document 1-03.)

Part 1. Background

Has a site location data point been submitted for this site (circle/highlight)? YES or NO
If yes, you do not need to complete Part 2 of this form but should complete Part 3 if there are additional site features to report. This form can be submitted electronically if desired (e.g., as an e-mail attachment to the project manager).

MPCA Site ID: LEAK000 19157
Site Name: Waste Management
Data Collection Date: March 15, 2015
Name of Person Who Collected Data: T. Greene
Organization Name: Applied Engineering, Inc.
Organization Type: Consultant

Part 2. Site Location (use one of the three spatial data reporting formats provided)

Point Description: Center of Former Tank Basin
Collection Method: Map Interpolation, Google Earth
Datum (circle/highlight): WGS84
1) Longitude (dd mm ss.ss): 93°22'27.28"W Latitude (dd mm ss.ss): 44°46'34.61"N

Part 3. Other Site Features N/A

Appendix C

Guidance Document 2-05 *Release Information Worksheet*

Minnesota Pollution Control Agency

Release Information Worksheet

Guidance Document 2-05
Petroleum Remediation Program

The Release Information Worksheet is necessary in order to meet the Public Record Provision of the Energy Policy Act of 2005. Complete the worksheet below to document tank and release information. This form may be included as an appendix in Guidance Document 4-06 or 4-08, or it may be submitted independently. Please type or print clearly. Do not revise or delete text or questions from this form.

A. General information

Site name/city: Waste Management, Savage MPCA Site ID#: LEAK000 19157

B. Tank material (check all that apply):

☐ Steel ☒ Fiberglass

C. Piping material (check all that apply):

☐ Steel ☒ Fiberglass ☐ Flexible plastic ☐ Copper ☐ Other (specify): _____

D. Identify the known or suspected source(s) of the release or contamination encountered (check all that apply):

☐ Piping ☐ Tank ☐ Dispenser ☐ Submersible turbine pump ☐ Delivery problem
☒ Other (specify): the exact source was not readily apparent, therefore it is presumably due to occasional overfills.

E. Identify the cause of the release (tank and/or piping) (check all that apply):

☐ Overfill ☐ Mechanical or physical damage ☐ Install problem ☐ Corrosion ☐ Spill ☐ Unknown
☒ Other (specify): The exact source was not readily apparent, therefore it is presumably due to occasional overfills.

F. Identify how the release was detected (check all that apply):

☒ Removal ☐ Line leak detection ☐ Tank leak detection ☐ Visual/Olfactory ☐ Site assessment
☐ Other (specify): _____

G. Has the site ever stored E85 in any former or current tank? ☐ Yes ☒ No

H. Has the site ever stored leaded gasoline in any former or current tank? ☐ Yes ☒ No

Web pages and phone numbers:

MPCA staff:	http://www.pca.state.mn.us/pca/staff/index.cfm
MPCA phone:	**651-296-6300 or 1-800-657-3864**
Petroleum Remediation Program Web page:	http://www.pca.state.mn.us/programs/lust_p.html
MPCA Info. Request:	http://www.pca.state.mn.us/about/inforequest.html
MPCA VIC Program:	http://www.pca.state.mn.us/cleanup/vic.html
MPCA Petroleum Brownfields Program:	http://www.pca.state.mn.us/programs/vpic_p.html
PetroFund Web page:	http://www.state.mn.us/cgi-bin/portal/mn/jsp/content.do?id=-536881377&agency=Commerce
PetroFund phone:	**651-215-1775 or 1-800-638-0418**
State Duty Officer:	**651-649-5451 or 1-800-422-0798**

Minnesota Pollution Control Agency • 520 Lafayette Rd. N., St. Paul, MN 55155-4194 • www.pca.state.mn.us
651-296-6300 • 800-657-3864 • TTY 651-282-5332 or 800-657-3864 • Available in alternative formats

Appendix E

Geologic Logs of Soil Borings, Minnesota Department of Health Well Record (pending), Construction Diagrams of Temporary Wells

BORING LOG

Boring # GP-1

AE Project # 3D15	Site Name: Waste Management	Boring Date: 5/5/14
Surface Elevation (ft): ~100	Site Address: 12448 Pennsylvania Ave S.	Drilling Co.: NCG / Subbed to Stevens
Temperature (deg. F): 60	Shakopee, MN	Drill Rig Model: Geoprobe 6600
Sheet 1 of 1	Drilling Method: Push Probe	Drill Crew Chief: John

Depth (ft)	Water Level	Description of Material/Comments	Color	Moisture Content (dry/damp/saturated	HNU Level (ppm)	Lab Sample Number
0		Concrete, base course	White	Dry		
0.5	▼	Peastone then sand	Brown	Saturated	5	
2		No recovery	-	"		
3.9		Lean Clay (CL)	Gray	"	10	
4		Silt (ML)	Tan & Dark Gray	"		
5		" "	" " "	"	30	1
6		Poorly-graded Fine Sand (SP)	Gray	"	ND	
7		" " " " "	"	"		
8		" " " " "	"	"	ND	
9		" " " " "	"	"		
10		" " " " "	"	"	ND	
11		Refusal	"	"	ND	2
12						
13						
14						
15						
16						
17						
18						
19						
20						

Applied Engineering, Inc.
1161 Wayzata Blvd E. #60
Wayzata, MN 55391
(952)939-9095

(Use add'l sheet if necessary)	End of Boring Depth: 12'
Boring Abandonment Method: Bentonite	Observed Water Level Depth: 2.30'
Surface Patch Type: Cement	Preparer Name: Thomas Greene

Comments:

"ND" indicates not detected

BORING LOG

Boring # GP-2

AE Project # 3D15	Site Name: Waste Management	Boring Date: 5/5/14
Surface Elevation (ft): ~100	Site Address: 12448 Pennsylvania Ave S.	Drilling Co.: NCG / Subbed to Stevens
Temperature (deg. F): 60	Shakopee, MN	Drill Rig Model: Geoprobe 6600
Sheet 1 of 1	Drilling Method: Push Probe	Drill Crew Chief: John

Depth (ft)	Water Level	Description of Material/Comments	Color	Moisture Content (dry/damp/saturated	HNU Level (ppm)	Lab Sample Number
0		Concrete, base course	White	Dry		
0.5	▼	Peastone	Brown	Saturated	ND	
1.5		No recovery	-	-		
3.5		Lean Clay (CL)	Brown	"	30	3
4		Sandy Silt (ML)	Gray	"		
5		" " "	"	"	12	
6		Poorly-graded Fine Sand (SP)	"	"		
7		" " " " "	"	"	ND	
8		" " " " "	"	"		
9		" " " " "	"	"	ND	
10		" " " " "	"	"		
11		" " " " "	"	"	ND	
12		" " " " "	"	"		
13		" " " " "	"	"	ND	
14		" " " " "	"	"		
15		Refusal	"	"	ND	4
16						
17						
18						
19						
20						

Applied Engineering, Inc.
1161 Wayzata Blvd E. #60
Wayzata, MN 55391
(952)939-9095

(Use add'l sheet if necessary)	End of Boring Depth: 16'
Boring Abandonment Method: Bentonite	Observed Water Level Depth: 2.03'
Surface Patch Type: Cement	Preparer Name: Thomas Greene

Comments:

"ND" indicates not detected

BORING LOG

Boring # GP-3

AE Project # 3D15	Site Name: Waste Management	Boring Date: 5/5/14
Surface Elevation (ft): ~100	Site Address: 12448 Pennsylvania Ave S.	Drilling Co.: NCG / Subbed to Stevens
Temperature (deg. F): 60	Shakopee, MN	Drill Rig Model: Geoprobe 6600
Sheet 1 of 1	Drilling Method: Push Probe	Drill Crew Chief: John

Depth (ft)	Water Level	Description of Material/Comments	Color	Moisture Content (dry/damp/saturated	HNU Level (ppm)	Lab Sample Number
0		Concrete, base course	White	Dry		
0.5	▼	Poorly-graded Medium Sand (SP)	Brown	Saturated	ND	
1		No recovery	-	-		
2		" " "	-	-		
3		" " "	-	-		
4		Poorly-graded Fine Sand (SP)	Gray	"	ND	
5		" " " " "	"	"		
6		" " " " "	"	"	ND	
7		" " " " "	"	"	ND	5
8						
9						
10						
11						
12						
13						
14						
15						
16						
18						
19						
20						

	(Use add'l sheet if necessary)	End of Boring Depth: 8'
	Boring Abandonment Method: Bentonite	Observed Water Level Depth: 1.74'
	Surface Patch Type: Cement	Preparer Name: Thomas Greene

Applied Engineering, Inc.
1161 Wayzata Blvd E. #60
Wayzata, MN 55391
(952)939-9095

Comments:

"ND" indicates not detected

BORING LOG

Boring # GP-4

AE Project # 3D15	Site Name: Waste Management	Boring Date: 5/5/14
Surface Elevation (ft): ~100	Site Address: 12448 Pennsylvania Ave S.	Drilling Co.: NCG / Subbed to Stevens
Temperature (deg. F): 60	Shakopee, MN	Drill Rig Model: Geoprobe 6600
Sheet 1 of 1	Drilling Method: Push Probe	Drill Crew Chief: John

Depth (ft)	Water Level	Description of Material/Comments	Color	Moisture Content (dry/damp/saturated	HNU Level (ppm)	Lab Sample Number
0		Concrete, base course	White	Dry		
0.5		Poorly-graded Medium Sand (SP)	Brown	Saturated	ND	
1	▼	Silty Sand (SM)	Brown	"		
2		" " "	"	"	ND	
3		" " "	"	"		
4		Poorly-graded Fine Sand (SP)	Gray	"	ND	
5		" " " " "	"	"		
6		" " " " "	"	"	ND	
7		" " " " "	"	"	ND	6
8						
9						
10						
11						
12						
13						
14						
15						
16						
18						
19						
20						

APPLIED ENGINEERING

Applied Engineering, Inc.
1161 Wayzata Blvd E. #60
Wayzata, MN 55391
(952)939-9095

LOG-xxxx; 04/08

(Use add'l sheet if necessary)

Boring Abandonment Method: Bentonite	End of Boring Depth: 8'
Surface Patch Type: Cement	Observed Water Level Depth: 2.61'
Comments:	Preparer Name: Thomas Greene

"ND" indicates not detected

BORING LOG

Boring # GP-5

AE Project # 3D15	Site Name: Waste Management	Boring Date: 5/5/14
Surface Elevation (ft): ~100	Site Address: 12448 Pennsylvania Ave S.	Drilling Co.: NCG / Subbed to Stevens
Temperature (deg. F): 60	Shakopee, MN	Drill Rig Model: Geoprobe 6600
Sheet 1 of 1	Drilling Method: Push Probe	Drill Crew Chief: John

Depth (ft)	Water Level	Description of Material/Comments	Color	Moisture Content (dry/damp/saturated	HNU Level (ppm)	Lab Sample Number
0		Concrete, base course	White	Dry		
0.5	▼	Poorly-graded Medium Sand (SP)	Brown	Saturated	ND	
1.5		Hard Sandy Clay (CL)	Dark Brown	"		
2.5		Poorly-graded Fine Sand (SP)	Brown	"	ND	
3		" " " " "	"	"	ND	
4		" " " " "	"	"		
5		" " " " "	"	"	ND	
6		" " " " "	"	"		
7		" " " " "	"	"	ND	7
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						

(Use add'l sheet if necessary)	End of Boring Depth: 8'
Boring Abandonment Method: Bentonite	Observed Water Level Depth: 2.33'
Surface Patch Type: Cement	Preparer Name: Thomas Greene

Comments:

"ND" indicates not detected

Applied Engineering, Inc.
1161 Wayzata Blvd E. #60
Wayzata, MN 55391
(952)939-9095

BORING LOG

Boring # GP-6

AE Project # 3D15	Site Name: Waste Management	Boring Date: 5/5/14
Surface Elevation (ft): ~100	Site Address: 12448 Pennsylvania Ave S.	Drilling Co.: NCG / Subbed to Stevens
Temperature (deg. F): 60	Shakopee, MN	Drill Rig Model: Geoprobe 6600
Sheet 1 of 1	Drilling Method: Push Probe	Drill Crew Chief: John

Depth (ft)	Water Level	Description of Material/Comments	Color	Moisture Content (dry/damp/saturated	HNU Level (ppm)	Lab Sample Number
0		Concrete, base course	White	Dry		
0.5		Poorly-graded Medium Sand (SP)	Brown	Saturated	ND	
1.5	▼	Silt (ML)	Dk Brown/Green	"		
2		" " "	"	ND		
3		Silty Sand (SM)	Tan	"		
4		Poorly-graded Fine Sand (SP)	Gray / Black	"	190	8
5		" " " " "	" "	"		
6		" " " " "	Gray	"	ND	
7		" " " " "	"	"		
8		" " " " "	"	"	ND	
9		" " " " "	"	"		
10		" " " " "	"	"	ND	
11		" " " " "	"	"		
12		" " " " "	"	"	ND	
13		" " " " "	"	"		
14		" " " " "	"	"	ND	
15		" " " " "	"	"		
15.8		" " " " "	"	"	ND	
16		Weathered Limestone - Refusal	White	Dry	ND	9
17						
18						
19						
20						

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Wayzata, MN 55391
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(Use add'l sheet if necessary)	End of Boring Depth: 16'
Boring Abandonment Method: Bentonite	Observed Water Level Depth: 2.61'
Surface Patch Type: Cement	Preparer Name: Thomas Greene

Comments:
Refusal at 16'

"ND" indicates not detected

BORING LOG

Boring # GP-7

AE Project # 3D15	Site Name: Waste Management	Boring Date: 5/5/14
Surface Elevation (ft): ~100	Site Address: 12448 Pennsylvania Ave S.	Drilling Co.: NCG / Subbed to Stevens
Temperature (deg. F): 60	Shakopee, MN	Drill Rig Model: Geoprobe 6600
Sheet 1 of 1	Drilling Method: Push Probe	Drill Crew Chief: John

Depth (ft)	Water Level	Description of Material/Comments	Color	Moisture Content (dry/damp/saturated	HNU Level (ppm)	Lab Sample Number
0		Top soil	Dark Brown	Dry		
1		" "	" "	Saturated	ND	
2	▼	Silty Clay (CL)	Brown	"		
3		" "		"	ND	
4		Fine Silty Sand (SM)	Dark Gray	"		
5		" " " "	" "	"	25	10
6		" " " "	" "	"		
7		" " " "	" "	"	ND	
8		Poorly-graded Fine Sand with some gravel (SP)	Gray	"		
9		" " " " " " " "	"	"	ND	
10		" " " " " " " "	"	"		
11		" " " " " " " "	"	"	ND	
12		" " " " " " " "	"	"		
13		" " " " " " " "	"	"	ND	11
13.5		Refusal				
15						
16						
17						
18						
19						
20						

APPLIED ENGINEERING

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1161 Wayzata Blvd E. #60
Wayzata, MN 55391
(952)939-9095

LOG-xxxx; 04/08

(Use add'l sheet if necessary)

Boring Abandonment Method: Bentonite	End of Boring Depth: 13.5'
Surface Patch Type: Natural	Observed Water Level Depth: 3.17'
	Preparer Name: Thomas Greene

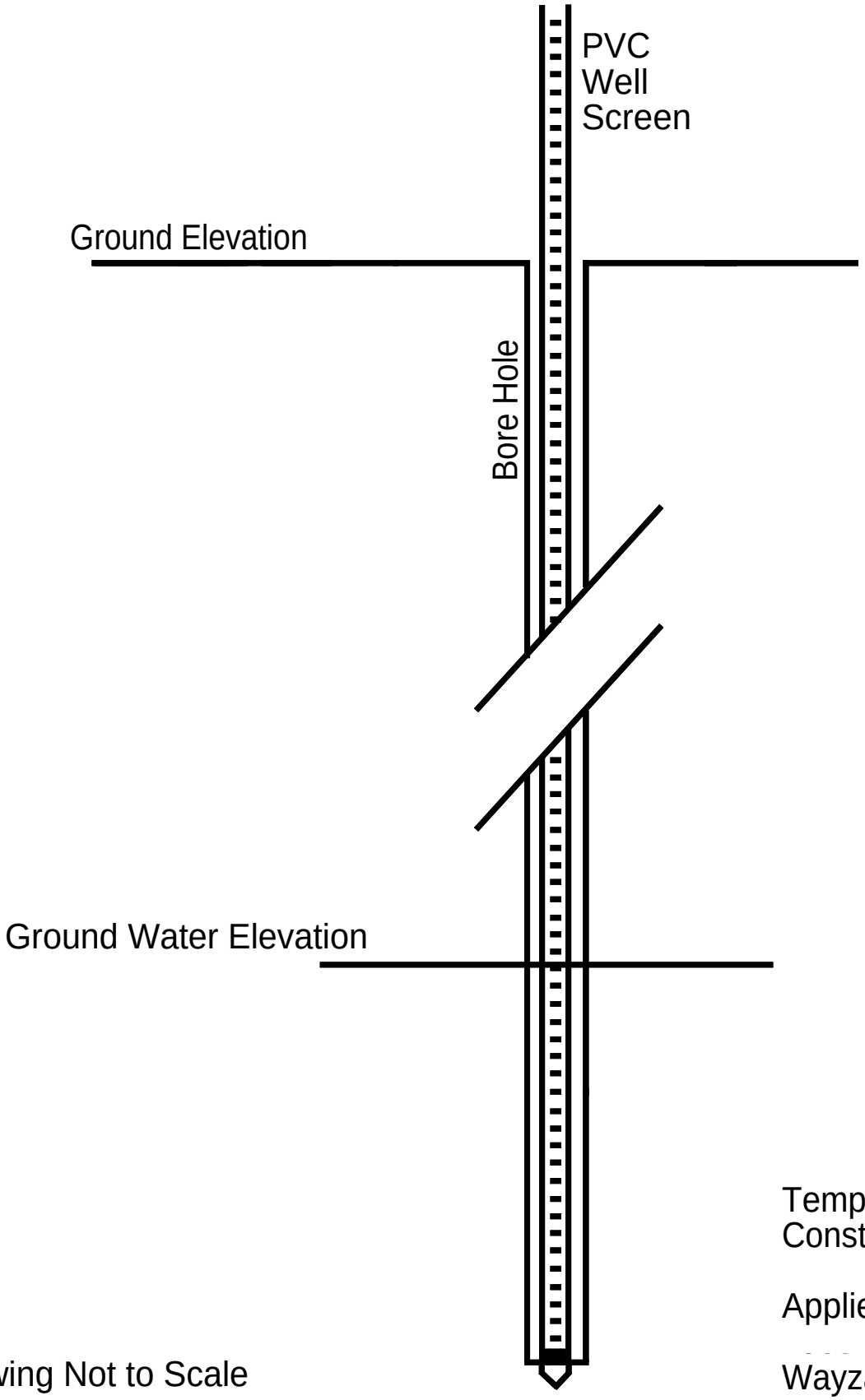
Comments:

Refusal at 13.5'

"ND" indicates not detected

Construction Diagram
Temporary Wells

Slotted PVC



Temporary Well
Construction Diagram

Applied Engineering, Inc.

Wayzata, MN 55391

Drawing Not to Scale

Appendix F

Laboratory Analytical Reports for Soil, Soil Gas and Ground Water

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Cedar Falls
704 Enterprise Drive
Cedar Falls, IA 50613
Tel: (319)277-2401

TestAmerica Job ID: 310-30191-2
Client Project/Site: 3D15

For:
Applied Engineering, Inc.
1161 Wayzata Blvd. E.
Suite 60
Wayzata, Minnesota 55391

Attn: Mr. Thomas Greene

Authorized for release by:
5/19/2014 4:10:29 PM

Derrick Klinkenberg, Project Manager I
(319)277-2401
derrick.klinkenberg@testamericainc.com

Table of Contents

Job ID: 310-30191-2

Laboratory: TestAmerica Cedar Falls

Narrative

Job Narrative
310-30191-1

Comments
No additional comments.

Receipt
The samples were received on 5/7/2014 9:35 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 1.0º C and 1.1º C.

Except:

<<EXPLANATION REQUIRED>> Canister and Flow Controller ID numbers not listed on the COC or Container labels. Unable to match up Flow Controller to Sample / Canister. Logged in as inactive.

GC/MS VOA
Method(s) 8260B: The continuing calibration verification (CCV) associated with batch 47990 recovered above the upper control limit for Dibromomethane (21.1 %D), Chlorodibromomethane (20.5 %D), 1,2-Dichloroethane (22.6 %D), Ethylene dibromide (23.4 %D). The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

Method(s) 8260B: The laboratory control sample (LCS) for batch 47990 recovered outside control limits for the following analytes: 3-Chloro-1-propene, Vinyl chloride, Chloroethane, Dichlorodifluoromethane, Chloromethane, and Dichlorofluoromethane. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

Method(s) 8260B: The continuing calibration verification (CCV) associated with batch 48111 recovered above the upper control limit for Carbon tetrachloride (23.2 %D), Dibromomethane (30.4 %D), Styrene (21.9 %D), Dichlorobromomethane (22.5 %D), Chloroethane (31.9 %D), o-Xylene (20.7 %D), 1,1,2,2-Tetrachloroethane (22.1 %D), 1,2,4-Trimethylbenzene (20.5 %D), 1,3,5-Trimethylbenzene (20.3 %D), 1,3-Dichloropropane (22.7 %D), 4-Chlorotoluene (21.5 %D), Chlorodibromomethane (26.8 %D), 1,1,2-Trichloroethane (24.6 %D), 1,2-Dichloroethane (30.7%D), Ethylene Dibromide (29.5 %D), 1,1,1,2-Tetrachloroethane (20.9 %D), and Dichlorofluoromethane (29.5 %D). The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

Method(s) 8260B: The laboratory control sample (LCS) for batch 48111 recovered outside control limits for the following analytes: 3-Chloro-1-propene, Chloroethane,and Chloromethane. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

No other analytical or quality issues were noted.

GC VOA
Method(s) WI-GRO: Surrogate recovery for the following sample(s) was outside control limits: 8 - GP-6 6' (310-30191-8). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method(s) WI-GRO: Surrogate recovery for the following sample(s) was outside control limits: 3 - GP-2 5' (310-30191-3). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

No other analytical or quality issues were noted.

GC Semi VOA
Method(s) WI-DRO: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for batch 47696 recovered outside control limits for the following analytes: DRO. These analytes were biased low in the LCS/LCSD and were reran for confirmation; therefore, the data have been reported.

Method(s) WI-DRO: The %RPD of the laboratory control sample (LCS) and laboratory control standard duplicate (LCSD) for preparation batch 47696 recovered outside control limits for the following analytes: DRO.

Method(s) WI-DRO: The laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for batch 47696 recovered

Job ID: 310-30191-2 (Continued)

Laboratory: TestAmerica Cedar Falls (Continued)

outside control limits for the following analytes: DRO. These analytes were biased low in the LCS/LCSD and were confirmed by reruns; therefore, the data have been reported.

Method(s) WI-DRO: The %RPD of the laboratory control sample (LCS) and laboratory control standard duplicate (LCSD) for preparation batch 47696 recovered outside control limits for the following analytes: DRO.

No other analytical or quality issues were noted.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

VOA Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Sample Summary

Client: Applied Engineering, Inc.
Project/Site: 3D15

TestAmerica Job ID: 310-30191-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-30191-1	1 - GP-1 6'	Soil	05/05/14 16:30	05/07/14 09:35
310-30191-2	2 - GP-1 12'	Soil	05/05/14 16:30	05/07/14 09:35
310-30191-3	3 - GP-2 5'	Soil	05/05/14 16:30	05/07/14 09:35
310-30191-4	4 - GP-2 16'	Soil	05/05/14 16:30	05/07/14 09:35
310-30191-5	5 - GP-3 8'	Soil	05/05/14 16:30	05/07/14 09:35
310-30191-6	6 - GP-4 8'	Soil	05/05/14 16:30	05/07/14 09:35
310-30191-7	7 - GP-5 8'	Soil	05/05/14 16:30	05/07/14 09:35
310-30191-8	8 - GP-6 6'	Soil	05/05/14 16:30	05/07/14 09:35
310-30191-9	9 - GP-6 16'	Soil	05/05/14 16:30	05/07/14 09:35
310-30191-10	10 - GP-7 6'	Soil	05/05/14 16:30	05/07/14 09:35
310-30191-11	11 - GP-7 13.5'	Soil	05/05/14 16:30	05/07/14 09:35
310-30191-15	1 - GP-1	Ground Water	05/05/14 16:30	05/07/14 09:35
310-30191-16	2 - GP-6	Ground Water	05/05/14 16:30	05/07/14 09:35
310-30191-17	3 - GP-3	Ground Water	05/05/14 16:30	05/07/14 09:35
310-30191-18	4 - GP-4	Ground Water	05/05/14 16:30	05/07/14 09:35
310-30191-19	5 - GP-5	Ground Water	05/05/14 16:30	05/07/14 09:35
310-30191-20	7 - GP-7	Ground Water	05/05/14 16:30	05/07/14 09:35
310-30191-21	MeOH Blank	Soil	05/05/14 00:00	05/07/14 09:35
310-30191-22	Trip Blank	Water	05/05/14 00:00	05/07/14 09:35
310-30191-23	Air 1	Air	05/05/14 16:30	05/07/14 09:35
310-30191-24	Air 2	Air	05/05/14 16:30	05/07/14 09:35

Detection Summary

Client: Applied Engineering, Inc.
Project/Site: 3D15

TestAmerica Job ID: 310-30191-2

Client Sample ID: 1 - GP-1 6' — Lab Sample ID: 310-30191-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Diesel Range Organics (DRO)	85.2	*	6.59		mg/Kg	1	☼	WI-DRO	Silica Gel Cleanup

Client Sample ID: 2 - GP-1 12' — Lab Sample ID: 310-30191-2

No Detections.

Client Sample ID: 3 - GP-2 5' — Lab Sample ID: 310-30191-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Xylenes, Total	0.385		0.340		mg/Kg	1	☼	WI-GRO	Total/NA
Diesel Range Organics (DRO)	7230	*	663		mg/Kg	100	☼	WI-DRO	Silica Gel Cleanup

Client Sample ID: 4 - GP-2 16' — Lab Sample ID: 310-30191-4

No Detections.

Client Sample ID: 5 - GP-3 8' — Lab Sample ID: 310-30191-5

No Detections.

Client Sample ID: 6 - GP-4 8' — Lab Sample ID: 310-30191-6

No Detections.

Client Sample ID: 7 - GP-5 8' — Lab Sample ID: 310-30191-7

No Detections.

Client Sample ID: 8 - GP-6 6' — Lab Sample ID: 310-30191-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Ethylbenzene	0.498		0.123		mg/Kg	1	☼	WI-GRO	Total/NA
Xylenes, Total	2.41		0.368		mg/Kg	1	☼	WI-GRO	Total/NA
Diesel Range Organics (DRO)	25.6	*	8.31		mg/Kg	1	☼	WI-DRO	Silica Gel Cleanup

Client Sample ID: 9 - GP-6 16' — Lab Sample ID: 310-30191-9

No Detections.

Client Sample ID: 10 - GP-7 6' — Lab Sample ID: 310-30191-10

No Detections.

Client Sample ID: 11 - GP-7 13.5' — Lab Sample ID: 310-30191-11

No Detections.

Client Sample ID: 1 - GP-1 — Lab Sample ID: 310-30191-15

This Detection Summary does not include radiochemical test results.

Client Sample ID: 1 - GP-1 (Continued) — Lab Sample ID: 310-30191-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	20.9		10.0		ug/L	1		8260B	Total/NA
Toluene	1.83		1.00		ug/L	1		8260B	Total/NA
Diesel Range Organics (DRO)	10.2		0.119		mg/L	1		WI-DRO	Total/NA

Client Sample ID: 2 - GP-6 — Lab Sample ID: 310-30191-16

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	10.4		10.0		ug/L	1		8260B	Total/NA
Diesel Range Organics (DRO)	2.11		0.111		mg/L	1		WI-DRO	Total/NA

Client Sample ID: 3 - GP-3 — Lab Sample ID: 310-30191-17

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	12.1		10.0		ug/L	1		8260B	Total/NA
Diesel Range Organics (DRO)	0.476		0.112		mg/L	1		WI-DRO	Total/NA

Client Sample ID: 4 - GP-4 — Lab Sample ID: 310-30191-18

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	14.2		10.0		ug/L	1		8260B	Total/NA
Diesel Range Organics (DRO)	0.447		0.108		mg/L	1		WI-DRO	Total/NA

Client Sample ID: 5 - GP-5 — Lab Sample ID: 310-30191-19

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	14.3		10.0		ug/L	1		8260B	Total/NA
Diesel Range Organics (DRO)	0.587		0.108		mg/L	1		WI-DRO	Total/NA

Client Sample ID: 7 - GP-7 — Lab Sample ID: 310-30191-20

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	14.7		10.0		ug/L	1		8260B	Total/NA
Benzene	1.41		0.500		ug/L	1		8260B	Total/NA
n-Butylbenzene	5.71		1.00		ug/L	1		8260B	Total/NA
sec-Butylbenzene	3.93		1.00		ug/L	1		8260B	Total/NA
4-Chlorotoluene	4.48		1.00		ug/L	1		8260B	Total/NA
Ethylbenzene	172		1.00		ug/L	1		8260B	Total/NA
Isopropylbenzene	22.3		1.00		ug/L	1		8260B	Total/NA
p-Isopropyltoluene	1.63		1.00		ug/L	1		8260B	Total/NA
Naphthalene	104		5.00		ug/L	1		8260B	Total/NA
N-Propylbenzene	57.0		1.00		ug/L	1		8260B	Total/NA
Toluene	2.65		1.00		ug/L	1		8260B	Total/NA
1,2,3-Trichloropropane	1.78		1.00		ug/L	1		8260B	Total/NA
1,2,4-Trimethylbenzene	637		1.00		ug/L	1		8260B	Total/NA
1,3,5-Trimethylbenzene	43.0		1.00		ug/L	1		8260B	Total/NA
Xylenes, Total	1170		30.0		ug/L	10		8260B	Total/NA
Diesel Range Organics (DRO)	1.53		0.112		mg/L	1		WI-DRO	Total/NA

Client Sample ID: MeOH Blank — Lab Sample ID: 310-30191-21

No Detections.

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Applied Engineering, Inc.
Project/Site: 3D15

TestAmerica Job ID: 310-30191-2

Client Sample ID: Trip Blank — Lab Sample ID: 310-30191-22

No Detections.

Client Sample ID: Air 1 — Lab Sample ID: 310-30191-23

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Propylene	42.2		10.0		ppb v/v	2		TO-15	Total/NA
1,3-Butadiene	3.22		0.400		ppb v/v	2		TO-15	Total/NA
Trichlorofluoromethane	0.484		0.400		ppb v/v	2		TO-15	Total/NA
Acetone	18.3		10.0		ppb v/v	2		TO-15	Total/NA
Methyl Ethyl Ketone	1.70		1.00		ppb v/v	2		TO-15	Total/NA
Benzene	0.787		0.400		ppb v/v	2		TO-15	Total/NA
Toluene	1.93		0.400		ppb v/v	2		TO-15	Total/NA
Chlorobenzene	5.24		0.400		ppb v/v	2		TO-15	Total/NA
m,p-Xylene	1.05		1.00		ppb v/v	2		TO-15	Total/NA
Xylene, o-	0.957		0.400		ppb v/v	2		TO-15	Total/NA
1,3,5-Trimethylbenzene	2.13		0.400		ppb v/v	2		TO-15	Total/NA

Client Sample ID: Air 2 — Lab Sample ID: 310-30191-24

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
1,3-Butadiene	0.732		0.606		ppb v/v	3.03		TO-15	Total/NA
Acetone	52.8		15.2		ppb v/v	3.03		TO-15	Total/NA
n-Hexane	0.969		0.606		ppb v/v	3.03		TO-15	Total/NA
Chloroform	2.45		0.606		ppb v/v	3.03		TO-15	Total/NA
Benzene	1.36		0.606		ppb v/v	3.03		TO-15	Total/NA
n-Heptane	0.616		0.606		ppb v/v	3.03		TO-15	Total/NA
Toluene	2.95		0.606		ppb v/v	3.03		TO-15	Total/NA
Tetrachloroethene	3.71		0.606		ppb v/v	3.03		TO-15	Total/NA
Ethylbenzene	0.641		0.606		ppb v/v	3.03		TO-15	Total/NA
m,p-Xylene	1.67		1.52		ppb v/v	3.03		TO-15	Total/NA
1,2,4-Trimethylbenzene	1.05		0.606		ppb v/v	3.03		TO-15	Total/NA

This Detection Summary does not include radiochemical test results.

Client: Applied Engineering, Inc.
Project/Site: 3D15

TestAmerica Job ID: 310-30191-2

Client Sample ID: 1 - GP-1 6'
Date Collected: 05/05/14 16:30
Date Received: 05/07/14 09:35

Lab Sample ID: 310-30191-1
Matrix: Soil
Percent Solids: 80.6

Method: WI-GRO - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.121		0.121		mg/Kg	☼	05/08/14 11:02	05/09/14 20:25	1
Toluene	<0.121		0.121		mg/Kg	☼	05/08/14 11:02	05/09/14 20:25	1
Ethylbenzene	<0.121		0.121		mg/Kg	☼	05/08/14 11:02	05/09/14 20:25	1
Methyl tert-butyl ether	<0.121		0.121		mg/Kg	☼	05/08/14 11:02	05/09/14 20:25	1
Xylenes, Total	<0.362		0.362		mg/Kg	☼	05/08/14 11:02	05/09/14 20:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*80 - 120*	*05/08/14 11:02*	*05/09/14 20:25*	*1*

Method: WI-DRO - Wisconsin - Diesel Range Organics (GC) - Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO)	**85.2**	*	6.59		mg/Kg	☼	05/08/14 11:42	05/15/14 08:06	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**19.4**		0.100		%			05/08/14 09:00	1
Percent Solids	**80.6**		0.100		%			05/08/14 09:00	1

Client: Applied Engineering, Inc.
Project/Site: 3D15

TestAmerica Job ID: 310-30191-2

Client Sample ID: 2 - GP-1 12'
Date Collected: 05/05/14 16:30
Date Received: 05/07/14 09:35

Lab Sample ID: 310-30191-2
Matrix: Soil
Percent Solids: 82.8

Method: WI-GRO - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.123		0.123		mg/Kg	☼	05/08/14 11:02	05/09/14 21:05	1
Toluene	<0.123		0.123		mg/Kg	☼	05/08/14 11:02	05/09/14 21:05	1
Ethylbenzene	<0.123		0.123		mg/Kg	☼	05/08/14 11:02	05/09/14 21:05	1
Methyl tert-butyl ether	<0.123		0.123		mg/Kg	☼	05/08/14 11:02	05/09/14 21:05	1
Xylenes, Total	<0.369		0.369		mg/Kg	☼	05/08/14 11:02	05/09/14 21:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*	*05/08/14 11:02*	*05/09/14 21:05*	*1*

Method: WI-DRO - Wisconsin - Diesel Range Organics (GC) - Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO)	<6.71	*	6.71		mg/Kg	☼	05/08/14 11:42	05/16/14 16:57	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**17.2**		0.100		%			05/08/14 09:00	1
Percent Solids	**82.8**		0.100		%			05/08/14 09:00	1

Client: Applied Engineering, Inc.
Project/Site: 3D15

TestAmerica Job ID: 310-30191-2

Client Sample ID: 3 - GP-2 5'
Date Collected: 05/05/14 16:30
Date Received: 05/07/14 09:35

Lab Sample ID: 310-30191-3
Matrix: Soil
Percent Solids: 88.1

Method: WI-GRO - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.113		0.113		mg/Kg	☼	05/08/14 11:02	05/10/14 03:04	1
Toluene	<0.113		0.113		mg/Kg	☼	05/08/14 11:02	05/10/14 03:04	1
Ethylbenzene	<0.113		0.113		mg/Kg	☼	05/08/14 11:02	05/10/14 03:04	1
Methyl tert-butyl ether	<0.113		0.113		mg/Kg	☼	05/08/14 11:02	05/10/14 03:04	1
Xylenes, Total	**0.385**		0.340		mg/Kg	☼	05/08/14 11:02	05/10/14 03:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*139*	*X*	*80 - 120*	*05/08/14 11:02*	*05/10/14 03:04*	*1*

Method: WI-DRO - Wisconsin - Diesel Range Organics (GC) - Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO)	**7230**	*	663		mg/Kg	☼	05/08/14 11:42	05/16/14 21:43	100

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**11.9**		0.100		%			05/08/14 09:00	1
Percent Solids	**88.1**		0.100		%			05/08/14 09:00	1

Client: Applied Engineering, Inc.
Project/Site: 3D15

TestAmerica Job ID: 310-30191-2

Client Sample ID: 4 - GP-2 16'
Date Collected: 05/05/14 16:30
Date Received: 05/07/14 09:35

Lab Sample ID: 310-30191-4
Matrix: Soil
Percent Solids: 84.6

Method: WI-GRO - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.119		0.119		mg/Kg	☼	05/08/14 11:02	05/09/14 21:45	1
Toluene	<0.119		0.119		mg/Kg	☼	05/08/14 11:02	05/09/14 21:45	1
Ethylbenzene	<0.119		0.119		mg/Kg	☼	05/08/14 11:02	05/09/14 21:45	1
Methyl tert-butyl ether	<0.119		0.119		mg/Kg	☼	05/08/14 11:02	05/09/14 21:45	1
Xylenes, Total	<0.356		0.356		mg/Kg	☼	05/08/14 11:02	05/09/14 21:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*	*05/08/14 11:02*	*05/09/14 21:45*	*1*

Method: WI-DRO - Wisconsin - Diesel Range Organics (GC) - Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO)	<4.76	*	4.76		mg/Kg	☼	05/08/14 11:42	05/16/14 17:29	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**15.4**		0.100		%			05/08/14 09:00	1
Percent Solids	**84.6**		0.100		%			05/08/14 09:00	1

Client: Applied Engineering, Inc.
Project/Site: 3D15

TestAmerica Job ID: 310-30191-2

Client Sample ID: 5 - GP-3 8'
Date Collected: 05/05/14 16:30
Date Received: 05/07/14 09:35

Lab Sample ID: 310-30191-5
Matrix: Soil
Percent Solids: 81.1

Method: WI-GRO - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.122		0.122		mg/Kg	☼	05/08/14 11:02	05/09/14 22:25	1
Toluene	<0.122		0.122		mg/Kg	☼	05/08/14 11:02	05/09/14 22:25	1
Ethylbenzene	<0.122		0.122		mg/Kg	☼	05/08/14 11:02	05/09/14 22:25	1
Methyl tert-butyl ether	<0.122		0.122		mg/Kg	☼	05/08/14 11:02	05/09/14 22:25	1
Xylenes, Total	<0.367		0.367		mg/Kg	☼	05/08/14 11:02	05/09/14 22:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*105*		*80 - 120*	*05/08/14 11:02*	*05/09/14 22:25*	*1*

Method: WI-DRO - Wisconsin - Diesel Range Organics (GC) - Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO)	<7.50	*	7.50		mg/Kg	☼	05/08/14 11:42	05/16/14 18:01	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**18.9**		0.100		%			05/08/14 09:00	1
Percent Solids	**81.1**		0.100		%			05/08/14 09:00	1

Client: Applied Engineering, Inc.
Project/Site: 3D15

TestAmerica Job ID: 310-30191-2

Client Sample ID: 6 - GP-4 8'
Date Collected: 05/05/14 16:30
Date Received: 05/07/14 09:35

Lab Sample ID: 310-30191-6
Matrix: Soil
Percent Solids: 80.4

Method: WI-GRO - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.122		0.122		mg/Kg	☼	05/08/14 11:02	05/09/14 23:04	1
Toluene	<0.122		0.122		mg/Kg	☼	05/08/14 11:02	05/09/14 23:04	1
Ethylbenzene	<0.122		0.122		mg/Kg	☼	05/08/14 11:02	05/09/14 23:04	1
Methyl tert-butyl ether	<0.122		0.122		mg/Kg	☼	05/08/14 11:02	05/09/14 23:04	1
Xylenes, Total	<0.367		0.367		mg/Kg	☼	05/08/14 11:02	05/09/14 23:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*86*		*80 - 120*	*05/08/14 11:02*	*05/09/14 23:04*	*1*

Method: WI-DRO - Wisconsin - Diesel Range Organics (GC) - Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO)	<8.60	*	8.60		mg/Kg	☼	05/08/14 11:42	05/16/14 18:33	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**19.6**		0.100		%			05/08/14 09:00	1
Percent Solids	**80.4**		0.100		%			05/08/14 09:00	1

Client: Applied Engineering, Inc.
Project/Site: 3D15

TestAmerica Job ID: 310-30191-2

Client Sample ID: 7 - GP-5 8'
Date Collected: 05/05/14 16:30
Date Received: 05/07/14 09:35

Lab Sample ID: 310-30191-7
Matrix: Soil
Percent Solids: 81.0

Method: WI-GRO - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.122		0.122		mg/Kg	☼	05/08/14 11:02	05/09/14 23:44	1
Toluene	<0.122		0.122		mg/Kg	☼	05/08/14 11:02	05/09/14 23:44	1
Ethylbenzene	<0.122		0.122		mg/Kg	☼	05/08/14 11:02	05/09/14 23:44	1
Methyl tert-butyl ether	<0.122		0.122		mg/Kg	☼	05/08/14 11:02	05/09/14 23:44	1
Xylenes, Total	<0.365		0.365		mg/Kg	☼	05/08/14 11:02	05/09/14 23:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*	*05/08/14 11:02*	*05/09/14 23:44*	*1*

Method: WI-DRO - Wisconsin - Diesel Range Organics (GC) - Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO)	<4.84	*	4.84		mg/Kg	☼	05/08/14 11:42	05/16/14 19:04	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**19.0**		0.100		%			05/08/14 09:00	1
Percent Solids	**81.0**		0.100		%			05/08/14 09:00	1

Client: Applied Engineering, Inc.
Project/Site: 3D15

TestAmerica Job ID: 310-30191-2

Client Sample ID: 8 - GP-6 6'
Date Collected: 05/05/14 16:30
Date Received: 05/07/14 09:35

Lab Sample ID: 310-30191-8
Matrix: Soil
Percent Solids: 82.7

Method: WI-GRO - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.123		0.123		mg/Kg	☼	05/08/14 14:16	05/09/14 07:07	1
Toluene	<0.123		0.123		mg/Kg	☼	05/08/14 14:16	05/09/14 07:07	1
Ethylbenzene	**0.498**		0.123		mg/Kg	☼	05/08/14 14:16	05/09/14 07:07	1
Methyl tert-butyl ether	<0.123		0.123		mg/Kg	☼	05/08/14 14:16	05/09/14 07:07	1
Xylenes, Total	**2.41**		0.368		mg/Kg	☼	05/08/14 14:16	05/09/14 07:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*138*	*X*	*80 - 120*	*05/08/14 14:16*	*05/09/14 07:07*	*1*

Method: WI-DRO - Wisconsin - Diesel Range Organics (GC) - Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO)	**25.6**	*	8.31		mg/Kg	☼	05/08/14 11:42	05/16/14 19:36	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**17.3**		0.100		%			05/08/14 09:00	1
Percent Solids	**82.7**		0.100		%			05/08/14 09:00	1

Client: Applied Engineering, Inc.
Project/Site: 3D15

TestAmerica Job ID: 310-30191-2

Client Sample ID: 9 - GP-6 16'
Date Collected: 05/05/14 16:30
Date Received: 05/07/14 09:35

Lab Sample ID: 310-30191-9
Matrix: Soil
Percent Solids: 85.7

Method: WI-GRO - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.119		0.119		mg/Kg	☼	05/08/14 14:16	05/09/14 07:47	1
Toluene	<0.119		0.119		mg/Kg	☼	05/08/14 14:16	05/09/14 07:47	1
Ethylbenzene	<0.119		0.119		mg/Kg	☼	05/08/14 14:16	05/09/14 07:47	1
Methyl tert-butyl ether	<0.119		0.119		mg/Kg	☼	05/08/14 14:16	05/09/14 07:47	1
Xylenes, Total	<0.356		0.356		mg/Kg	☼	05/08/14 14:16	05/09/14 07:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*80 - 120*	*05/08/14 14:16*	*05/09/14 07:47*	*1*

Method: WI-DRO - Wisconsin - Diesel Range Organics (GC) - Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO)	<6.68	*	6.68		mg/Kg	☼	05/08/14 11:42	05/16/14 20:08	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**14.3**		0.100		%			05/08/14 09:00	1
Percent Solids	**85.7**		0.100		%			05/08/14 09:00	1

Client: Applied Engineering, Inc.
Project/Site: 3D15

TestAmerica Job ID: 310-30191-2

Client Sample ID: 10 - GP-7 6'
Date Collected: 05/05/14 16:30
Date Received: 05/07/14 09:35

Lab Sample ID: 310-30191-10
Matrix: Soil
Percent Solids: 81.9

Method: WI-GRO - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.122		0.122		mg/Kg	☼	05/08/14 14:16	05/09/14 08:27	1
Toluene	<0.122		0.122		mg/Kg	☼	05/08/14 14:16	05/09/14 08:27	1
Ethylbenzene	<0.122		0.122		mg/Kg	☼	05/08/14 14:16	05/09/14 08:27	1
Methyl tert-butyl ether	<0.122		0.122		mg/Kg	☼	05/08/14 14:16	05/09/14 08:27	1
Xylenes, Total	<0.366		0.366		mg/Kg	☼	05/08/14 14:16	05/09/14 08:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*80 - 120*	*05/08/14 14:16*	*05/09/14 08:27*	*1*

Method: WI-DRO - Wisconsin - Diesel Range Organics (GC) - Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO)	<8.50	*	8.50		mg/Kg	☼	05/08/14 11:42	05/16/14 20:40	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**18.1**		0.100		%			05/08/14 09:00	1
Percent Solids	**81.9**		0.100		%			05/08/14 09:00	1

Client: Applied Engineering, Inc.
Project/Site: 3D15

TestAmerica Job ID: 310-30191-2

Client Sample ID: 11 - GP-7 13.5'
Date Collected: 05/05/14 16:30
Date Received: 05/07/14 09:35

Lab Sample ID: 310-30191-11
Matrix: Soil
Percent Solids: 82.0

Method: WI-GRO - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.119		0.119		mg/Kg	☼	05/08/14 14:16	05/09/14 09:07	1
Toluene	<0.119		0.119		mg/Kg	☼	05/08/14 14:16	05/09/14 09:07	1
Ethylbenzene	<0.119		0.119		mg/Kg	☼	05/08/14 14:16	05/09/14 09:07	1
Methyl tert-butyl ether	<0.119		0.119		mg/Kg	☼	05/08/14 14:16	05/09/14 09:07	1
Xylenes, Total	<0.358		0.358		mg/Kg	☼	05/08/14 14:16	05/09/14 09:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*89*		*80 - 120*	*05/08/14 14:16*	*05/09/14 09:07*	*1*

Method: WI-DRO - Wisconsin - Diesel Range Organics (GC) - Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO)	<8.63	*	8.63		mg/Kg	☼	05/08/14 11:42	05/16/14 21:11	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**18.0**		0.100		%			05/08/14 09:00	1
Percent Solids	**82.0**		0.100		%			05/08/14 09:00	1

Client: Applied Engineering, Inc.
Project/Site: 3D15

TestAmerica Job ID: 310-30191-2

Client Sample ID: 1 - GP-1
Date Collected: 05/05/14 16:30
Date Received: 05/07/14 09:35

Lab Sample ID: 310-30191-15
Matrix: Ground Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	20.9		10.0		ug/L			05/13/14 15:27	1
Allyl chloride	<2.00	*	2.00		ug/L			05/13/14 15:27	1
Benzene	<0.500		0.500		ug/L			05/13/14 15:27	1
Bromobenzene	<1.00		1.00		ug/L			05/13/14 15:27	1
Bromochloromethane	<5.00		5.00		ug/L			05/13/14 15:27	1
Bromodichloromethane	<1.00		1.00		ug/L			05/13/14 15:27	1
Bromoform	<5.00		5.00		ug/L			05/13/14 15:27	1
Bromomethane	<4.00		4.00		ug/L			05/13/14 15:27	1
2-Butanone (MEK)	<10.0		10.0		ug/L			05/13/14 15:27	1
n-Butylbenzene	<1.00		1.00		ug/L			05/13/14 15:27	1
sec-Butylbenzene	<1.00		1.00		ug/L			05/13/14 15:27	1
tert-Butylbenzene	<1.00		1.00		ug/L			05/13/14 15:27	1
Carbon tetrachloride	<2.00		2.00		ug/L			05/13/14 15:27	1
Chlorobenzene	<1.00		1.00		ug/L			05/13/14 15:27	1
Chlorodibromomethane	<5.00		5.00		ug/L			05/13/14 15:27	1
Dichlorofluoromethane	<1.00	*	1.00		ug/L			05/13/14 15:27	1
Chloroethane	<4.00	*	4.00		ug/L			05/13/14 15:27	1
Chloroform	<1.00		1.00		ug/L			05/13/14 15:27	1
Chloromethane	<3.00	*	3.00		ug/L			05/13/14 15:27	1
4-Chlorotoluene	<1.00		1.00		ug/L			05/13/14 15:27	1
2-Chlorotoluene	<1.00		1.00		ug/L			05/13/14 15:27	1
1,2-Dibromo-3-Chloropropane	<10.0		10.0		ug/L			05/13/14 15:27	1
1,2-Dibromoethane (EDB)	<10.0		10.0		ug/L			05/13/14 15:27	1
Dibromomethane	<1.00		1.00		ug/L			05/13/14 15:27	1
1,2-Dichlorobenzene	<1.00		1.00		ug/L			05/13/14 15:27	1
1,3-Dichlorobenzene	<1.00		1.00		ug/L			05/13/14 15:27	1
1,4-Dichlorobenzene	<1.00		1.00		ug/L			05/13/14 15:27	1
Dichlorodifluoromethane	<3.00	*	3.00		ug/L			05/13/14 15:27	1
1,2-Dichloroethane	<1.00		1.00		ug/L			05/13/14 15:27	1
1,1-Dichloroethane	<1.00		1.00		ug/L			05/13/14 15:27	1
1,1-Dichloroethene	<2.00		2.00		ug/L			05/13/14 15:27	1
cis-1,2-Dichloroethene	<1.00		1.00		ug/L			05/13/14 15:27	1
trans-1,2-Dichloroethene	<1.00		1.00		ug/L			05/13/14 15:27	1
1,2-Dichloropropane	<1.00		1.00		ug/L			05/13/14 15:27	1
1,3-Dichloropropane	<1.00		1.00		ug/L			05/13/14 15:27	1
2,2-Dichloropropane	<4.00		4.00		ug/L			05/13/14 15:27	1
1,1-Dichloropropene	<1.00		1.00		ug/L			05/13/14 15:27	1
cis-1,3-Dichloropropene	<5.00		5.00		ug/L			05/13/14 15:27	1
trans-1,3-Dichloropropene	<5.00		5.00		ug/L			05/13/14 15:27	1
Diethyl ether	<1.70		1.70		ug/L			05/13/14 15:27	1
Ethylbenzene	<1.00		1.00		ug/L			05/13/14 15:27	1
Hexachlorobutadiene	<5.00		5.00		ug/L			05/13/14 15:27	1
Isopropylbenzene	<1.00		1.00		ug/L			05/13/14 15:27	1
p-Isopropyltoluene	<1.00		1.00		ug/L			05/13/14 15:27	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0		ug/L			05/13/14 15:27	1
Methylene Chloride	<5.00		5.00		ug/L			05/13/14 15:27	1
Methyl tert-butyl ether	<1.00		1.00		ug/L			05/13/14 15:27	1
Naphthalene	<5.00		5.00		ug/L			05/13/14 15:27	1
N-Propylbenzene	<1.00		1.00		ug/L			05/13/14 15:27	1

Client: Applied Engineering, Inc.
Project/Site: 3D15

TestAmerica Job ID: 310-30191-2

Client Sample ID: 1 - GP-1
Date Collected: 05/05/14 16:30
Date Received: 05/07/14 09:35

Lab Sample ID: 310-30191-15
Matrix: Ground Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Styrene	<1.00		1.00		ug/L			05/13/14 15:27	1
1,1,1,2-Tetrachloroethane	<1.00		1.00		ug/L			05/13/14 15:27	1
1,1,2,2-Tetrachloroethane	<1.00		1.00		ug/L			05/13/14 15:27	1
Tetrachloroethene	<1.00		1.00		ug/L			05/13/14 15:27	1
Tetrahydrofuran	<50.0		50.0		ug/L			05/13/14 15:27	1
Toluene	**1.83**		1.00		ug/L			05/13/14 15:27	1
1,2,3-Trichlorobenzene	<5.00		5.00		ug/L			05/13/14 15:27	1
1,2,4-Trichlorobenzene	<5.00		5.00		ug/L			05/13/14 15:27	1
1,1,1-Trichloroethane	<1.00		1.00		ug/L			05/13/14 15:27	1
1,1,2-Trichloroethane	<1.00		1.00		ug/L			05/13/14 15:27	1
Trichloroethene	<1.00		1.00		ug/L			05/13/14 15:27	1
Trichlorofluoromethane	<4.00		4.00		ug/L			05/13/14 15:27	1
1,2,3-Trichloropropane	<1.00		1.00		ug/L			05/13/14 15:27	1
1,1,2-Trichlorotrifluoroethane	<2.00		2.00		ug/L			05/13/14 15:27	1
1,2,4-Trimethylbenzene	<1.00		1.00		ug/L			05/13/14 15:27	1
1,3,5-Trimethylbenzene	<1.00		1.00		ug/L			05/13/14 15:27	1
Vinyl chloride	<1.00	*	1.00		ug/L			05/13/14 15:27	1
Xylenes, Total	<3.00		3.00		ug/L			05/13/14 15:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*75 - 110*		*05/13/14 15:27*	*1*
Dibromofluoromethane (Surr)	*96*		*75 - 120*		*05/13/14 15:27*	*1*
Toluene-d8 (Surr)	*96*		*80 - 120*		*05/13/14 15:27*	*1*

Method: WI-DRO - Wisconsin - Diesel Range Organics (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO)	**10.2**		0.119		mg/L		05/09/14 08:22	05/13/14 20:41	1

Client: Applied Engineering, Inc.
Project/Site: 3D15

TestAmerica Job ID: 310-30191-2

Client Sample ID: 2 - GP-6
Date Collected: 05/05/14 16:30
Date Received: 05/07/14 09:35

Lab Sample ID: 310-30191-16
Matrix: Ground Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	10.4		10.0		ug/L			05/13/14 15:03	1
Allyl chloride	<2.00	*	2.00		ug/L			05/13/14 15:03	1
Benzene	<0.500		0.500		ug/L			05/13/14 15:03	1
Bromobenzene	<1.00		1.00		ug/L			05/13/14 15:03	1
Bromochloromethane	<5.00		5.00		ug/L			05/13/14 15:03	1
Bromodichloromethane	<1.00		1.00		ug/L			05/13/14 15:03	1
Bromoform	<5.00		5.00		ug/L			05/13/14 15:03	1
Bromomethane	<4.00		4.00		ug/L			05/13/14 15:03	1
2-Butanone (MEK)	<10.0		10.0		ug/L			05/13/14 15:03	1
n-Butylbenzene	<1.00		1.00		ug/L			05/13/14 15:03	1
sec-Butylbenzene	<1.00		1.00		ug/L			05/13/14 15:03	1
tert-Butylbenzene	<1.00		1.00		ug/L			05/13/14 15:03	1
Carbon tetrachloride	<2.00		2.00		ug/L			05/13/14 15:03	1
Chlorobenzene	<1.00		1.00		ug/L			05/13/14 15:03	1
Chlorodibromomethane	<5.00		5.00		ug/L			05/13/14 15:03	1
Dichlorofluoromethane	<1.00	*	1.00		ug/L			05/13/14 15:03	1
Chloroethane	<4.00	*	4.00		ug/L			05/13/14 15:03	1
Chloroform	<1.00		1.00		ug/L			05/13/14 15:03	1
Chloromethane	<3.00	*	3.00		ug/L			05/13/14 15:03	1
4-Chlorotoluene	<1.00		1.00		ug/L			05/13/14 15:03	1
2-Chlorotoluene	<1.00		1.00		ug/L			05/13/14 15:03	1
1,2-Dibromo-3-Chloropropane	<10.0		10.0		ug/L			05/13/14 15:03	1
1,2-Dibromoethane (EDB)	<10.0		10.0		ug/L			05/13/14 15:03	1
Dibromomethane	<1.00		1.00		ug/L			05/13/14 15:03	1
1,2-Dichlorobenzene	<1.00		1.00		ug/L			05/13/14 15:03	1
1,3-Dichlorobenzene	<1.00		1.00		ug/L			05/13/14 15:03	1
1,4-Dichlorobenzene	<1.00		1.00		ug/L			05/13/14 15:03	1
Dichlorodifluoromethane	<3.00	*	3.00		ug/L			05/13/14 15:03	1
1,2-Dichloroethane	<1.00		1.00		ug/L			05/13/14 15:03	1
1,1-Dichloroethane	<1.00		1.00		ug/L			05/13/14 15:03	1
1,1-Dichloroethene	<2.00		2.00		ug/L			05/13/14 15:03	1
cis-1,2-Dichloroethene	<1.00		1.00		ug/L			05/13/14 15:03	1
trans-1,2-Dichloroethene	<1.00		1.00		ug/L			05/13/14 15:03	1
1,2-Dichloropropane	<1.00		1.00		ug/L			05/13/14 15:03	1
1,3-Dichloropropane	<1.00		1.00		ug/L			05/13/14 15:03	1
2,2-Dichloropropane	<4.00		4.00		ug/L			05/13/14 15:03	1
1,1-Dichloropropene	<1.00		1.00		ug/L			05/13/14 15:03	1
cis-1,3-Dichloropropene	<5.00		5.00		ug/L			05/13/14 15:03	1
trans-1,3-Dichloropropene	<5.00		5.00		ug/L			05/13/14 15:03	1
Diethyl ether	<1.70		1.70		ug/L			05/13/14 15:03	1
Ethylbenzene	<1.00		1.00		ug/L			05/13/14 15:03	1
Hexachlorobutadiene	<5.00		5.00		ug/L			05/13/14 15:03	1
Isopropylbenzene	<1.00		1.00		ug/L			05/13/14 15:03	1
p-Isopropyltoluene	<1.00		1.00		ug/L			05/13/14 15:03	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0		ug/L			05/13/14 15:03	1
Methylene Chloride	<5.00		5.00		ug/L			05/13/14 15:03	1
Methyl tert-butyl ether	<1.00		1.00		ug/L			05/13/14 15:03	1
Naphthalene	<5.00		5.00		ug/L			05/13/14 15:03	1
N-Propylbenzene	<1.00		1.00		ug/L			05/13/14 15:03	1

Client: Applied Engineering, Inc.
Project/Site: 3D15

TestAmerica Job ID: 310-30191-2

Client Sample ID: 2 - GP-6
Date Collected: 05/05/14 16:30
Date Received: 05/07/14 09:35

Lab Sample ID: 310-30191-16
Matrix: Ground Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Styrene	<1.00		1.00		ug/L			05/13/14 15:03	1
1,1,1,2-Tetrachloroethane	<1.00		1.00		ug/L			05/13/14 15:03	1
1,1,2,2-Tetrachloroethane	<1.00		1.00		ug/L			05/13/14 15:03	1
Tetrachloroethene	<1.00		1.00		ug/L			05/13/14 15:03	1
Tetrahydrofuran	<50.0		50.0		ug/L			05/13/14 15:03	1
Toluene	<1.00		1.00		ug/L			05/13/14 15:03	1
1,2,3-Trichlorobenzene	<5.00		5.00		ug/L			05/13/14 15:03	1
1,2,4-Trichlorobenzene	<5.00		5.00		ug/L			05/13/14 15:03	1
1,1,1-Trichloroethane	<1.00		1.00		ug/L			05/13/14 15:03	1
1,1,2-Trichloroethane	<1.00		1.00		ug/L			05/13/14 15:03	1
Trichloroethene	<1.00		1.00		ug/L			05/13/14 15:03	1
Trichlorofluoromethane	<4.00		4.00		ug/L			05/13/14 15:03	1
1,2,3-Trichloropropane	<1.00		1.00		ug/L			05/13/14 15:03	1
1,1,2-Trichlorotrifluoroethane	<2.00		2.00		ug/L			05/13/14 15:03	1
1,2,4-Trimethylbenzene	<1.00		1.00		ug/L			05/13/14 15:03	1
1,3,5-Trimethylbenzene	<1.00		1.00		ug/L			05/13/14 15:03	1
Vinyl chloride	<1.00	*	1.00		ug/L			05/13/14 15:03	1
Xylenes, Total	<3.00		3.00		ug/L			05/13/14 15:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*75 - 110*		*05/13/14 15:03*	*1*
Dibromofluoromethane (Surr)	*93*		*75 - 120*		*05/13/14 15:03*	*1*
Toluene-d8 (Surr)	*97*		*80 - 120*		*05/13/14 15:03*	*1*

Method: WI-DRO - Wisconsin - Diesel Range Organics (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO)	**2.11**		0.111		mg/L		05/09/14 08:22	05/13/14 21:13	1

Client Sample ID: 3 - GP-3
Date Collected: 05/05/14 16:30
Date Received: 05/07/14 09:35

Lab Sample ID: 310-30191-17
Matrix: Ground Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	12.1		10.0		ug/L			05/14/14 00:45	1
Allyl chloride	<2.00	*	2.00		ug/L			05/14/14 00:45	1
Benzene	<0.500		0.500		ug/L			05/14/14 00:45	1
Bromobenzene	<1.00		1.00		ug/L			05/14/14 00:45	1
Bromochloromethane	<5.00		5.00		ug/L			05/14/14 00:45	1
Bromodichloromethane	<1.00		1.00		ug/L			05/14/14 00:45	1
Bromoform	<5.00		5.00		ug/L			05/14/14 00:45	1
Bromomethane	<4.00		4.00		ug/L			05/14/14 00:45	1
2-Butanone (MEK)	<10.0		10.0		ug/L			05/14/14 00:45	1
n-Butylbenzene	<1.00		1.00		ug/L			05/14/14 00:45	1
sec-Butylbenzene	<1.00		1.00		ug/L			05/14/14 00:45	1
tert-Butylbenzene	<1.00		1.00		ug/L			05/14/14 00:45	1
Carbon tetrachloride	<2.00		2.00		ug/L			05/14/14 00:45	1
Chlorobenzene	<1.00		1.00		ug/L			05/14/14 00:45	1
Chlorodibromomethane	<5.00		5.00		ug/L			05/14/14 00:45	1
Dichlorofluoromethane	<1.00		1.00		ug/L			05/14/14 00:45	1
Chloroethane	<4.00	*	4.00		ug/L			05/14/14 00:45	1
Chloroform	<1.00		1.00		ug/L			05/14/14 00:45	1
Chloromethane	<3.00	*	3.00		ug/L			05/14/14 00:45	1
4-Chlorotoluene	<1.00		1.00		ug/L			05/14/14 00:45	1
2-Chlorotoluene	<1.00		1.00		ug/L			05/14/14 00:45	1
1,2-Dibromo-3-Chloropropane	<10.0		10.0		ug/L			05/14/14 00:45	1
1,2-Dibromoethane (EDB)	<10.0		10.0		ug/L			05/14/14 00:45	1
Dibromomethane	<1.00		1.00		ug/L			05/14/14 00:45	1
1,2-Dichlorobenzene	<1.00		1.00		ug/L			05/14/14 00:45	1
1,3-Dichlorobenzene	<1.00		1.00		ug/L			05/14/14 00:45	1
1,4-Dichlorobenzene	<1.00		1.00		ug/L			05/14/14 00:45	1
Dichlorodifluoromethane	<3.00		3.00		ug/L			05/14/14 00:45	1
1,2-Dichloroethane	<1.00		1.00		ug/L			05/14/14 00:45	1
1,1-Dichloroethane	<1.00		1.00		ug/L			05/14/14 00:45	1
1,1-Dichloroethene	<2.00		2.00		ug/L			05/14/14 00:45	1
cis-1,2-Dichloroethene	<1.00		1.00		ug/L			05/14/14 00:45	1
trans-1,2-Dichloroethene	<1.00		1.00		ug/L			05/14/14 00:45	1
1,2-Dichloropropane	<1.00		1.00		ug/L			05/14/14 00:45	1
1,3-Dichloropropane	<1.00		1.00		ug/L			05/14/14 00:45	1
2,2-Dichloropropane	<4.00		4.00		ug/L			05/14/14 00:45	1
1,1-Dichloropropene	<1.00		1.00		ug/L			05/14/14 00:45	1
cis-1,3-Dichloropropene	<5.00		5.00		ug/L			05/14/14 00:45	1
trans-1,3-Dichloropropene	<5.00		5.00		ug/L			05/14/14 00:45	1
Diethyl ether	<1.70		1.70		ug/L			05/14/14 00:45	1
Ethylbenzene	<1.00		1.00		ug/L			05/14/14 00:45	1
Hexachlorobutadiene	<5.00		5.00		ug/L			05/14/14 00:45	1
Isopropylbenzene	<1.00		1.00		ug/L			05/14/14 00:45	1
p-Isopropyltoluene	<1.00		1.00		ug/L			05/14/14 00:45	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0		ug/L			05/14/14 00:45	1
Methylene Chloride	<5.00		5.00		ug/L			05/14/14 00:45	1
Methyl tert-butyl ether	<1.00		1.00		ug/L			05/14/14 00:45	1
Naphthalene	<5.00		5.00		ug/L			05/14/14 00:45	1
N-Propylbenzene	<1.00		1.00		ug/L			05/14/14 00:45	1

Client: Applied Engineering, Inc.
Project/Site: 3D15

TestAmerica Job ID: 310-30191-2

Client Sample ID: 3 - GP-3
Date Collected: 05/05/14 16:30
Date Received: 05/07/14 09:35

Lab Sample ID: 310-30191-17
Matrix: Ground Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Styrene	<1.00		1.00		ug/L			05/14/14 00:45	1
1,1,1,2-Tetrachloroethane	<1.00		1.00		ug/L			05/14/14 00:45	1
1,1,2,2-Tetrachloroethane	<1.00		1.00		ug/L			05/14/14 00:45	1
Tetrachloroethene	<1.00		1.00		ug/L			05/14/14 00:45	1
Tetrahydrofuran	<50.0		50.0		ug/L			05/14/14 00:45	1
Toluene	<1.00		1.00		ug/L			05/14/14 00:45	1
1,2,3-Trichlorobenzene	<5.00		5.00		ug/L			05/14/14 00:45	1
1,2,4-Trichlorobenzene	<5.00		5.00		ug/L			05/14/14 00:45	1
1,1,1-Trichloroethane	<1.00		1.00		ug/L			05/14/14 00:45	1
1,1,2-Trichloroethane	<1.00		1.00		ug/L			05/14/14 00:45	1
Trichloroethene	<1.00		1.00		ug/L			05/14/14 00:45	1
Trichlorofluoromethane	<4.00		4.00		ug/L			05/14/14 00:45	1
1,2,3-Trichloropropane	<1.00		1.00		ug/L			05/14/14 00:45	1
1,1,2-Trichlorotrifluoroethane	<2.00		2.00		ug/L			05/14/14 00:45	1
1,2,4-Trimethylbenzene	<1.00		1.00		ug/L			05/14/14 00:45	1
1,3,5-Trimethylbenzene	<1.00		1.00		ug/L			05/14/14 00:45	1
Vinyl chloride	<1.00		1.00		ug/L			05/14/14 00:45	1
Xylenes, Total	<3.00		3.00		ug/L			05/14/14 00:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*75 - 110*		*05/14/14 00:45*	*1*
Dibromofluoromethane (Surr)	*95*		*75 - 120*		*05/14/14 00:45*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*05/14/14 00:45*	*1*

Method: WI-DRO - Wisconsin - Diesel Range Organics (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO)	**0.476**		0.112		mg/L		05/09/14 08:22	05/13/14 21:46	1

Client Sample ID: 4 - GP-4
Date Collected: 05/05/14 16:30
Date Received: 05/07/14 09:35

Lab Sample ID: 310-30191-18
Matrix: Ground Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	14.2		10.0		ug/L			05/14/14 00:21	1
Allyl chloride	<2.00	*	2.00		ug/L			05/14/14 00:21	1
Benzene	<0.500		0.500		ug/L			05/14/14 00:21	1
Bromobenzene	<1.00		1.00		ug/L			05/14/14 00:21	1
Bromochloromethane	<5.00		5.00		ug/L			05/14/14 00:21	1
Bromodichloromethane	<1.00		1.00		ug/L			05/14/14 00:21	1
Bromoform	<5.00		5.00		ug/L			05/14/14 00:21	1
Bromomethane	<4.00		4.00		ug/L			05/14/14 00:21	1
2-Butanone (MEK)	<10.0		10.0		ug/L			05/14/14 00:21	1
n-Butylbenzene	<1.00		1.00		ug/L			05/14/14 00:21	1
sec-Butylbenzene	<1.00		1.00		ug/L			05/14/14 00:21	1
tert-Butylbenzene	<1.00		1.00		ug/L			05/14/14 00:21	1
Carbon tetrachloride	<2.00		2.00		ug/L			05/14/14 00:21	1
Chlorobenzene	<1.00		1.00		ug/L			05/14/14 00:21	1
Chlorodibromomethane	<5.00		5.00		ug/L			05/14/14 00:21	1
Dichlorofluoromethane	<1.00		1.00		ug/L			05/14/14 00:21	1
Chloroethane	<4.00	*	4.00		ug/L			05/14/14 00:21	1
Chloroform	<1.00		1.00		ug/L			05/14/14 00:21	1
Chloromethane	<3.00	*	3.00		ug/L			05/14/14 00:21	1
4-Chlorotoluene	<1.00		1.00		ug/L			05/14/14 00:21	1
2-Chlorotoluene	<1.00		1.00		ug/L			05/14/14 00:21	1
1,2-Dibromo-3-Chloropropane	<10.0		10.0		ug/L			05/14/14 00:21	1
1,2-Dibromoethane (EDB)	<10.0		10.0		ug/L			05/14/14 00:21	1
Dibromomethane	<1.00		1.00		ug/L			05/14/14 00:21	1
1,2-Dichlorobenzene	<1.00		1.00		ug/L			05/14/14 00:21	1
1,3-Dichlorobenzene	<1.00		1.00		ug/L			05/14/14 00:21	1
1,4-Dichlorobenzene	<1.00		1.00		ug/L			05/14/14 00:21	1
Dichlorodifluoromethane	<3.00		3.00		ug/L			05/14/14 00:21	1
1,2-Dichloroethane	<1.00		1.00		ug/L			05/14/14 00:21	1
1,1-Dichloroethane	<1.00		1.00		ug/L			05/14/14 00:21	1
1,1-Dichloroethene	<2.00		2.00		ug/L			05/14/14 00:21	1
cis-1,2-Dichloroethene	<1.00		1.00		ug/L			05/14/14 00:21	1
trans-1,2-Dichloroethene	<1.00		1.00		ug/L			05/14/14 00:21	1
1,2-Dichloropropane	<1.00		1.00		ug/L			05/14/14 00:21	1
1,3-Dichloropropane	<1.00		1.00		ug/L			05/14/14 00:21	1
2,2-Dichloropropane	<4.00		4.00		ug/L			05/14/14 00:21	1
1,1-Dichloropropene	<1.00		1.00		ug/L			05/14/14 00:21	1
cis-1,3-Dichloropropene	<5.00		5.00		ug/L			05/14/14 00:21	1
trans-1,3-Dichloropropene	<5.00		5.00		ug/L			05/14/14 00:21	1
Diethyl ether	<1.70		1.70		ug/L			05/14/14 00:21	1
Ethylbenzene	<1.00		1.00		ug/L			05/14/14 00:21	1
Hexachlorobutadiene	<5.00		5.00		ug/L			05/14/14 00:21	1
Isopropylbenzene	<1.00		1.00		ug/L			05/14/14 00:21	1
p-Isopropyltoluene	<1.00		1.00		ug/L			05/14/14 00:21	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0		ug/L			05/14/14 00:21	1
Methylene Chloride	<5.00		5.00		ug/L			05/14/14 00:21	1
Methyl tert-butyl ether	<1.00		1.00		ug/L			05/14/14 00:21	1
Naphthalene	<5.00		5.00		ug/L			05/14/14 00:21	1
N-Propylbenzene	<1.00		1.00		ug/L			05/14/14 00:21	1

Client: Applied Engineering, Inc.
Project/Site: 3D15

TestAmerica Job ID: 310-30191-2

Client Sample ID: 4 - GP-4
Date Collected: 05/05/14 16:30
Date Received: 05/07/14 09:35

Lab Sample ID: 310-30191-18
Matrix: Ground Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Styrene	<1.00		1.00		ug/L			05/14/14 00:21	1
1,1,1,2-Tetrachloroethane	<1.00		1.00		ug/L			05/14/14 00:21	1
1,1,2,2-Tetrachloroethane	<1.00		1.00		ug/L			05/14/14 00:21	1
Tetrachloroethene	<1.00		1.00		ug/L			05/14/14 00:21	1
Tetrahydrofuran	<50.0		50.0		ug/L			05/14/14 00:21	1
Toluene	<1.00		1.00		ug/L			05/14/14 00:21	1
1,2,3-Trichlorobenzene	<5.00		5.00		ug/L			05/14/14 00:21	1
1,2,4-Trichlorobenzene	<5.00		5.00		ug/L			05/14/14 00:21	1
1,1,1-Trichloroethane	<1.00		1.00		ug/L			05/14/14 00:21	1
1,1,2-Trichloroethane	<1.00		1.00		ug/L			05/14/14 00:21	1
Trichloroethene	<1.00		1.00		ug/L			05/14/14 00:21	1
Trichlorofluoromethane	<4.00		4.00		ug/L			05/14/14 00:21	1
1,2,3-Trichloropropane	<1.00		1.00		ug/L			05/14/14 00:21	1
1,1,2-Trichlorotrifluoroethane	<2.00		2.00		ug/L			05/14/14 00:21	1
1,2,4-Trimethylbenzene	<1.00		1.00		ug/L			05/14/14 00:21	1
1,3,5-Trimethylbenzene	<1.00		1.00		ug/L			05/14/14 00:21	1
Vinyl chloride	<1.00		1.00		ug/L			05/14/14 00:21	1
Xylenes, Total	<3.00		3.00		ug/L			05/14/14 00:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*75 - 110*		*05/14/14 00:21*	*1*
Dibromofluoromethane (Surr)	*98*		*75 - 120*		*05/14/14 00:21*	*1*
Toluene-d8 (Surr)	*96*		*80 - 120*		*05/14/14 00:21*	*1*

Method: WI-DRO - Wisconsin - Diesel Range Organics (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO)	**0.447**		0.108		mg/L		05/09/14 08:22	05/13/14 22:18	1

Client: Applied Engineering, Inc.
Project/Site: 3D15

TestAmerica Job ID: 310-30191-2

Client Sample ID: 5 - GP-5
Date Collected: 05/05/14 16:30
Date Received: 05/07/14 09:35

Lab Sample ID: 310-30191-19
Matrix: Ground Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	14.3		10.0		ug/L			05/13/14 23:57	1
Allyl chloride	<2.00	*	2.00		ug/L			05/13/14 23:57	1
Benzene	<0.500		0.500		ug/L			05/13/14 23:57	1
Bromobenzene	<1.00		1.00		ug/L			05/13/14 23:57	1
Bromochloromethane	<5.00		5.00		ug/L			05/13/14 23:57	1
Bromodichloromethane	<1.00		1.00		ug/L			05/13/14 23:57	1
Bromoform	<5.00		5.00		ug/L			05/13/14 23:57	1
Bromomethane	<4.00		4.00		ug/L			05/13/14 23:57	1
2-Butanone (MEK)	<10.0		10.0		ug/L			05/13/14 23:57	1
n-Butylbenzene	<1.00		1.00		ug/L			05/13/14 23:57	1
sec-Butylbenzene	<1.00		1.00		ug/L			05/13/14 23:57	1
tert-Butylbenzene	<1.00		1.00		ug/L			05/13/14 23:57	1
Carbon tetrachloride	<2.00		2.00		ug/L			05/13/14 23:57	1
Chlorobenzene	<1.00		1.00		ug/L			05/13/14 23:57	1
Chlorodibromomethane	<5.00		5.00		ug/L			05/13/14 23:57	1
Dichlorofluoromethane	<1.00		1.00		ug/L			05/13/14 23:57	1
Chloroethane	<4.00	*	4.00		ug/L			05/13/14 23:57	1
Chloroform	<1.00		1.00		ug/L			05/13/14 23:57	1
Chloromethane	<3.00	*	3.00		ug/L			05/13/14 23:57	1
4-Chlorotoluene	<1.00		1.00		ug/L			05/13/14 23:57	1
2-Chlorotoluene	<1.00		1.00		ug/L			05/13/14 23:57	1
1,2-Dibromo-3-Chloropropane	<10.0		10.0		ug/L			05/13/14 23:57	1
1,2-Dibromoethane (EDB)	<10.0		10.0		ug/L			05/13/14 23:57	1
Dibromomethane	<1.00		1.00		ug/L			05/13/14 23:57	1
1,2-Dichlorobenzene	<1.00		1.00		ug/L			05/13/14 23:57	1
1,3-Dichlorobenzene	<1.00		1.00		ug/L			05/13/14 23:57	1
1,4-Dichlorobenzene	<1.00		1.00		ug/L			05/13/14 23:57	1
Dichlorodifluoromethane	<3.00		3.00		ug/L			05/13/14 23:57	1
1,2-Dichloroethane	<1.00		1.00		ug/L			05/13/14 23:57	1
1,1-Dichloroethane	<1.00		1.00		ug/L			05/13/14 23:57	1
1,1-Dichloroethene	<2.00		2.00		ug/L			05/13/14 23:57	1
cis-1,2-Dichloroethene	<1.00		1.00		ug/L			05/13/14 23:57	1
trans-1,2-Dichloroethene	<1.00		1.00		ug/L			05/13/14 23:57	1
1,2-Dichloropropane	<1.00		1.00		ug/L			05/13/14 23:57	1
1,3-Dichloropropane	<1.00		1.00		ug/L			05/13/14 23:57	1
2,2-Dichloropropane	<4.00		4.00		ug/L			05/13/14 23:57	1
1,1-Dichloropropene	<1.00		1.00		ug/L			05/13/14 23:57	1
cis-1,3-Dichloropropene	<5.00		5.00		ug/L			05/13/14 23:57	1
trans-1,3-Dichloropropene	<5.00		5.00		ug/L			05/13/14 23:57	1
Diethyl ether	<1.70		1.70		ug/L			05/13/14 23:57	1
Ethylbenzene	<1.00		1.00		ug/L			05/13/14 23:57	1
Hexachlorobutadiene	<5.00		5.00		ug/L			05/13/14 23:57	1
Isopropylbenzene	<1.00		1.00		ug/L			05/13/14 23:57	1
p-Isopropyltoluene	<1.00		1.00		ug/L			05/13/14 23:57	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0		ug/L			05/13/14 23:57	1
Methylene Chloride	<5.00		5.00		ug/L			05/13/14 23:57	1
Methyl tert-butyl ether	<1.00		1.00		ug/L			05/13/14 23:57	1
Naphthalene	<5.00		5.00		ug/L			05/13/14 23:57	1
N-Propylbenzene	<1.00		1.00		ug/L			05/13/14 23:57	1

Client: Applied Engineering, Inc.
Project/Site: 3D15

TestAmerica Job ID: 310-30191-2

Client Sample ID: 5 - GP-5
Date Collected: 05/05/14 16:30
Date Received: 05/07/14 09:35

Lab Sample ID: 310-30191-19
Matrix: Ground Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Styrene	<1.00		1.00		ug/L			05/13/14 23:57	1
1,1,1,2-Tetrachloroethane	<1.00		1.00		ug/L			05/13/14 23:57	1
1,1,2,2-Tetrachloroethane	<1.00		1.00		ug/L			05/13/14 23:57	1
Tetrachloroethene	<1.00		1.00		ug/L			05/13/14 23:57	1
Tetrahydrofuran	<50.0		50.0		ug/L			05/13/14 23:57	1
Toluene	<1.00		1.00		ug/L			05/13/14 23:57	1
1,2,3-Trichlorobenzene	<5.00		5.00		ug/L			05/13/14 23:57	1
1,2,4-Trichlorobenzene	<5.00		5.00		ug/L			05/13/14 23:57	1
1,1,1-Trichloroethane	<1.00		1.00		ug/L			05/13/14 23:57	1
1,1,2-Trichloroethane	<1.00		1.00		ug/L			05/13/14 23:57	1
Trichloroethene	<1.00		1.00		ug/L			05/13/14 23:57	1
Trichlorofluoromethane	<4.00		4.00		ug/L			05/13/14 23:57	1
1,2,3-Trichloropropane	<1.00		1.00		ug/L			05/13/14 23:57	1
1,1,2-Trichlorotrifluoroethane	<2.00		2.00		ug/L			05/13/14 23:57	1
1,2,4-Trimethylbenzene	<1.00		1.00		ug/L			05/13/14 23:57	1
1,3,5-Trimethylbenzene	<1.00		1.00		ug/L			05/13/14 23:57	1
Vinyl chloride	<1.00		1.00		ug/L			05/13/14 23:57	1
Xylenes, Total	<3.00		3.00		ug/L			05/13/14 23:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*75 - 110*		*05/13/14 23:57*	*1*
Dibromofluoromethane (Surr)	*98*		*75 - 120*		*05/13/14 23:57*	*1*
Toluene-d8 (Surr)	*96*		*80 - 120*		*05/13/14 23:57*	*1*

Method: WI-DRO - Wisconsin - Diesel Range Organics (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO)	**0.587**		0.108		mg/L		05/09/14 08:22	05/13/14 22:51	1

Client Sample ID: 7 - GP-7
Date Collected: 05/05/14 16:30
Date Received: 05/07/14 09:35

Lab Sample ID: 310-30191-20
Matrix: Ground Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	**14.7**		10.0		ug/L			05/13/14 23:32	1
Allyl chloride	<2.00	*	2.00		ug/L			05/13/14 23:32	1
Benzene	**1.41**		0.500		ug/L			05/13/14 23:32	1
Bromobenzene	<1.00		1.00		ug/L			05/13/14 23:32	1
Bromochloromethane	<5.00		5.00		ug/L			05/13/14 23:32	1
Bromodichloromethane	<1.00		1.00		ug/L			05/13/14 23:32	1
Bromoform	<5.00		5.00		ug/L			05/13/14 23:32	1
Bromomethane	<4.00		4.00		ug/L			05/13/14 23:32	1
2-Butanone (MEK)	<10.0		10.0		ug/L			05/13/14 23:32	1
n-Butylbenzene	**5.71**		1.00		ug/L			05/13/14 23:32	1
sec-Butylbenzene	**3.93**		1.00		ug/L			05/13/14 23:32	1
tert-Butylbenzene	<1.00		1.00		ug/L			05/13/14 23:32	1
Carbon tetrachloride	<2.00		2.00		ug/L			05/13/14 23:32	1
Chlorobenzene	<1.00		1.00		ug/L			05/13/14 23:32	1
Chlorodibromomethane	<5.00		5.00		ug/L			05/13/14 23:32	1
Dichlorofluoromethane	<1.00		1.00		ug/L			05/13/14 23:32	1
Chloroethane	<4.00	*	4.00		ug/L			05/13/14 23:32	1
Chloroform	<1.00		1.00		ug/L			05/13/14 23:32	1
Chloromethane	<3.00	*	3.00		ug/L			05/13/14 23:32	1
4-Chlorotoluene	**4.48**		1.00		ug/L			05/13/14 23:32	1
2-Chlorotoluene	<1.00		1.00		ug/L			05/13/14 23:32	1
1,2-Dibromo-3-Chloropropane	<10.0		10.0		ug/L			05/13/14 23:32	1
1,2-Dibromoethane (EDB)	<10.0		10.0		ug/L			05/13/14 23:32	1
Dibromomethane	<1.00		1.00		ug/L			05/13/14 23:32	1
1,2-Dichlorobenzene	<1.00		1.00		ug/L			05/13/14 23:32	1
1,3-Dichlorobenzene	<1.00		1.00		ug/L			05/13/14 23:32	1
1,4-Dichlorobenzene	<1.00		1.00		ug/L			05/13/14 23:32	1
Dichlorodifluoromethane	<3.00		3.00		ug/L			05/13/14 23:32	1
1,2-Dichloroethane	<1.00		1.00		ug/L			05/13/14 23:32	1
1,1-Dichloroethane	<1.00		1.00		ug/L			05/13/14 23:32	1
1,1-Dichloroethene	<2.00		2.00		ug/L			05/13/14 23:32	1
cis-1,2-Dichloroethene	<1.00		1.00		ug/L			05/13/14 23:32	1
trans-1,2-Dichloroethene	<1.00		1.00		ug/L			05/13/14 23:32	1
1,2-Dichloropropane	<1.00		1.00		ug/L			05/13/14 23:32	1
1,3-Dichloropropane	<1.00		1.00		ug/L			05/13/14 23:32	1
2,2-Dichloropropane	<4.00		4.00		ug/L			05/13/14 23:32	1
1,1-Dichloropropene	<1.00		1.00		ug/L			05/13/14 23:32	1
cis-1,3-Dichloropropene	<5.00		5.00		ug/L			05/13/14 23:32	1
trans-1,3-Dichloropropene	<5.00		5.00		ug/L			05/13/14 23:32	1
Diethyl ether	<1.70		1.70		ug/L			05/13/14 23:32	1
Ethylbenzene	**172**		1.00		ug/L			05/13/14 23:32	1
Hexachlorobutadiene	<5.00		5.00		ug/L			05/13/14 23:32	1
Isopropylbenzene	**22.3**		1.00		ug/L			05/13/14 23:32	1
p-Isopropyltoluene	**1.63**		1.00		ug/L			05/13/14 23:32	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0		ug/L			05/13/14 23:32	1
Methylene Chloride	<5.00		5.00		ug/L			05/13/14 23:32	1
Methyl tert-butyl ether	<1.00		1.00		ug/L			05/13/14 23:32	1
Naphthalene	**104**		5.00		ug/L			05/13/14 23:32	1
N-Propylbenzene	**57.0**		1.00		ug/L			05/13/14 23:32	1

Client: Applied Engineering, Inc.
Project/Site: 3D15

TestAmerica Job ID: 310-30191-2

Client Sample ID: 7 - GP-7
Date Collected: 05/05/14 16:30
Date Received: 05/07/14 09:35

Lab Sample ID: 310-30191-20
Matrix: Ground Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Styrene	<1.00		1.00		ug/L			05/13/14 23:32	1
1,1,1,2-Tetrachloroethane	<1.00		1.00		ug/L			05/13/14 23:32	1
1,1,2,2-Tetrachloroethane	<1.00		1.00		ug/L			05/13/14 23:32	1
Tetrachloroethene	<1.00		1.00		ug/L			05/13/14 23:32	1
Tetrahydrofuran	<50.0		50.0		ug/L			05/13/14 23:32	1
Toluene	**2.65**		1.00		ug/L			05/13/14 23:32	1
1,2,3-Trichlorobenzene	<5.00		5.00		ug/L			05/13/14 23:32	1
1,2,4-Trichlorobenzene	<5.00		5.00		ug/L			05/13/14 23:32	1
1,1,1-Trichloroethane	<1.00		1.00		ug/L			05/13/14 23:32	1
1,1,2-Trichloroethane	<1.00		1.00		ug/L			05/13/14 23:32	1
Trichloroethene	<1.00		1.00		ug/L			05/13/14 23:32	1
Trichlorofluoromethane	<4.00		4.00		ug/L			05/13/14 23:32	1
1,2,3-Trichloropropane	**1.78**		1.00		ug/L			05/13/14 23:32	1
1,1,2-Trichlorotrifluoroethane	<2.00		2.00		ug/L			05/13/14 23:32	1
1,2,4-Trimethylbenzene	**637**		1.00		ug/L			05/13/14 23:32	1
1,3,5-Trimethylbenzene	**43.0**		1.00		ug/L			05/13/14 23:32	1
Vinyl chloride	<1.00		1.00		ug/L			05/13/14 23:32	1
Xylenes, Total	**1170**		30.0		ug/L			05/16/14 14:28	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*75 - 110*		*05/13/14 23:32*	*1*
4-Bromofluorobenzene (Surr)	*95*		*75 - 110*		*05/16/14 14:28*	*10*
Dibromofluoromethane (Surr)	*96*		*75 - 120*		*05/13/14 23:32*	*1*
Dibromofluoromethane (Surr)	*98*		*75 - 120*		*05/16/14 14:28*	*10*
Toluene-d8 (Surr)	*98*		*80 - 120*		*05/13/14 23:32*	*1*
Toluene-d8 (Surr)	*94*		*80 - 120*		*05/16/14 14:28*	*10*

Method: WI-DRO - Wisconsin - Diesel Range Organics (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO)	**1.53**		0.112		mg/L		05/09/14 08:22	05/13/14 23:24	1

Client: Applied Engineering, Inc.
Project/Site: 3D15

TestAmerica Job ID: 310-30191-2

Client Sample ID: MeOH Blank
Date Collected: 05/05/14 00:00
Date Received: 05/07/14 09:35

Lab Sample ID: 310-30191-21
Matrix: Soil

Method: WI-GRO - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.100		0.100		mg/Kg		05/08/14 14:16	05/09/14 11:46	1
Toluene	<0.100		0.100		mg/Kg		05/08/14 14:16	05/09/14 11:46	1
Ethylbenzene	<0.100		0.100		mg/Kg		05/08/14 14:16	05/09/14 11:46	1
Methyl tert-butyl ether	<0.100		0.100		mg/Kg		05/08/14 14:16	05/09/14 11:46	1
Xylenes, Total	<0.300		0.300		mg/Kg		05/08/14 14:16	05/09/14 11:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*88*		*80 - 120*	*05/08/14 14:16*	*05/09/14 11:46*	*1*

Client: Applied Engineering, Inc.
Project/Site: 3D15

TestAmerica Job ID: 310-30191-2

Client Sample ID: Trip Blank
Date Collected: 05/05/14 00:00
Date Received: 05/07/14 09:35

Lab Sample ID: 310-30191-22
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<10.0		10.0		ug/L			05/13/14 11:48	1
Allyl chloride	<2.00	*	2.00		ug/L			05/13/14 11:48	1
Benzene	<0.500		0.500		ug/L			05/13/14 11:48	1
Bromobenzene	<1.00		1.00		ug/L			05/13/14 11:48	1
Bromochloromethane	<5.00		5.00		ug/L			05/13/14 11:48	1
Bromodichloromethane	<1.00		1.00		ug/L			05/13/14 11:48	1
Bromoform	<5.00		5.00		ug/L			05/13/14 11:48	1
Bromomethane	<4.00		4.00		ug/L			05/13/14 11:48	1
2-Butanone (MEK)	<10.0		10.0		ug/L			05/13/14 11:48	1
n-Butylbenzene	<1.00		1.00		ug/L			05/13/14 11:48	1
sec-Butylbenzene	<1.00		1.00		ug/L			05/13/14 11:48	1
tert-Butylbenzene	<1.00		1.00		ug/L			05/13/14 11:48	1
Carbon tetrachloride	<2.00		2.00		ug/L			05/13/14 11:48	1
Chlorobenzene	<1.00		1.00		ug/L			05/13/14 11:48	1
Chlorodibromomethane	<5.00		5.00		ug/L			05/13/14 11:48	1
Dichlorofluoromethane	<1.00	*	1.00		ug/L			05/13/14 11:48	1
Chloroethane	<4.00	*	4.00		ug/L			05/13/14 11:48	1
Chloroform	<1.00		1.00		ug/L			05/13/14 11:48	1
Chloromethane	<3.00	*	3.00		ug/L			05/13/14 11:48	1
4-Chlorotoluene	<1.00		1.00		ug/L			05/13/14 11:48	1
2-Chlorotoluene	<1.00		1.00		ug/L			05/13/14 11:48	1
1,2-Dibromo-3-Chloropropane	<10.0		10.0		ug/L			05/13/14 11:48	1
1,2-Dibromoethane (EDB)	<10.0		10.0		ug/L			05/13/14 11:48	1
Dibromomethane	<1.00		1.00		ug/L			05/13/14 11:48	1
1,2-Dichlorobenzene	<1.00		1.00		ug/L			05/13/14 11:48	1
1,3-Dichlorobenzene	<1.00		1.00		ug/L			05/13/14 11:48	1
1,4-Dichlorobenzene	<1.00		1.00		ug/L			05/13/14 11:48	1
Dichlorodifluoromethane	<3.00	*	3.00		ug/L			05/13/14 11:48	1
1,2-Dichloroethane	<1.00		1.00		ug/L			05/13/14 11:48	1
1,1-Dichloroethane	<1.00		1.00		ug/L			05/13/14 11:48	1
1,1-Dichloroethene	<2.00		2.00		ug/L			05/13/14 11:48	1
cis-1,2-Dichloroethene	<1.00		1.00		ug/L			05/13/14 11:48	1
trans-1,2-Dichloroethene	<1.00		1.00		ug/L			05/13/14 11:48	1
1,2-Dichloropropane	<1.00		1.00		ug/L			05/13/14 11:48	1
1,3-Dichloropropane	<1.00		1.00		ug/L			05/13/14 11:48	1
2,2-Dichloropropane	<4.00		4.00		ug/L			05/13/14 11:48	1
1,1-Dichloropropene	<1.00		1.00		ug/L			05/13/14 11:48	1
cis-1,3-Dichloropropene	<5.00		5.00		ug/L			05/13/14 11:48	1
trans-1,3-Dichloropropene	<5.00		5.00		ug/L			05/13/14 11:48	1
Diethyl ether	<1.70		1.70		ug/L			05/13/14 11:48	1
Ethylbenzene	<1.00		1.00		ug/L			05/13/14 11:48	1
Hexachlorobutadiene	<5.00		5.00		ug/L			05/13/14 11:48	1
Isopropylbenzene	<1.00		1.00		ug/L			05/13/14 11:48	1
p-Isopropyltoluene	<1.00		1.00		ug/L			05/13/14 11:48	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0		ug/L			05/13/14 11:48	1
Methylene Chloride	<5.00		5.00		ug/L			05/13/14 11:48	1
Methyl tert-butyl ether	<1.00		1.00		ug/L			05/13/14 11:48	1
Naphthalene	<5.00		5.00		ug/L			05/13/14 11:48	1
N-Propylbenzene	<1.00		1.00		ug/L			05/13/14 11:48	1

Client: Applied Engineering, Inc.
Project/Site: 3D15

TestAmerica Job ID: 310-30191-2

Client Sample ID: Trip Blank
Date Collected: 05/05/14 00:00
Date Received: 05/07/14 09:35

Lab Sample ID: 310-30191-22
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Styrene	<1.00		1.00		ug/L			05/13/14 11:48	1
1,1,1,2-Tetrachloroethane	<1.00		1.00		ug/L			05/13/14 11:48	1
1,1,2,2-Tetrachloroethane	<1.00		1.00		ug/L			05/13/14 11:48	1
Tetrachloroethene	<1.00		1.00		ug/L			05/13/14 11:48	1
Tetrahydrofuran	<50.0		50.0		ug/L			05/13/14 11:48	1
Toluene	<1.00		1.00		ug/L			05/13/14 11:48	1
1,2,3-Trichlorobenzene	<5.00		5.00		ug/L			05/13/14 11:48	1
1,2,4-Trichlorobenzene	<5.00		5.00		ug/L			05/13/14 11:48	1
1,1,1-Trichloroethane	<1.00		1.00		ug/L			05/13/14 11:48	1
1,1,2-Trichloroethane	<1.00		1.00		ug/L			05/13/14 11:48	1
Trichloroethene	<1.00		1.00		ug/L			05/13/14 11:48	1
Trichlorofluoromethane	<4.00		4.00		ug/L			05/13/14 11:48	1
1,2,3-Trichloropropane	<1.00		1.00		ug/L			05/13/14 11:48	1
1,1,2-Trichlorotrifluoroethane	<2.00		2.00		ug/L			05/13/14 11:48	1
1,2,4-Trimethylbenzene	<1.00		1.00		ug/L			05/13/14 11:48	1
1,3,5-Trimethylbenzene	<1.00		1.00		ug/L			05/13/14 11:48	1
Vinyl chloride	<1.00	*	1.00		ug/L			05/13/14 11:48	1
Xylenes, Total	<3.00		3.00		ug/L			05/13/14 11:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*75 - 110*		*05/13/14 11:48*	*1*
Dibromofluoromethane (Surr)	*98*		*75 - 120*		*05/13/14 11:48*	*1*
Toluene-d8 (Surr)	*97*		*80 - 120*		*05/13/14 11:48*	*1*

Client: Applied Engineering, Inc.
Project/Site: 3D15

TestAmerica Job ID: 310-30191-2

Client Sample ID: Air 1
Date Collected: 05/05/14 16:30
Date Received: 05/07/14 09:35

Lab Sample ID: 310-30191-23
Matrix: Air

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Propylene	**42.2**		10.0		ppb v/v			05/16/14 06:53	2
Dichlorodifluoromethane	<1.00		1.00		ppb v/v			05/16/14 06:53	2
1,2-Dichlorotetrafluoroethane	<0.400		0.400		ppb v/v			05/16/14 06:53	2
Chloromethane	<1.00		1.00		ppb v/v			05/16/14 06:53	2
Vinyl chloride	<0.400		0.400		ppb v/v			05/16/14 06:53	2
1,3-Butadiene	**3.22**		0.400		ppb v/v			05/16/14 06:53	2
Bromomethane	<0.400		0.400		ppb v/v			05/16/14 06:53	2
Chloroethane	<1.00		1.00		ppb v/v			05/16/14 06:53	2
Trichlorofluoromethane	**0.484**		0.400		ppb v/v			05/16/14 06:53	2
Ethanol	<10.0		10.0		ppb v/v			05/16/14 06:53	2
Freon TF	<0.400		0.400		ppb v/v			05/16/14 06:53	2
1,1-Dichloroethene	<0.400		0.400		ppb v/v			05/16/14 06:53	2
Acetone	**18.3**		10.0		ppb v/v			05/16/14 06:53	2
Isopropyl alcohol	<10.0		10.0		ppb v/v			05/16/14 06:53	2
Carbon disulfide	<1.00		1.00		ppb v/v			05/16/14 06:53	2
Methylene Chloride	<1.00		1.00		ppb v/v			05/16/14 06:53	2
Methyl tert-butyl ether	<0.400		0.400		ppb v/v			05/16/14 06:53	2
trans-1,2-Dichloroethene	<0.400		0.400		ppb v/v			05/16/14 06:53	2
n-Hexane	<0.400		0.400		ppb v/v			05/16/14 06:53	2
1,1-Dichloroethane	<0.400		0.400		ppb v/v			05/16/14 06:53	2
Vinyl acetate	<10.0		10.0		ppb v/v			05/16/14 06:53	2
Ethyl acetate	<10.0		10.0		ppb v/v			05/16/14 06:53	2
Methyl Ethyl Ketone	**1.70**		1.00		ppb v/v			05/16/14 06:53	2
cis-1,2-Dichloroethene	<0.400		0.400		ppb v/v			05/16/14 06:53	2
Chloroform	<0.400		0.400		ppb v/v			05/16/14 06:53	2
Tetrahydrofuran	<10.0		10.0		ppb v/v			05/16/14 06:53	2
1,1,1-Trichloroethane	<0.400		0.400		ppb v/v			05/16/14 06:53	2
Cyclohexane	<0.400		0.400		ppb v/v			05/16/14 06:53	2
Carbon tetrachloride	<0.400		0.400		ppb v/v			05/16/14 06:53	2
Benzene	**0.787**		0.400		ppb v/v			05/16/14 06:53	2
1,2-Dichloroethane	<0.400		0.400		ppb v/v			05/16/14 06:53	2
n-Heptane	<0.400		0.400		ppb v/v			05/16/14 06:53	2
Trichloroethene	<0.400		0.400		ppb v/v			05/16/14 06:53	2
1,2-Dichloropropane	<0.400		0.400		ppb v/v			05/16/14 06:53	2
Bromodichloromethane	<0.400		0.400		ppb v/v			05/16/14 06:53	2
cis-1,3-Dichloropropene	<0.400		0.400		ppb v/v			05/16/14 06:53	2
Methyl isobutyl ketone	<1.00		1.00		ppb v/v			05/16/14 06:53	2
Toluene	**1.93**		0.400		ppb v/v			05/16/14 06:53	2
trans-1,3-Dichloropropene	<0.400		0.400		ppb v/v			05/16/14 06:53	2
1,1,2-Trichloroethane	<0.400		0.400		ppb v/v			05/16/14 06:53	2
Tetrachloroethene	<0.400		0.400		ppb v/v			05/16/14 06:53	2
Methyl Butyl Ketone (2-Hexanone)	<1.00		1.00		ppb v/v			05/16/14 06:53	2
1,2-Dibromoethane	<0.400		0.400		ppb v/v			05/16/14 06:53	2
Chlorobenzene	**5.24**		0.400		ppb v/v			05/16/14 06:53	2
Ethylbenzene	<0.400		0.400		ppb v/v			05/16/14 06:53	2
m,p-Xylene	**1.05**		1.00		ppb v/v			05/16/14 06:53	2
Xylene, o-	**0.957**		0.400		ppb v/v			05/16/14 06:53	2
Styrene	<0.400		0.400		ppb v/v			05/16/14 06:53	2
Bromoform	<0.400		0.400		ppb v/v			05/16/14 06:53	2

Client: Applied Engineering, Inc.
Project/Site: 3D15

TestAmerica Job ID: 310-30191-2

Client Sample ID: Air 1
Date Collected: 05/05/14 16:30
Date Received: 05/07/14 09:35

Lab Sample ID: 310-30191-23
Matrix: Air

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2,2-Tetrachloroethane	<0.400		0.400		ppb v/v			05/16/14 06:53	2
4-Ethyltoluene	<0.400		0.400		ppb v/v			05/16/14 06:53	2
1,3,5-Trimethylbenzene	**2.13**		0.400		ppb v/v			05/16/14 06:53	2
1,2,4-Trimethylbenzene	<0.400		0.400		ppb v/v			05/16/14 06:53	2
1,3-Dichlorobenzene	<0.400		0.400		ppb v/v			05/16/14 06:53	2
1,4-Dichlorobenzene	<0.400		0.400		ppb v/v			05/16/14 06:53	2
Benzyl chloride	<0.400		0.400		ppb v/v			05/16/14 06:53	2
1,2-Dichlorobenzene	<0.400		0.400		ppb v/v			05/16/14 06:53	2
1,2,4-Trichlorobenzene	<1.00		1.00		ppb v/v			05/16/14 06:53	2
Hexachlorobutadiene	<0.400		0.400		ppb v/v			05/16/14 06:53	2
Naphthalene	<1.00		1.00		ppb v/v			05/16/14 06:53	2
Dibromochloromethane	<0.400		0.400		ppb v/v			05/16/14 06:53	2

Tentatively Identified Compound	*Est. Result*	*Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
Cyclohexane, 1,1,3-trimethyl-	*184*	*T J N*	*ppb v/v*		*14.67*	*3073-66-3*		*05/16/14 06:53*	*2*
Cyclohexane, 1,3,5-trimethyl-, (1.alpha.	*164*	*T J N*	*ppb v/v*		*14.98*	*1795-26-2*		*05/16/14 06:53*	*2*
Unknown	*156*	*T J*	*ppb v/v*		*15.57*			*05/16/14 06:53*	*2*
Unknown	*192*	*T J*	*ppb v/v*		*15.79*			*05/16/14 06:53*	*2*
Unknown	*336*	*T J*	*ppb v/v*		*16.05*			*05/16/14 06:53*	*2*
Unknown	*609*	*T J*	*ppb v/v*		*16.35*			*05/16/14 06:53*	*2*
Unknown	*683*	*T J*	*ppb v/v*		*16.51*			*05/16/14 06:53*	*2*
Unknown	*181*	*T J*	*ppb v/v*		*16.73*			*05/16/14 06:53*	*2*
Unknown	*292*	*T J*	*ppb v/v*		*16.87*			*05/16/14 06:53*	*2*
Unknown	*251*	*T J*	*ppb v/v*		*16.97*			*05/16/14 06:53*	*2*

Client: Applied Engineering, Inc.
Project/Site: 3D15

TestAmerica Job ID: 310-30191-2

Client Sample ID: Air 2
Date Collected: 05/05/14 16:30
Date Received: 05/07/14 09:35

Lab Sample ID: 310-30191-24
Matrix: Air

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Propylene	<15.2		15.2		ppb v/v			05/14/14 23:47	3.03
Dichlorodifluoromethane	<1.52		1.52		ppb v/v			05/14/14 23:47	3.03
1,2-Dichlorotetrafluoroethane	<0.606		0.606		ppb v/v			05/14/14 23:47	3.03
Chloromethane	<1.52		1.52		ppb v/v			05/14/14 23:47	3.03
Vinyl chloride	<0.606		0.606		ppb v/v			05/14/14 23:47	3.03
1,3-Butadiene	**0.732**		0.606		ppb v/v			05/14/14 23:47	3.03
Bromomethane	<0.606		0.606		ppb v/v			05/14/14 23:47	3.03
Chloroethane	<1.52		1.52		ppb v/v			05/14/14 23:47	3.03
Trichlorofluoromethane	<0.606		0.606		ppb v/v			05/14/14 23:47	3.03
Ethanol	<15.2		15.2		ppb v/v			05/14/14 23:47	3.03
Freon TF	<0.606		0.606		ppb v/v			05/14/14 23:47	3.03
1,1-Dichloroethene	<0.606		0.606		ppb v/v			05/14/14 23:47	3.03
Acetone	**52.8**		15.2		ppb v/v			05/14/14 23:47	3.03
Isopropyl alcohol	<15.2		15.2		ppb v/v			05/14/14 23:47	3.03
Carbon disulfide	<1.52		1.52		ppb v/v			05/14/14 23:47	3.03
Methylene Chloride	<1.52		1.52		ppb v/v			05/14/14 23:47	3.03
Methyl tert-butyl ether	<0.606		0.606		ppb v/v			05/14/14 23:47	3.03
trans-1,2-Dichloroethene	<0.606		0.606		ppb v/v			05/14/14 23:47	3.03
n-Hexane	**0.969**		0.606		ppb v/v			05/14/14 23:47	3.03
1,1-Dichloroethane	<0.606		0.606		ppb v/v			05/14/14 23:47	3.03
Vinyl acetate	<15.2		15.2		ppb v/v			05/14/14 23:47	3.03
Ethyl acetate	<15.2		15.2		ppb v/v			05/14/14 23:47	3.03
Methyl Ethyl Ketone	<1.52		1.52		ppb v/v			05/14/14 23:47	3.03
cis-1,2-Dichloroethene	<0.606		0.606		ppb v/v			05/14/14 23:47	3.03
Chloroform	**2.45**		0.606		ppb v/v			05/14/14 23:47	3.03
Tetrahydrofuran	<15.2		15.2		ppb v/v			05/14/14 23:47	3.03
1,1,1-Trichloroethane	<0.606		0.606		ppb v/v			05/14/14 23:47	3.03
Cyclohexane	<0.606		0.606		ppb v/v			05/14/14 23:47	3.03
Carbon tetrachloride	<0.606		0.606		ppb v/v			05/14/14 23:47	3.03
Benzene	**1.36**		0.606		ppb v/v			05/14/14 23:47	3.03
1,2-Dichloroethane	<0.606		0.606		ppb v/v			05/14/14 23:47	3.03
n-Heptane	**0.616**		0.606		ppb v/v			05/14/14 23:47	3.03
Trichloroethene	<0.606		0.606		ppb v/v			05/14/14 23:47	3.03
1,2-Dichloropropane	<0.606		0.606		ppb v/v			05/14/14 23:47	3.03
Bromodichloromethane	<0.606		0.606		ppb v/v			05/14/14 23:47	3.03
cis-1,3-Dichloropropene	<0.606		0.606		ppb v/v			05/14/14 23:47	3.03
Methyl isobutyl ketone	<1.52		1.52		ppb v/v			05/14/14 23:47	3.03
Toluene	**2.95**		0.606		ppb v/v			05/14/14 23:47	3.03
trans-1,3-Dichloropropene	<0.606		0.606		ppb v/v			05/14/14 23:47	3.03
1,1,2-Trichloroethane	<0.606		0.606		ppb v/v			05/14/14 23:47	3.03
Tetrachloroethene	**3.71**		0.606		ppb v/v			05/14/14 23:47	3.03
Methyl Butyl Ketone (2-Hexanone)	<1.52		1.52		ppb v/v			05/14/14 23:47	3.03
1,2-Dibromoethane	<0.606		0.606		ppb v/v			05/14/14 23:47	3.03
Chlorobenzene	<0.606		0.606		ppb v/v			05/14/14 23:47	3.03
Ethylbenzene	**0.641**		0.606		ppb v/v			05/14/14 23:47	3.03
m,p-Xylene	**1.67**		1.52		ppb v/v			05/14/14 23:47	3.03
Xylene, o-	<0.606		0.606		ppb v/v			05/14/14 23:47	3.03
Styrene	<0.606		0.606		ppb v/v			05/14/14 23:47	3.03
Bromoform	<0.606		0.606		ppb v/v			05/14/14 23:47	3.03

Client: Applied Engineering, Inc.
Project/Site: 3D15

TestAmerica Job ID: 310-30191-2

Client Sample ID: Air 2
Date Collected: 05/05/14 16:30
Date Received: 05/07/14 09:35

Lab Sample ID: 310-30191-24
Matrix: Air

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2,2-Tetrachloroethane	<0.606		0.606		ppb v/v			05/14/14 23:47	3.03
4-Ethyltoluene	<0.606		0.606		ppb v/v			05/14/14 23:47	3.03
1,3,5-Trimethylbenzene	<0.606		0.606		ppb v/v			05/14/14 23:47	3.03
1,2,4-Trimethylbenzene	**1.05**		0.606		ppb v/v			05/14/14 23:47	3.03
1,3-Dichlorobenzene	<0.606		0.606		ppb v/v			05/14/14 23:47	3.03
1,4-Dichlorobenzene	<0.606		0.606		ppb v/v			05/14/14 23:47	3.03
Benzyl chloride	<0.606		0.606		ppb v/v			05/14/14 23:47	3.03
1,2-Dichlorobenzene	<0.606		0.606		ppb v/v			05/14/14 23:47	3.03
1,2,4-Trichlorobenzene	<1.52		1.52		ppb v/v			05/14/14 23:47	3.03
Hexachlorobutadiene	<0.606		0.606		ppb v/v			05/14/14 23:47	3.03
Naphthalene	<1.52		1.52		ppb v/v			05/14/14 23:47	3.03
Dibromochloromethane	<0.606		0.606		ppb v/v			05/14/14 23:47	3.03

Tentatively Identified Compound	*Est. Result*	*Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
Unknown	*5.97*	*T J*	*ppb v/v*		*21.78*			*05/14/14 23:47*	*3.03*
Unknown	*7.11*	*T J*	*ppb v/v*		*22.56*			*05/14/14 23:47*	*3.03*
Unknown	*16.2*	*T J*	*ppb v/v*		*23.32*			*05/14/14 23:47*	*3.03*
Unknown	*9.03*	*T J*	*ppb v/v*		*23.52*			*05/14/14 23:47*	*3.03*
Unknown	*40.1*	*T J*	*ppb v/v*		*23.72*			*05/14/14 23:47*	*3.03*
Unknown	*8.61*	*T J*	*ppb v/v*		*23.94*			*05/14/14 23:47*	*3.03*
Unknown	*76.1*	*T J*	*ppb v/v*		*24.09*			*05/14/14 23:47*	*3.03*
Unknown	*8.54*	*T J*	*ppb v/v*		*24.29*			*05/14/14 23:47*	*3.03*
Unknown	*45.4*	*T J*	*ppb v/v*		*24.41*			*05/14/14 23:47*	*3.03*
Unknown	*26.4*	*T J*	*ppb v/v*		*25.92*			*05/14/14 23:47*	*3.03*

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*	LCS or LCSD exceeds the control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC VOA

Qualifier	Qualifier Description
X	Surrogate is outside control limits

GC Semi VOA

Qualifier	Qualifier Description
*	LCS or LCSD exceeds the control limits
*	RPD of the LCS and LCSD exceeds the control limits

Air - GC/MS VOA TICs

Qualifier	Qualifier Description
J	Indicates an Estimated Value for TICs
N	Presumptive evidence of material.
T	Result is a tentatively identified compound (TIC) and an estimated value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Surrogate Summary

Client: Applied Engineering, Inc.
Project/Site: 3D15

TestAmerica Job ID: 310-30191-2

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Ground Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
		BFB	DBFM	TOL
Lab Sample ID	Client Sample ID	(75-110)	(75-120)	(80-120)
310-30191-15	1 - GP-1	95	96	96
310-30191-16	2 - GP-6	96	93	97
310-30191-17	3 - GP-3	95	95	100
310-30191-18	4 - GP-4	96	98	96
310-30191-19	5 - GP-5	95	98	96
310-30191-20	7 - GP-7	93	96	98
310-30191-20	7 - GP-7	95	98	94

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
		BFB	DBFM	TOL
Lab Sample ID	Client Sample ID	(75-110)	(75-120)	(80-120)
310-30191-22	Trip Blank	95	98	97
LCS 310-47990/4	Lab Control Sample	96	104	96
LCS 310-48111/4	Lab Control Sample	96	101	97
LCS 310-48351/4	Lab Control Sample	97	104	98
MB 310-47990/7	Method Blank	93	96	98
MB 310-48111/7	Method Blank	92	93	97
MB 310-48351/7	Method Blank	97	93	97

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)

Method: WI-GRO - Wisconsin - Gasoline Range Organics (GC)

Matrix: Soil — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		BFB
Lab Sample ID	Client Sample ID	(80-120)
310-30191-1	1 - GP-1 6'	95
310-30191-2	2 - GP-1 12'	99
310-30191-3	3 - GP-2 5'	139 X
310-30191-4	4 - GP-2 16'	98
310-30191-5	5 - GP-3 8'	105
310-30191-6	6 - GP-4 8'	86
310-30191-7	7 - GP-5 8'	99
310-30191-8	8 - GP-6 6'	138 X
310-30191-9	9 - GP-6 16'	94
310-30191-10	10 - GP-7 6'	95
310-30191-11	11 - GP-7 13.5'	89
310-30191-21	MeOH Blank	88

Surrogate Summary

Client: Applied Engineering, Inc.
Project/Site: 3D15

TestAmerica Job ID: 310-30191-2

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

Method: WI-GRO - Wisconsin - Gasoline Range Organics (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)							
		BFB							
Lab Sample ID	Client Sample ID	(80-120)							
LCS 310-47690/2-A	Lab Control Sample	109							
LCS 310-47719/2-A	Lab Control Sample	114							
LCSD 310-47690/23-A	Lab Control Sample Dup	109							
LCSD 310-47719/21-A	Lab Control Sample Dup	110							
MB 310-47690/1-A	Method Blank	95							
MB 310-47719/1-A	Method Blank	101							

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 310-47990/7
Matrix: Water
Analysis Batch: 47990

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<10.0		10.0		ug/L			05/13/14 11:24	1
Allyl chloride	<2.00		2.00		ug/L			05/13/14 11:24	1
Benzene	<0.500		0.500		ug/L			05/13/14 11:24	1
Bromobenzene	<1.00		1.00		ug/L			05/13/14 11:24	1
Bromochloromethane	<5.00		5.00		ug/L			05/13/14 11:24	1
Bromodichloromethane	<1.00		1.00		ug/L			05/13/14 11:24	1
Bromoform	<5.00		5.00		ug/L			05/13/14 11:24	1
Bromomethane	<4.00		4.00		ug/L			05/13/14 11:24	1
2-Butanone (MEK)	<10.0		10.0		ug/L			05/13/14 11:24	1
n-Butylbenzene	<1.00		1.00		ug/L			05/13/14 11:24	1
sec-Butylbenzene	<1.00		1.00		ug/L			05/13/14 11:24	1
tert-Butylbenzene	<1.00		1.00		ug/L			05/13/14 11:24	1
Carbon tetrachloride	<2.00		2.00		ug/L			05/13/14 11:24	1
Chlorobenzene	<1.00		1.00		ug/L			05/13/14 11:24	1
Chlorodibromomethane	<5.00		5.00		ug/L			05/13/14 11:24	1
Dichlorofluoromethane	<1.00		1.00		ug/L			05/13/14 11:24	1
Chloroethane	<4.00		4.00		ug/L			05/13/14 11:24	1
Chloroform	<1.00		1.00		ug/L			05/13/14 11:24	1
Chloromethane	<3.00		3.00		ug/L			05/13/14 11:24	1
4-Chlorotoluene	<1.00		1.00		ug/L			05/13/14 11:24	1
2-Chlorotoluene	<1.00		1.00		ug/L			05/13/14 11:24	1
1,2-Dibromo-3-Chloropropane	<10.0		10.0		ug/L			05/13/14 11:24	1
1,2-Dibromoethane (EDB)	<10.0		10.0		ug/L			05/13/14 11:24	1
Dibromomethane	<1.00		1.00		ug/L			05/13/14 11:24	1
1,2-Dichlorobenzene	<1.00		1.00		ug/L			05/13/14 11:24	1
1,3-Dichlorobenzene	<1.00		1.00		ug/L			05/13/14 11:24	1
1,4-Dichlorobenzene	<1.00		1.00		ug/L			05/13/14 11:24	1
Dichlorodifluoromethane	<3.00		3.00		ug/L			05/13/14 11:24	1
1,2-Dichloroethane	<1.00		1.00		ug/L			05/13/14 11:24	1
1,1-Dichloroethane	<1.00		1.00		ug/L			05/13/14 11:24	1
1,1-Dichloroethene	<2.00		2.00		ug/L			05/13/14 11:24	1
cis-1,2-Dichloroethene	<1.00		1.00		ug/L			05/13/14 11:24	1
trans-1,2-Dichloroethene	<1.00		1.00		ug/L			05/13/14 11:24	1
1,2-Dichloropropane	<1.00		1.00		ug/L			05/13/14 11:24	1
1,3-Dichloropropane	<1.00		1.00		ug/L			05/13/14 11:24	1
2,2-Dichloropropane	<4.00		4.00		ug/L			05/13/14 11:24	1
1,1-Dichloropropene	<1.00		1.00		ug/L			05/13/14 11:24	1
cis-1,3-Dichloropropene	<5.00		5.00		ug/L			05/13/14 11:24	1
trans-1,3-Dichloropropene	<5.00		5.00		ug/L			05/13/14 11:24	1
Diethyl ether	<1.70		1.70		ug/L			05/13/14 11:24	1
Ethylbenzene	<1.00		1.00		ug/L			05/13/14 11:24	1
Hexachlorobutadiene	<5.00		5.00		ug/L			05/13/14 11:24	1
Isopropylbenzene	<1.00		1.00		ug/L			05/13/14 11:24	1
p-Isopropyltoluene	<1.00		1.00		ug/L			05/13/14 11:24	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0		ug/L			05/13/14 11:24	1
Methylene Chloride	<5.00		5.00		ug/L			05/13/14 11:24	1
Methyl tert-butyl ether	<1.00		1.00		ug/L			05/13/14 11:24	1
Naphthalene	<5.00		5.00		ug/L			05/13/14 11:24	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 310-47990/7
Matrix: Water
Analysis Batch: 47990

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
N-Propylbenzene	<1.00		1.00		ug/L			05/13/14 11:24	1
Styrene	<1.00		1.00		ug/L			05/13/14 11:24	1
1,1,1,2-Tetrachloroethane	<1.00		1.00		ug/L			05/13/14 11:24	1
1,1,2,2-Tetrachloroethane	<1.00		1.00		ug/L			05/13/14 11:24	1
Tetrachloroethene	<1.00		1.00		ug/L			05/13/14 11:24	1
Tetrahydrofuran	<50.0		50.0		ug/L			05/13/14 11:24	1
Toluene	<1.00		1.00		ug/L			05/13/14 11:24	1
1,2,3-Trichlorobenzene	<5.00		5.00		ug/L			05/13/14 11:24	1
1,2,4-Trichlorobenzene	<5.00		5.00		ug/L			05/13/14 11:24	1
1,1,1-Trichloroethane	<1.00		1.00		ug/L			05/13/14 11:24	1
1,1,2-Trichloroethane	<1.00		1.00		ug/L			05/13/14 11:24	1
Trichloroethene	<1.00		1.00		ug/L			05/13/14 11:24	1
Trichlorofluoromethane	<4.00		4.00		ug/L			05/13/14 11:24	1
1,2,3-Trichloropropane	<1.00		1.00		ug/L			05/13/14 11:24	1
1,1,2-Trichlorotrifluoroethane	<2.00		2.00		ug/L			05/13/14 11:24	1
1,2,4-Trimethylbenzene	<1.00		1.00		ug/L			05/13/14 11:24	1
1,3,5-Trimethylbenzene	<1.00		1.00		ug/L			05/13/14 11:24	1
Vinyl chloride	<1.00		1.00		ug/L			05/13/14 11:24	1
Xylenes, Total	<3.00		3.00		ug/L			05/13/14 11:24	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*75 - 110*		*05/13/14 11:24*	*1*
Dibromofluoromethane (Surr)	*96*		*75 - 120*		*05/13/14 11:24*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*05/13/14 11:24*	*1*

Lab Sample ID: LCS 310-47990/4
Matrix: Water
Analysis Batch: 47990

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	40.0	52.67		ug/L		132	60 - 150
Allyl chloride	20.0	26.63	*	ug/L		133	45 - 130
Benzene	20.0	21.96		ug/L		110	70 - 130
Bromobenzene	20.0	21.00		ug/L		105	75 - 130
Bromochloromethane	20.0	24.14		ug/L		121	65 - 145
Bromodichloromethane	20.0	22.63		ug/L		113	60 - 130
Bromoform	20.0	19.63		ug/L		98	30 - 125
Bromomethane	20.0	24.48		ug/L		122	35 - 130
2-Butanone (MEK)	40.0	47.13		ug/L		118	55 - 140
n-Butylbenzene	20.0	21.76		ug/L		109	55 - 135
sec-Butylbenzene	20.0	22.10		ug/L		111	65 - 135
tert-Butylbenzene	20.0	21.89		ug/L		109	60 - 135
Carbon tetrachloride	20.0	23.15		ug/L		116	55 - 130
Chlorobenzene	20.0	21.15		ug/L		106	75 - 125
Chlorodibromomethane	20.0	22.28		ug/L		111	45 - 125
Dichlorofluoromethane	20.0	29.98	*	ug/L		150	60 - 140
Chloroethane	20.0	31.46	*	ug/L		157	55 - 135
Chloroform	20.0	21.49		ug/L		107	70 - 125

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 310-47990/4
Matrix: Water
Analysis Batch: 47990

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloromethane	20.0	30.09	*	ug/L		150	30 - 125
4-Chlorotoluene	20.0	22.68		ug/L		113	70 - 140
2-Chlorotoluene	20.0	22.22		ug/L		111	75 - 135
1,2-Dibromo-3-Chloropropane	20.0	22.45		ug/L		112	35 - 130
1,2-Dibromoethane (EDB)	20.0	24.89		ug/L		124	70 - 135
Dibromomethane	20.0	23.52		ug/L		118	75 - 130
1,2-Dichlorobenzene	20.0	21.22		ug/L		106	65 - 135
1,3-Dichlorobenzene	20.0	21.24		ug/L		106	70 - 130
1,4-Dichlorobenzene	20.0	20.97		ug/L		105	60 - 140
Dichlorodifluoromethane	20.0	27.02	*	ug/L		135	35 - 130
1,2-Dichloroethane	20.0	23.85		ug/L		119	65 - 140
1,1-Dichloroethane	20.0	22.60		ug/L		113	60 - 130
1,1-Dichloroethene	20.0	21.61		ug/L		108	60 - 135
cis-1,2-Dichloroethene	20.0	21.56		ug/L		108	70 - 135
trans-1,2-Dichloroethene	20.0	22.42		ug/L		112	60 - 145
1,2-Dichloropropane	20.0	21.86		ug/L		109	65 - 130
1,3-Dichloropropane	20.0	22.69		ug/L		113	75 - 125
2,2-Dichloropropane	20.0	22.79		ug/L		114	25 - 120
1,1-Dichloropropene	20.0	22.57		ug/L		113	60 - 140
cis-1,3-Dichloropropene	20.0	20.51		ug/L		103	30 - 120
trans-1,3-Dichloropropene	20.0	21.72		ug/L		109	35 - 120
Diethyl ether	20.0	22.25		ug/L		111	60 - 135
Ethylbenzene	20.0	21.74		ug/L		109	70 - 130
Hexachlorobutadiene	20.0	20.00		ug/L		100	60 - 135
Isopropylbenzene	20.0	22.33		ug/L		112	70 - 125
p-Isopropyltoluene	20.0	21.32		ug/L		107	60 - 140
4-Methyl-2-pentanone (MIBK)	40.0	46.25		ug/L		116	40 - 135
Methylene Chloride	20.0	21.45		ug/L		107	55 - 145
Methyl tert-butyl ether	20.0	22.22		ug/L		111	50 - 135
Naphthalene	20.0	23.02		ug/L		115	40 - 135
N-Propylbenzene	20.0	22.27		ug/L		111	70 - 135
Styrene	20.0	22.02		ug/L		110	70 - 130
1,1,1,2-Tetrachloroethane	20.0	21.76		ug/L		109	65 - 120
1,1,2,2-Tetrachloroethane	20.0	22.87		ug/L		114	65 - 130
Tetrachloroethene	20.0	21.35		ug/L		107	70 - 135
Tetrahydrofuran	40.0	46.33	J	ug/L		116	45 - 135
Toluene	20.0	22.24		ug/L		111	70 - 135
1,2,3-Trichlorobenzene	20.0	21.41		ug/L		107	55 - 130
1,2,4-Trichlorobenzene	20.0	20.87		ug/L		104	40 - 135
1,1,1-Trichloroethane	20.0	21.54		ug/L		108	60 - 125
1,1,2-Trichloroethane	20.0	23.39		ug/L		117	75 - 125
Trichloroethene	20.0	21.15		ug/L		106	70 - 130
Trichlorofluoromethane	20.0	28.38		ug/L		142	55 - 145
1,2,3-Trichloropropane	20.0	22.55		ug/L		113	60 - 150
1,1,2-Trichlorotrifluoroethane	20.0	22.71		ug/L		114	50 - 140
1,2,4-Trimethylbenzene	20.0	22.29		ug/L		111	70 - 140
1,3,5-Trimethylbenzene	20.0	22.07		ug/L		110	70 - 140
Vinyl chloride	20.0	29.01	*	ug/L		145	45 - 135

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 310-47990/4
Matrix: Water
Analysis Batch: 47990

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Xylenes, Total	40.0	44.29		ug/L		111	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*96*		*75 - 110*
Dibromofluoromethane (Surr)	*104*		*75 - 120*
Toluene-d8 (Surr)	*96*		*80 - 120*

Lab Sample ID: MB 310-48111/7
Matrix: Water
Analysis Batch: 48111

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<10.0		10.0		ug/L			05/13/14 23:08	1
Allyl chloride	<2.00		2.00		ug/L			05/13/14 23:08	1
Benzene	<0.500		0.500		ug/L			05/13/14 23:08	1
Bromobenzene	<1.00		1.00		ug/L			05/13/14 23:08	1
Bromochloromethane	<5.00		5.00		ug/L			05/13/14 23:08	1
Bromodichloromethane	<1.00		1.00		ug/L			05/13/14 23:08	1
Bromoform	<5.00		5.00		ug/L			05/13/14 23:08	1
Bromomethane	<4.00		4.00		ug/L			05/13/14 23:08	1
2-Butanone (MEK)	<10.0		10.0		ug/L			05/13/14 23:08	1
n-Butylbenzene	<1.00		1.00		ug/L			05/13/14 23:08	1
sec-Butylbenzene	<1.00		1.00		ug/L			05/13/14 23:08	1
tert-Butylbenzene	<1.00		1.00		ug/L			05/13/14 23:08	1
Carbon tetrachloride	<2.00		2.00		ug/L			05/13/14 23:08	1
Chlorobenzene	<1.00		1.00		ug/L			05/13/14 23:08	1
Chlorodibromomethane	<5.00		5.00		ug/L			05/13/14 23:08	1
Dichlorofluoromethane	<1.00		1.00		ug/L			05/13/14 23:08	1
Chloroethane	<4.00		4.00		ug/L			05/13/14 23:08	1
Chloroform	<1.00		1.00		ug/L			05/13/14 23:08	1
Chloromethane	<3.00		3.00		ug/L			05/13/14 23:08	1
4-Chlorotoluene	<1.00		1.00		ug/L			05/13/14 23:08	1
2-Chlorotoluene	<1.00		1.00		ug/L			05/13/14 23:08	1
1,2-Dibromo-3-Chloropropane	<10.0		10.0		ug/L			05/13/14 23:08	1
1,2-Dibromoethane (EDB)	<10.0		10.0		ug/L			05/13/14 23:08	1
Dibromomethane	<1.00		1.00		ug/L			05/13/14 23:08	1
1,2-Dichlorobenzene	<1.00		1.00		ug/L			05/13/14 23:08	1
1,3-Dichlorobenzene	<1.00		1.00		ug/L			05/13/14 23:08	1
1,4-Dichlorobenzene	<1.00		1.00		ug/L			05/13/14 23:08	1
Dichlorodifluoromethane	<3.00		3.00		ug/L			05/13/14 23:08	1
1,2-Dichloroethane	<1.00		1.00		ug/L			05/13/14 23:08	1
1,1-Dichloroethane	<1.00		1.00		ug/L			05/13/14 23:08	1
1,1-Dichloroethene	<2.00		2.00		ug/L			05/13/14 23:08	1
cis-1,2-Dichloroethene	<1.00		1.00		ug/L			05/13/14 23:08	1
trans-1,2-Dichloroethene	<1.00		1.00		ug/L			05/13/14 23:08	1
1,2-Dichloropropane	<1.00		1.00		ug/L			05/13/14 23:08	1
1,3-Dichloropropane	<1.00		1.00		ug/L			05/13/14 23:08	1
2,2-Dichloropropane	<4.00		4.00		ug/L			05/13/14 23:08	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 310-48111/7
Matrix: Water
Analysis Batch: 48111

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloropropene	<1.00		1.00		ug/L			05/13/14 23:08	1
cis-1,3-Dichloropropene	<5.00		5.00		ug/L			05/13/14 23:08	1
trans-1,3-Dichloropropene	<5.00		5.00		ug/L			05/13/14 23:08	1
Diethyl ether	<1.70		1.70		ug/L			05/13/14 23:08	1
Ethylbenzene	<1.00		1.00		ug/L			05/13/14 23:08	1
Hexachlorobutadiene	<5.00		5.00		ug/L			05/13/14 23:08	1
Isopropylbenzene	<1.00		1.00		ug/L			05/13/14 23:08	1
p-Isopropyltoluene	<1.00		1.00		ug/L			05/13/14 23:08	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0		ug/L			05/13/14 23:08	1
Methylene Chloride	<5.00		5.00		ug/L			05/13/14 23:08	1
Methyl tert-butyl ether	<1.00		1.00		ug/L			05/13/14 23:08	1
Naphthalene	<5.00		5.00		ug/L			05/13/14 23:08	1
N-Propylbenzene	<1.00		1.00		ug/L			05/13/14 23:08	1
Styrene	<1.00		1.00		ug/L			05/13/14 23:08	1
1,1,1,2-Tetrachloroethane	<1.00		1.00		ug/L			05/13/14 23:08	1
1,1,2,2-Tetrachloroethane	<1.00		1.00		ug/L			05/13/14 23:08	1
Tetrachloroethene	<1.00		1.00		ug/L			05/13/14 23:08	1
Tetrahydrofuran	<50.0		50.0		ug/L			05/13/14 23:08	1
Toluene	<1.00		1.00		ug/L			05/13/14 23:08	1
1,2,3-Trichlorobenzene	<5.00		5.00		ug/L			05/13/14 23:08	1
1,2,4-Trichlorobenzene	<5.00		5.00		ug/L			05/13/14 23:08	1
1,1,1-Trichloroethane	<1.00		1.00		ug/L			05/13/14 23:08	1
1,1,2-Trichloroethane	<1.00		1.00		ug/L			05/13/14 23:08	1
Trichloroethene	<1.00		1.00		ug/L			05/13/14 23:08	1
Trichlorofluoromethane	<4.00		4.00		ug/L			05/13/14 23:08	1
1,2,3-Trichloropropane	<1.00		1.00		ug/L			05/13/14 23:08	1
1,1,2-Trichlorotrifluoroethane	<2.00		2.00		ug/L			05/13/14 23:08	1
1,2,4-Trimethylbenzene	<1.00		1.00		ug/L			05/13/14 23:08	1
1,3,5-Trimethylbenzene	<1.00		1.00		ug/L			05/13/14 23:08	1
Vinyl chloride	<1.00		1.00		ug/L			05/13/14 23:08	1
Xylenes, Total	<3.00		3.00		ug/L			05/13/14 23:08	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*75 - 110*		*05/13/14 23:08*	*1*
Dibromofluoromethane (Surr)	*93*		*75 - 120*		*05/13/14 23:08*	*1*
Toluene-d8 (Surr)	*97*		*80 - 120*		*05/13/14 23:08*	*1*

Lab Sample ID: LCS 310-48111/4
Matrix: Water
Analysis Batch: 48111

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	40.0	53.20		ug/L		133	60 - 150
Allyl chloride	20.0	26.69	*	ug/L		133	45 - 130
Benzene	20.0	22.82		ug/L		114	70 - 130
Bromobenzene	20.0	21.48		ug/L		107	75 - 130
Bromochloromethane	20.0	26.45		ug/L		132	65 - 145
Bromodichloromethane	20.0	22.64		ug/L		113	60 - 130

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 310-48111/4
Matrix: Water
Analysis Batch: 48111

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Bromoform	20.0	19.78		ug/L		99	30 - 125
Bromomethane	20.0	24.46		ug/L		122	35 - 130
2-Butanone (MEK)	40.0	45.19		ug/L		113	55 - 140
n-Butylbenzene	20.0	22.29		ug/L		111	55 - 135
sec-Butylbenzene	20.0	22.35		ug/L		112	65 - 135
tert-Butylbenzene	20.0	22.22		ug/L		111	60 - 135
Carbon tetrachloride	20.0	23.68		ug/L		118	55 - 130
Chlorobenzene	20.0	21.46		ug/L		107	75 - 125
Chlorodibromomethane	20.0	23.05		ug/L		115	45 - 125
Dichlorofluoromethane	20.0	27.75		ug/L		139	60 - 140
Chloroethane	20.0	28.27	*	ug/L		141	55 - 135
Chloroform	20.0	21.97		ug/L		110	70 - 125
Chloromethane	20.0	28.24	*	ug/L		141	30 - 125
4-Chlorotoluene	20.0	23.46		ug/L		117	70 - 140
2-Chlorotoluene	20.0	22.70		ug/L		114	75 - 135
1,2-Dibromo-3-Chloropropane	20.0	20.97		ug/L		105	35 - 130
1,2-Dibromoethane (EDB)	20.0	24.43		ug/L		122	70 - 135
Dibromomethane	20.0	24.39		ug/L		122	75 - 130
1,2-Dichlorobenzene	20.0	22.30		ug/L		111	65 - 135
1,3-Dichlorobenzene	20.0	21.83		ug/L		109	70 - 130
1,4-Dichlorobenzene	20.0	22.20		ug/L		111	60 - 140
Dichlorodifluoromethane	20.0	23.69		ug/L		118	35 - 130
1,2-Dichloroethane	20.0	25.02		ug/L		125	65 - 140
1,1-Dichloroethane	20.0	23.28		ug/L		116	60 - 130
1,1-Dichloroethene	20.0	23.17		ug/L		116	60 - 135
cis-1,2-Dichloroethene	20.0	23.22		ug/L		116	70 - 135
trans-1,2-Dichloroethene	20.0	23.45		ug/L		117	60 - 145
1,2-Dichloropropane	20.0	23.05		ug/L		115	65 - 130
1,3-Dichloropropane	20.0	23.28		ug/L		116	75 - 125
2,2-Dichloropropane	20.0	22.07		ug/L		110	25 - 120
1,1-Dichloropropene	20.0	23.46		ug/L		117	60 - 140
cis-1,3-Dichloropropene	20.0	21.09		ug/L		105	30 - 120
trans-1,3-Dichloropropene	20.0	22.20		ug/L		111	35 - 120
Diethyl ether	20.0	22.00		ug/L		110	60 - 135
Ethylbenzene	20.0	22.01		ug/L		110	70 - 130
Hexachlorobutadiene	20.0	21.46		ug/L		107	60 - 135
Isopropylbenzene	20.0	22.32		ug/L		112	70 - 125
p-Isopropyltoluene	20.0	22.07		ug/L		110	60 - 140
4-Methyl-2-pentanone (MIBK)	40.0	45.62		ug/L		114	40 - 135
Methylene Chloride	20.0	22.65		ug/L		113	55 - 145
Methyl tert-butyl ether	20.0	23.21		ug/L		116	50 - 135
Naphthalene	20.0	23.38		ug/L		117	40 - 135
N-Propylbenzene	20.0	22.92		ug/L		115	70 - 135
Styrene	20.0	22.48		ug/L		112	70 - 130
1,1,1,2-Tetrachloroethane	20.0	22.47		ug/L		112	65 - 120
1,1,2,2-Tetrachloroethane	20.0	22.67		ug/L		113	65 - 130
Tetrachloroethene	20.0	22.96		ug/L		115	70 - 135
Tetrahydrofuran	40.0	45.72	J	ug/L		114	45 - 135

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 310-48111/4
Matrix: Water
Analysis Batch: 48111

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Toluene	20.0	23.42		ug/L		117	70 - 135
1,2,3-Trichlorobenzene	20.0	21.69		ug/L		108	55 - 130
1,2,4-Trichlorobenzene	20.0	21.04		ug/L		105	40 - 135
1,1,1-Trichloroethane	20.0	22.57		ug/L		113	60 - 125
1,1,2-Trichloroethane	20.0	24.63		ug/L		123	75 - 125
Trichloroethene	20.0	22.61		ug/L		113	70 - 130
Trichlorofluoromethane	20.0	26.80		ug/L		134	55 - 145
1,2,3-Trichloropropane	20.0	22.77		ug/L		114	60 - 150
1,1,2-Trichlorotrifluoroethane	20.0	23.00		ug/L		115	50 - 140
1,2,4-Trimethylbenzene	20.0	22.53		ug/L		113	70 - 140
1,3,5-Trimethylbenzene	20.0	23.05		ug/L		115	70 - 140
Vinyl chloride	20.0	26.54		ug/L		133	45 - 135
Xylenes, Total	40.0	44.78		ug/L		112	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*96*		*75 - 110*
Dibromofluoromethane (Surr)	*101*		*75 - 120*
Toluene-d8 (Surr)	*97*		*80 - 120*

Lab Sample ID: MB 310-48351/7
Matrix: Water
Analysis Batch: 48351

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Xylenes, Total	<3.00		3.00		ug/L			05/16/14 09:36	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*75 - 110*		*05/16/14 09:36*	*1*
Dibromofluoromethane (Surr)	*93*		*75 - 120*		*05/16/14 09:36*	*1*
Toluene-d8 (Surr)	*97*		*80 - 120*		*05/16/14 09:36*	*1*

Lab Sample ID: LCS 310-48351/4
Matrix: Water
Analysis Batch: 48351

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Xylenes, Total	40.0	44.07		ug/L		110	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*97*		*75 - 110*
Dibromofluoromethane (Surr)	*104*		*75 - 120*
Toluene-d8 (Surr)	*98*		*80 - 120*

Method: WI-GRO - Wisconsin - Gasoline Range Organics (GC)

Lab Sample ID: MB 310-47690/1-A
Matrix: Solid
Analysis Batch: 47736

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 47690

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.0965		0.0965		mg/Kg		05/08/14 11:02	05/09/14 15:06	1
Toluene	<0.0965		0.0965		mg/Kg		05/08/14 11:02	05/09/14 15:06	1
Ethylbenzene	<0.0965		0.0965		mg/Kg		05/08/14 11:02	05/09/14 15:06	1
Methyl tert-butyl ether	<0.0965		0.0965		mg/Kg		05/08/14 11:02	05/09/14 15:06	1
Xylenes, Total	<0.289		0.289		mg/Kg		05/08/14 11:02	05/09/14 15:06	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*80 - 120*	*05/08/14 11:02*	*05/09/14 15:06*	*1*

Lab Sample ID: LCS 310-47690/2-A
Matrix: Solid
Analysis Batch: 47736

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 47690

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	4.69	4.611		mg/Kg		98	80 - 120
Wisconsin GRO	46.9	48.27		mg/Kg		103	80 - 120
Toluene	4.69	4.516		mg/Kg		96	80 - 120
Ethylbenzene	4.69	4.576		mg/Kg		98	80 - 120
m-Xylene & p-Xylene	9.38	8.829		mg/Kg		94	80 - 120
o-Xylene	4.69	4.672		mg/Kg		100	80 - 120
Methyl tert-butyl ether	4.69	4.826		mg/Kg		103	80 - 120
Xylenes, Total	14.1	13.50		mg/Kg		96	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*109*		*80 - 120*

Lab Sample ID: LCSD 310-47690/23-A
Matrix: Solid
Analysis Batch: 47736

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 47690

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	4.67	4.513		mg/Kg		97	80 - 120	2	20
Wisconsin GRO	46.7	47.86		mg/Kg		102	80 - 120	1	20
Toluene	4.67	4.393		mg/Kg		94	80 - 120	3	20
Ethylbenzene	4.67	4.472		mg/Kg		96	80 - 120	2	20
m-Xylene & p-Xylene	9.34	8.654		mg/Kg		93	80 - 120	2	20
o-Xylene	4.67	4.491		mg/Kg		96	80 - 120	4	20
Methyl tert-butyl ether	4.67	4.559		mg/Kg		98	80 - 120	6	20
Xylenes, Total	14.0	13.15		mg/Kg		94	80 - 120	3	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*109*		*80 - 120*

Method: WI-GRO - Wisconsin - Gasoline Range Organics (GC) (Continued)

Lab Sample ID: MB 310-47719/1-A
Matrix: Solid
Analysis Batch: 47735

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 47719

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.0920		0.0920		mg/Kg		05/08/14 14:16	05/08/14 21:07	1
Toluene	<0.0920		0.0920		mg/Kg		05/08/14 14:16	05/08/14 21:07	1
Ethylbenzene	<0.0920		0.0920		mg/Kg		05/08/14 14:16	05/08/14 21:07	1
Methyl tert-butyl ether	<0.0920		0.0920		mg/Kg		05/08/14 14:16	05/08/14 21:07	1
Xylenes, Total	<0.276		0.276		mg/Kg		05/08/14 14:16	05/08/14 21:07	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*	*05/08/14 14:16*	*05/08/14 21:07*	*1*

Lab Sample ID: LCS 310-47719/2-A
Matrix: Solid
Analysis Batch: 47735

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 47719

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	4.97	5.116		mg/Kg		103	80 - 120
Wisconsin GRO	49.7	55.88		mg/Kg		112	80 - 120
Toluene	4.97	5.051		mg/Kg		102	80 - 120
Ethylbenzene	4.97	5.153		mg/Kg		104	80 - 120
m-Xylene & p-Xylene	9.95	9.914		mg/Kg		100	80 - 120
o-Xylene	4.97	5.209		mg/Kg		105	80 - 120
Methyl tert-butyl ether	4.97	5.328		mg/Kg		107	80 - 120
Xylenes, Total	14.9	15.12		mg/Kg		101	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*114*		*80 - 120*

Lab Sample ID: LCSD 310-47719/21-A
Matrix: Solid
Analysis Batch: 47735

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 47719

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	4.63	4.775		mg/Kg		103	80 - 120	7	20
Wisconsin GRO	46.3	51.21		mg/Kg		111	80 - 120	9	20
Toluene	4.63	4.701		mg/Kg		102	80 - 120	7	20
Ethylbenzene	4.63	4.781		mg/Kg		103	80 - 120	7	20
m-Xylene & p-Xylene	9.26	9.202		mg/Kg		99	80 - 120	7	20
o-Xylene	4.63	4.835		mg/Kg		104	80 - 120	7	20
Methyl tert-butyl ether	4.63	4.906		mg/Kg		106	80 - 120	8	20
Xylenes, Total	13.9	14.04		mg/Kg		101	80 - 120	7	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*110*		*80 - 120*

Method: WI-DRO - Wisconsin - Diesel Range Organics (GC)

Lab Sample ID: MB 310-47788/1-A
Matrix: Water
Analysis Batch: 48090

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 47788

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO)	<0.100		0.100		mg/L		05/09/14 08:22	05/13/14 17:57	1

Lab Sample ID: LCS 310-47788/2-A
Matrix: Water
Analysis Batch: 48090

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 47788

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics (DRO)	2.50	1.907		mg/L		76	75 - 115

Lab Sample ID: LCSD 310-47788/3-A
Matrix: Water
Analysis Batch: 48090

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 47788

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics (DRO)	2.50	1.986		mg/L		79	75 - 115	4	20

Lab Sample ID: MB 310-47696/1-A
Matrix: Solid
Analysis Batch: 48384

Client Sample ID: Method Blank
Prep Type: Silica Gel Cleanup
Prep Batch: 47696

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO)	<5.77		5.77		mg/Kg		05/08/14 11:42	05/16/14 15:53	1

Lab Sample ID: LCS 310-47696/2-A
Matrix: Solid
Analysis Batch: 48384

Client Sample ID: Lab Control Sample
Prep Type: Silica Gel Cleanup
Prep Batch: 47696

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics (DRO)	82.6	21.29	*	mg/Kg		26	70 - 120

Lab Sample ID: LCSD 310-47696/3-A
Matrix: Solid
Analysis Batch: 48384

Client Sample ID: Lab Control Sample Dup
Prep Type: Silica Gel Cleanup
Prep Batch: 47696

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics (DRO)	81.3	50.13	*	mg/Kg		62	70 - 120	81	20

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Lab Sample ID: MB 200-72084/4
Matrix: Air
Analysis Batch: 72084

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Propylene	<5.00		5.00		ppb v/v			05/14/14 14:53	1
Dichlorodifluoromethane	<0.500		0.500		ppb v/v			05/14/14 14:53	1
1,2-Dichlorotetrafluoroethane	<0.200		0.200		ppb v/v			05/14/14 14:53	1
Chloromethane	<0.500		0.500		ppb v/v			05/14/14 14:53	1
Vinyl chloride	<0.200		0.200		ppb v/v			05/14/14 14:53	1

Client: Applied Engineering, Inc.
Project/Site: 3D15

TestAmerica Job ID: 310-30191-2

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: MB 200-72084/4
Matrix: Air
Analysis Batch: 72084

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Butadiene	<0.200		0.200		ppb v/v			05/14/14 14:53	1
Bromomethane	<0.200		0.200		ppb v/v			05/14/14 14:53	1
Chloroethane	<0.500		0.500		ppb v/v			05/14/14 14:53	1
Trichlorofluoromethane	<0.200		0.200		ppb v/v			05/14/14 14:53	1
Ethanol	<5.00		5.00		ppb v/v			05/14/14 14:53	1
Freon TF	<0.200		0.200		ppb v/v			05/14/14 14:53	1
1,1-Dichloroethene	<0.200		0.200		ppb v/v			05/14/14 14:53	1
Acetone	<5.00		5.00		ppb v/v			05/14/14 14:53	1
Isopropyl alcohol	<5.00		5.00		ppb v/v			05/14/14 14:53	1
Carbon disulfide	<0.500		0.500		ppb v/v			05/14/14 14:53	1
Methylene Chloride	<0.500		0.500		ppb v/v			05/14/14 14:53	1
Methyl tert-butyl ether	<0.200		0.200		ppb v/v			05/14/14 14:53	1
trans-1,2-Dichloroethene	<0.200		0.200		ppb v/v			05/14/14 14:53	1
n-Hexane	<0.200		0.200		ppb v/v			05/14/14 14:53	1
1,1-Dichloroethane	<0.200		0.200		ppb v/v			05/14/14 14:53	1
Vinyl acetate	<5.00		5.00		ppb v/v			05/14/14 14:53	1
Ethyl acetate	<5.00		5.00		ppb v/v			05/14/14 14:53	1
Methyl Ethyl Ketone	<0.500		0.500		ppb v/v			05/14/14 14:53	1
cis-1,2-Dichloroethene	<0.200		0.200		ppb v/v			05/14/14 14:53	1
Chloroform	<0.200		0.200		ppb v/v			05/14/14 14:53	1
Tetrahydrofuran	<5.00		5.00		ppb v/v			05/14/14 14:53	1
1,1,1-Trichloroethane	<0.200		0.200		ppb v/v			05/14/14 14:53	1
Cyclohexane	<0.200		0.200		ppb v/v			05/14/14 14:53	1
Carbon tetrachloride	<0.200		0.200		ppb v/v			05/14/14 14:53	1
Benzene	<0.200		0.200		ppb v/v			05/14/14 14:53	1
1,2-Dichloroethane	<0.200		0.200		ppb v/v			05/14/14 14:53	1
n-Heptane	<0.200		0.200		ppb v/v			05/14/14 14:53	1
Trichloroethene	<0.200		0.200		ppb v/v			05/14/14 14:53	1
1,2-Dichloropropane	<0.200		0.200		ppb v/v			05/14/14 14:53	1
Bromodichloromethane	<0.200		0.200		ppb v/v			05/14/14 14:53	1
cis-1,3-Dichloropropene	<0.200		0.200		ppb v/v			05/14/14 14:53	1
Methyl isobutyl ketone	<0.500		0.500		ppb v/v			05/14/14 14:53	1
Toluene	<0.200		0.200		ppb v/v			05/14/14 14:53	1
trans-1,3-Dichloropropene	<0.200		0.200		ppb v/v			05/14/14 14:53	1
1,1,2-Trichloroethane	<0.200		0.200		ppb v/v			05/14/14 14:53	1
Tetrachloroethene	<0.200		0.200		ppb v/v			05/14/14 14:53	1
Methyl Butyl Ketone (2-Hexanone)	<0.500		0.500		ppb v/v			05/14/14 14:53	1
1,2-Dibromoethane	<0.200		0.200		ppb v/v			05/14/14 14:53	1
Chlorobenzene	<0.200		0.200		ppb v/v			05/14/14 14:53	1
Ethylbenzene	<0.200		0.200		ppb v/v			05/14/14 14:53	1
m,p-Xylene	<0.500		0.500		ppb v/v			05/14/14 14:53	1
Xylene, o-	<0.200		0.200		ppb v/v			05/14/14 14:53	1
Styrene	<0.200		0.200		ppb v/v			05/14/14 14:53	1
Bromoform	<0.200		0.200		ppb v/v			05/14/14 14:53	1
1,1,2,2-Tetrachloroethane	<0.200		0.200		ppb v/v			05/14/14 14:53	1
4-Ethyltoluene	<0.200		0.200		ppb v/v			05/14/14 14:53	1
1,3,5-Trimethylbenzene	<0.200		0.200		ppb v/v			05/14/14 14:53	1
1,2,4-Trimethylbenzene	<0.200		0.200		ppb v/v			05/14/14 14:53	1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: MB 200-72084/4
Matrix: Air
Analysis Batch: 72084

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	<0.200		0.200		ppb v/v			05/14/14 14:53	1
1,4-Dichlorobenzene	<0.200		0.200		ppb v/v			05/14/14 14:53	1
Benzyl chloride	<0.200		0.200		ppb v/v			05/14/14 14:53	1
1,2-Dichlorobenzene	<0.200		0.200		ppb v/v			05/14/14 14:53	1
1,2,4-Trichlorobenzene	<0.500		0.500		ppb v/v			05/14/14 14:53	1
Hexachlorobutadiene	<0.200		0.200		ppb v/v			05/14/14 14:53	1
Naphthalene	<0.500		0.500		ppb v/v			05/14/14 14:53	1
Dibromochloromethane	<0.200		0.200		ppb v/v			05/14/14 14:53	1

Tentatively Identified Compound	*MB Est. Result*	*MB Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
Tentatively Identified Compound	*None*		*ppb v/v*					*05/14/14 14:53*	*1*

Lab Sample ID: LCS 200-72084/3
Matrix: Air
Analysis Batch: 72084

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Propylene	10.0	8.384		ppb v/v		84	70 - 130
Dichlorodifluoromethane	10.0	9.625		ppb v/v		96	70 - 130
1,2-Dichlorotetrafluoroethane	10.0	10.57		ppb v/v		106	70 - 130
Chloromethane	10.0	8.845		ppb v/v		88	70 - 130
Vinyl chloride	10.0	9.350		ppb v/v		94	70 - 130
1,3-Butadiene	10.0	8.747		ppb v/v		87	70 - 130
Bromomethane	10.0	9.544		ppb v/v		95	70 - 130
Chloroethane	10.0	10.02		ppb v/v		100	70 - 130
Trichlorofluoromethane	10.0	9.740		ppb v/v		97	70 - 130
Ethanol	15.0	12.65		ppb v/v		84	70 - 130
Freon TF	10.0	9.771		ppb v/v		98	70 - 130
1,1-Dichloroethene	10.0	9.671		ppb v/v		97	70 - 130
Acetone	10.0	9.586		ppb v/v		96	70 - 130
Isopropyl alcohol	10.0	7.923		ppb v/v		79	70 - 130
Carbon disulfide	10.0	11.07		ppb v/v		111	70 - 130
Methylene Chloride	10.0	9.179		ppb v/v		92	70 - 130
Methyl tert-butyl ether	10.0	9.595		ppb v/v		96	70 - 130
trans-1,2-Dichloroethene	10.0	10.11		ppb v/v		101	70 - 130
n-Hexane	10.0	10.05		ppb v/v		101	70 - 130
1,1-Dichloroethane	10.0	9.751		ppb v/v		98	70 - 130
Vinyl acetate	10.0	8.354		ppb v/v		84	70 - 130
Ethyl acetate	10.0	10.72		ppb v/v		107	70 - 130
Methyl Ethyl Ketone	10.0	9.099		ppb v/v		91	70 - 130
cis-1,2-Dichloroethene	10.0	9.416		ppb v/v		94	70 - 130
Chloroform	10.0	9.734		ppb v/v		97	70 - 130
Tetrahydrofuran	10.0	9.575		ppb v/v		96	70 - 130
1,1,1-Trichloroethane	10.0	9.947		ppb v/v		99	70 - 130
Cyclohexane	10.0	9.834		ppb v/v		98	70 - 130
Carbon tetrachloride	10.0	10.04		ppb v/v		100	70 - 130
Benzene	10.0	9.546		ppb v/v		95	70 - 130
1,2-Dichloroethane	10.0	9.825		ppb v/v		98	70 - 130

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCS 200-72084/3
Matrix: Air
Analysis Batch: 72084

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
n-Heptane	10.0	9.213		ppb v/v		92	70 - 130
Trichloroethene	10.0	10.04		ppb v/v		100	70 - 130
1,2-Dichloropropane	10.0	9.409		ppb v/v		94	70 - 130
Bromodichloromethane	10.0	9.783		ppb v/v		98	70 - 130
cis-1,3-Dichloropropene	10.0	9.957		ppb v/v		100	70 - 130
Methyl isobutyl ketone	10.0	9.524		ppb v/v		95	70 - 130
Toluene	10.0	9.779		ppb v/v		98	70 - 130
trans-1,3-Dichloropropene	10.0	10.18		ppb v/v		102	70 - 130
1,1,2-Trichloroethane	10.0	9.816		ppb v/v		98	70 - 130
Tetrachloroethene	10.0	10.15		ppb v/v		102	70 - 130
Methyl Butyl Ketone (2-Hexanone)	10.0	9.684		ppb v/v		97	70 - 130
1,2-Dibromoethane	10.0	10.15		ppb v/v		102	70 - 130
Chlorobenzene	10.0	9.915		ppb v/v		99	70 - 130
Ethylbenzene	10.0	9.965		ppb v/v		100	70 - 130
m,p-Xylene	20.0	19.96		ppb v/v		100	70 - 130
Xylene, o-	10.0	9.801		ppb v/v		98	70 - 130
Styrene	10.0	10.31		ppb v/v		103	70 - 130
Bromoform	10.0	10.24		ppb v/v		102	70 - 130
1,1,2,2-Tetrachloroethane	10.0	9.796		ppb v/v		98	70 - 130
4-Ethyltoluene	10.0	10.57		ppb v/v		106	70 - 130
1,3,5-Trimethylbenzene	10.0	10.17		ppb v/v		102	70 - 130
1,2,4-Trimethylbenzene	10.0	10.20		ppb v/v		102	70 - 130
1,3-Dichlorobenzene	10.0	10.78		ppb v/v		108	70 - 130
1,4-Dichlorobenzene	10.0	10.76		ppb v/v		108	70 - 130
Benzyl chloride	10.0	9.753		ppb v/v		98	70 - 130
1,2-Dichlorobenzene	10.0	10.74		ppb v/v		107	70 - 130
1,2,4-Trichlorobenzene	10.0	9.516		ppb v/v		95	70 - 130
Hexachlorobutadiene	10.0	11.26		ppb v/v		113	70 - 130
Naphthalene	10.0	8.468		ppb v/v		85	70 - 130
Dibromochloromethane	10.0	9.856		ppb v/v		99	70 - 130

Lab Sample ID: MB 200-72147/4
Matrix: Air
Analysis Batch: 72147

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Propylene	<5.00		5.00		ppb v/v			05/15/14 13:31	1
Dichlorodifluoromethane	<0.500		0.500		ppb v/v			05/15/14 13:31	1
1,2-Dichlorotetrafluoroethane	<0.200		0.200		ppb v/v			05/15/14 13:31	1
Chloromethane	<0.500		0.500		ppb v/v			05/15/14 13:31	1
Vinyl chloride	<0.200		0.200		ppb v/v			05/15/14 13:31	1
1,3-Butadiene	<0.200		0.200		ppb v/v			05/15/14 13:31	1
Bromomethane	<0.200		0.200		ppb v/v			05/15/14 13:31	1
Chloroethane	<0.500		0.500		ppb v/v			05/15/14 13:31	1
Trichlorofluoromethane	<0.200		0.200		ppb v/v			05/15/14 13:31	1
Ethanol	<5.00		5.00		ppb v/v			05/15/14 13:31	1
Freon TF	<0.200		0.200		ppb v/v			05/15/14 13:31	1
1,1-Dichloroethene	<0.200		0.200		ppb v/v			05/15/14 13:31	1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: MB 200-72147/4
Matrix: Air
Analysis Batch: 72147

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<5.00		5.00		ppb v/v			05/15/14 13:31	1
Isopropyl alcohol	<5.00		5.00		ppb v/v			05/15/14 13:31	1
Carbon disulfide	<0.500		0.500		ppb v/v			05/15/14 13:31	1
Methylene Chloride	<0.500		0.500		ppb v/v			05/15/14 13:31	1
Methyl tert-butyl ether	<0.200		0.200		ppb v/v			05/15/14 13:31	1
trans-1,2-Dichloroethene	<0.200		0.200		ppb v/v			05/15/14 13:31	1
n-Hexane	<0.200		0.200		ppb v/v			05/15/14 13:31	1
1,1-Dichloroethane	<0.200		0.200		ppb v/v			05/15/14 13:31	1
Vinyl acetate	<5.00		5.00		ppb v/v			05/15/14 13:31	1
Ethyl acetate	<5.00		5.00		ppb v/v			05/15/14 13:31	1
Methyl Ethyl Ketone	<0.500		0.500		ppb v/v			05/15/14 13:31	1
cis-1,2-Dichloroethene	<0.200		0.200		ppb v/v			05/15/14 13:31	1
Chloroform	<0.200		0.200		ppb v/v			05/15/14 13:31	1
Tetrahydrofuran	<5.00		5.00		ppb v/v			05/15/14 13:31	1
1,1,1-Trichloroethane	<0.200		0.200		ppb v/v			05/15/14 13:31	1
Cyclohexane	<0.200		0.200		ppb v/v			05/15/14 13:31	1
Carbon tetrachloride	<0.200		0.200		ppb v/v			05/15/14 13:31	1
Benzene	<0.200		0.200		ppb v/v			05/15/14 13:31	1
1,2-Dichloroethane	<0.200		0.200		ppb v/v			05/15/14 13:31	1
n-Heptane	<0.200		0.200		ppb v/v			05/15/14 13:31	1
Trichloroethene	<0.200		0.200		ppb v/v			05/15/14 13:31	1
1,2-Dichloropropane	<0.200		0.200		ppb v/v			05/15/14 13:31	1
Bromodichloromethane	<0.200		0.200		ppb v/v			05/15/14 13:31	1
cis-1,3-Dichloropropene	<0.200		0.200		ppb v/v			05/15/14 13:31	1
Methyl isobutyl ketone	<0.500		0.500		ppb v/v			05/15/14 13:31	1
Toluene	<0.200		0.200		ppb v/v			05/15/14 13:31	1
trans-1,3-Dichloropropene	<0.200		0.200		ppb v/v			05/15/14 13:31	1
1,1,2-Trichloroethane	<0.200		0.200		ppb v/v			05/15/14 13:31	1
Tetrachloroethene	<0.200		0.200		ppb v/v			05/15/14 13:31	1
Methyl Butyl Ketone (2-Hexanone)	<0.500		0.500		ppb v/v			05/15/14 13:31	1
1,2-Dibromoethane	<0.200		0.200		ppb v/v			05/15/14 13:31	1
Chlorobenzene	<0.200		0.200		ppb v/v			05/15/14 13:31	1
Ethylbenzene	<0.200		0.200		ppb v/v			05/15/14 13:31	1
m,p-Xylene	<0.500		0.500		ppb v/v			05/15/14 13:31	1
Xylene, o-	<0.200		0.200		ppb v/v			05/15/14 13:31	1
Styrene	<0.200		0.200		ppb v/v			05/15/14 13:31	1
Bromoform	<0.200		0.200		ppb v/v			05/15/14 13:31	1
1,1,2,2-Tetrachloroethane	<0.200		0.200		ppb v/v			05/15/14 13:31	1
4-Ethyltoluene	<0.200		0.200		ppb v/v			05/15/14 13:31	1
1,3,5-Trimethylbenzene	<0.200		0.200		ppb v/v			05/15/14 13:31	1
1,2,4-Trimethylbenzene	<0.200		0.200		ppb v/v			05/15/14 13:31	1
1,3-Dichlorobenzene	<0.200		0.200		ppb v/v			05/15/14 13:31	1
1,4-Dichlorobenzene	<0.200		0.200		ppb v/v			05/15/14 13:31	1
Benzyl chloride	<0.200		0.200		ppb v/v			05/15/14 13:31	1
1,2-Dichlorobenzene	<0.200		0.200		ppb v/v			05/15/14 13:31	1
1,2,4-Trichlorobenzene	<0.500		0.500		ppb v/v			05/15/14 13:31	1
Hexachlorobutadiene	<0.200		0.200		ppb v/v			05/15/14 13:31	1
Naphthalene	<0.500		0.500		ppb v/v			05/15/14 13:31	1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: MB 200-72147/4
Matrix: Air
Analysis Batch: 72147

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Dibromochloromethane	<0.200		0.200		ppb v/v			05/15/14 13:31	1

Tentatively Identified Compound	*MB Est. Result*	*MB Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
Tentatively Identified Compound	*None*		*ppb v/v*					*05/15/14 13:31*	*1*

Lab Sample ID: LCS 200-72147/3
Matrix: Air
Analysis Batch: 72147

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Propylene	10.0	9.838		ppb v/v		98	70 - 130
Dichlorodifluoromethane	10.0	10.30		ppb v/v		103	70 - 130
1,2-Dichlorotetrafluoroethane	10.0	10.44		ppb v/v		104	70 - 130
Chloromethane	10.0	9.293		ppb v/v		93	70 - 130
Vinyl chloride	10.0	8.860		ppb v/v		89	70 - 130
1,3-Butadiene	10.0	8.827		ppb v/v		88	70 - 130
Bromomethane	10.0	8.439		ppb v/v		84	70 - 130
Chloroethane	10.0	8.968		ppb v/v		90	70 - 130
Trichlorofluoromethane	10.0	9.607		ppb v/v		96	70 - 130
Ethanol	15.0	12.49		ppb v/v		83	70 - 130
Freon TF	10.0	8.782		ppb v/v		88	70 - 130
1,1-Dichloroethene	10.0	8.558		ppb v/v		86	70 - 130
Acetone	10.0	9.480		ppb v/v		95	70 - 130
Isopropyl alcohol	10.0	8.270		ppb v/v		83	70 - 130
Carbon disulfide	10.0	9.852		ppb v/v		99	70 - 130
Methylene Chloride	10.0	8.788		ppb v/v		88	70 - 130
Methyl tert-butyl ether	10.0	9.541		ppb v/v		95	70 - 130
trans-1,2-Dichloroethene	10.0	9.744		ppb v/v		97	70 - 130
n-Hexane	10.0	9.147		ppb v/v		91	70 - 130
1,1-Dichloroethane	10.0	8.829		ppb v/v		88	70 - 130
Vinyl acetate	10.0	9.014		ppb v/v		90	70 - 130
Ethyl acetate	10.0	9.992		ppb v/v		100	70 - 130
Methyl Ethyl Ketone	10.0	8.047		ppb v/v		80	70 - 130
cis-1,2-Dichloroethene	10.0	8.706		ppb v/v		87	70 - 130
Chloroform	10.0	9.463		ppb v/v		95	70 - 130
Tetrahydrofuran	10.0	9.842		ppb v/v		98	70 - 130
1,1,1-Trichloroethane	10.0	10.32		ppb v/v		103	70 - 130
Cyclohexane	10.0	9.425		ppb v/v		94	70 - 130
Carbon tetrachloride	10.0	10.13		ppb v/v		101	70 - 130
Benzene	10.0	8.838		ppb v/v		88	70 - 130
1,2-Dichloroethane	10.0	10.68		ppb v/v		107	70 - 130
n-Heptane	10.0	8.928		ppb v/v		89	70 - 130
Trichloroethene	10.0	9.198		ppb v/v		92	70 - 130
1,2-Dichloropropane	10.0	8.908		ppb v/v		89	70 - 130
Bromodichloromethane	10.0	9.809		ppb v/v		98	70 - 130
cis-1,3-Dichloropropene	10.0	9.755		ppb v/v		98	70 - 130
Methyl isobutyl ketone	10.0	9.514		ppb v/v		95	70 - 130
Toluene	10.0	9.178		ppb v/v		92	70 - 130

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCS 200-72147/3
Matrix: Air
Analysis Batch: 72147

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
trans-1,3-Dichloropropene	10.0	10.21		ppb v/v		102	70 - 130
1,1,2-Trichloroethane	10.0	9.139		ppb v/v		91	70 - 130
Tetrachloroethene	10.0	9.185		ppb v/v		92	70 - 130
Methyl Butyl Ketone (2-Hexanone)	10.0	9.388		ppb v/v		94	70 - 130
1,2-Dibromoethane	10.0	9.529		ppb v/v		95	70 - 130
Chlorobenzene	10.0	9.389		ppb v/v		94	70 - 130
Ethylbenzene	10.0	9.591		ppb v/v		96	70 - 130
m,p-Xylene	20.0	19.21		ppb v/v		96	70 - 130
Xylene, o-	10.0	9.383		ppb v/v		94	70 - 130
Styrene	10.0	9.501		ppb v/v		95	70 - 130
Bromoform	10.0	9.694		ppb v/v		97	70 - 130
1,1,2,2-Tetrachloroethane	10.0	9.304		ppb v/v		93	70 - 130
4-Ethyltoluene	10.0	10.12		ppb v/v		101	70 - 130
1,3,5-Trimethylbenzene	10.0	9.881		ppb v/v		99	70 - 130
1,2,4-Trimethylbenzene	10.0	9.761		ppb v/v		98	70 - 130
1,3-Dichlorobenzene	10.0	9.766		ppb v/v		98	70 - 130
1,4-Dichlorobenzene	10.0	9.812		ppb v/v		98	70 - 130
Benzyl chloride	10.0	9.100		ppb v/v		91	70 - 130
1,2-Dichlorobenzene	10.0	9.821		ppb v/v		98	70 - 130
1,2,4-Trichlorobenzene	10.0	9.146		ppb v/v		91	70 - 130
Hexachlorobutadiene	10.0	9.006		ppb v/v		90	70 - 130
Naphthalene	10.0	8.551		ppb v/v		86	70 - 130
Dibromochloromethane	10.0	9.800		ppb v/v		98	70 - 130

Method: Moisture - Percent Moisture

Lab Sample ID: 310-30191-1 DU
Matrix: Soil
Analysis Batch: 47680

Client Sample ID: 1 - GP-1 6'
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Moisture	19.4		19.9		%		3	20
Percent Solids	80.6		80.1		%		0.6	20

Lab Sample ID: 310-30191-9 DU
Matrix: Soil
Analysis Batch: 47680

Client Sample ID: 9 - GP-6 16'
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Moisture	14.3		15.9		%		11	20
Percent Solids	85.7		84.1		%		2	20

GC/MS VOA

Analysis Batch: 47990

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-30191-15	1 - GP-1	Total/NA	Ground Water	8260B	
310-30191-16	2 - GP-6	Total/NA	Ground Water	8260B	
310-30191-22	Trip Blank	Total/NA	Water	8260B	
LCS 310-47990/4	Lab Control Sample	Total/NA	Water	8260B	
MB 310-47990/7	Method Blank	Total/NA	Water	8260B	

Analysis Batch: 48111

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-30191-17	3 - GP-3	Total/NA	Ground Water	8260B	
310-30191-18	4 - GP-4	Total/NA	Ground Water	8260B	
310-30191-19	5 - GP-5	Total/NA	Ground Water	8260B	
310-30191-20	7 - GP-7	Total/NA	Ground Water	8260B	
LCS 310-48111/4	Lab Control Sample	Total/NA	Water	8260B	
MB 310-48111/7	Method Blank	Total/NA	Water	8260B	

Analysis Batch: 48351

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-30191-20	7 - GP-7	Total/NA	Ground Water	8260B	
LCS 310-48351/4	Lab Control Sample	Total/NA	Water	8260B	
MB 310-48351/7	Method Blank	Total/NA	Water	8260B	

GC VOA

Prep Batch: 47690

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-30191-1	1 - GP-1 6'	Total/NA	Soil	5035	
310-30191-2	2 - GP-1 12'	Total/NA	Soil	5035	
310-30191-3	3 - GP-2 5'	Total/NA	Soil	5035	
310-30191-4	4 - GP-2 16'	Total/NA	Soil	5035	
310-30191-5	5 - GP-3 8'	Total/NA	Soil	5035	
310-30191-6	6 - GP-4 8'	Total/NA	Soil	5035	
310-30191-7	7 - GP-5 8'	Total/NA	Soil	5035	
LCS 310-47690/2-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 310-47690/23-A	Lab Control Sample Dup	Total/NA	Solid	5035	
MB 310-47690/1-A	Method Blank	Total/NA	Solid	5035	

Prep Batch: 47719

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-30191-8	8 - GP-6 6'	Total/NA	Soil	5035	
310-30191-9	9 - GP-6 16'	Total/NA	Soil	5035	
310-30191-10	10 - GP-7 6'	Total/NA	Soil	5035	
310-30191-11	11 - GP-7 13.5'	Total/NA	Soil	5035	
310-30191-21	MeOH Blank	Total/NA	Soil	5035	
LCS 310-47719/2-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 310-47719/21-A	Lab Control Sample Dup	Total/NA	Solid	5035	
MB 310-47719/1-A	Method Blank	Total/NA	Solid	5035	

Analysis Batch: 47735

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-30191-8	8 - GP-6 6'	Total/NA	Soil	WI-GRO	47719

GC VOA (Continued)

Analysis Batch: 47735 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-30191-9	9 - GP-6 16'	Total/NA	Soil	WI-GRO	47719
310-30191-10	10 - GP-7 6'	Total/NA	Soil	WI-GRO	47719
310-30191-11	11 - GP-7 13.5'	Total/NA	Soil	WI-GRO	47719
310-30191-21	MeOH Blank	Total/NA	Soil	WI-GRO	47719
LCS 310-47719/2-A	Lab Control Sample	Total/NA	Solid	WI-GRO	47719
LCSD 310-47719/21-A	Lab Control Sample Dup	Total/NA	Solid	WI-GRO	47719
MB 310-47719/1-A	Method Blank	Total/NA	Solid	WI-GRO	47719

Analysis Batch: 47736

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-30191-1	1 - GP-1 6'	Total/NA	Soil	WI-GRO	47690
310-30191-2	2 - GP-1 12'	Total/NA	Soil	WI-GRO	47690
310-30191-3	3 - GP-2 5'	Total/NA	Soil	WI-GRO	47690
310-30191-4	4 - GP-2 16'	Total/NA	Soil	WI-GRO	47690
310-30191-5	5 - GP-3 8'	Total/NA	Soil	WI-GRO	47690
310-30191-6	6 - GP-4 8'	Total/NA	Soil	WI-GRO	47690
310-30191-7	7 - GP-5 8'	Total/NA	Soil	WI-GRO	47690
LCS 310-47690/2-A	Lab Control Sample	Total/NA	Solid	WI-GRO	47690
LCSD 310-47690/23-A	Lab Control Sample Dup	Total/NA	Solid	WI-GRO	47690
MB 310-47690/1-A	Method Blank	Total/NA	Solid	WI-GRO	47690

GC Semi VOA

Prep Batch: 47696

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-30191-1	1 - GP-1 6'	Silica Gel Cleanup	Soil	WI DRO PREP	
310-30191-2	2 - GP-1 12'	Silica Gel Cleanup	Soil	WI DRO PREP	
310-30191-3	3 - GP-2 5'	Silica Gel Cleanup	Soil	WI DRO PREP	
310-30191-4	4 - GP-2 16'	Silica Gel Cleanup	Soil	WI DRO PREP	
310-30191-5	5 - GP-3 8'	Silica Gel Cleanup	Soil	WI DRO PREP	
310-30191-6	6 - GP-4 8'	Silica Gel Cleanup	Soil	WI DRO PREP	
310-30191-7	7 - GP-5 8'	Silica Gel Cleanup	Soil	WI DRO PREP	
310-30191-8	8 - GP-6 6'	Silica Gel Cleanup	Soil	WI DRO PREP	
310-30191-9	9 - GP-6 16'	Silica Gel Cleanup	Soil	WI DRO PREP	
310-30191-10	10 - GP-7 6'	Silica Gel Cleanup	Soil	WI DRO PREP	
310-30191-11	11 - GP-7 13.5'	Silica Gel Cleanup	Soil	WI DRO PREP	
LCS 310-47696/2-A	Lab Control Sample	Silica Gel Cleanup	Solid	WI DRO PREP	
LCSD 310-47696/3-A	Lab Control Sample Dup	Silica Gel Cleanup	Solid	WI DRO PREP	
MB 310-47696/1-A	Method Blank	Silica Gel Cleanup	Solid	WI DRO PREP	

Prep Batch: 47788

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-30191-15	1 - GP-1	Total/NA	Ground Water	3510C	
310-30191-16	2 - GP-6	Total/NA	Ground Water	3510C	
310-30191-17	3 - GP-3	Total/NA	Ground Water	3510C	
310-30191-18	4 - GP-4	Total/NA	Ground Water	3510C	
310-30191-19	5 - GP-5	Total/NA	Ground Water	3510C	
310-30191-20	7 - GP-7	Total/NA	Ground Water	3510C	
LCS 310-47788/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 310-47788/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

GC Semi VOA (Continued)

Prep Batch: 47788 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 310-47788/1-A	Method Blank	Total/NA	Water	3510C	

Analysis Batch: 48090

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-30191-15	1 - GP-1	Total/NA	Ground Water	WI-DRO	47788
310-30191-16	2 - GP-6	Total/NA	Ground Water	WI-DRO	47788
310-30191-17	3 - GP-3	Total/NA	Ground Water	WI-DRO	47788
310-30191-18	4 - GP-4	Total/NA	Ground Water	WI-DRO	47788
310-30191-19	5 - GP-5	Total/NA	Ground Water	WI-DRO	47788
310-30191-20	7 - GP-7	Total/NA	Ground Water	WI-DRO	47788
LCS 310-47788/2-A	Lab Control Sample	Total/NA	Water	WI-DRO	47788
LCSD 310-47788/3-A	Lab Control Sample Dup	Total/NA	Water	WI-DRO	47788
MB 310-47788/1-A	Method Blank	Total/NA	Water	WI-DRO	47788

Analysis Batch: 48284

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-30191-1	1 - GP-1 6'	Silica Gel Cleanup	Soil	WI-DRO	47696

Analysis Batch: 48384

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-30191-2	2 - GP-1 12'	Silica Gel Cleanup	Soil	WI-DRO	47696
310-30191-3	3 - GP-2 5'	Silica Gel Cleanup	Soil	WI-DRO	47696
310-30191-4	4 - GP-2 16'	Silica Gel Cleanup	Soil	WI-DRO	47696
310-30191-5	5 - GP-3 8'	Silica Gel Cleanup	Soil	WI-DRO	47696
310-30191-6	6 - GP-4 8'	Silica Gel Cleanup	Soil	WI-DRO	47696
310-30191-7	7 - GP-5 8'	Silica Gel Cleanup	Soil	WI-DRO	47696
310-30191-8	8 - GP-6 6'	Silica Gel Cleanup	Soil	WI-DRO	47696
310-30191-9	9 - GP-6 16'	Silica Gel Cleanup	Soil	WI-DRO	47696
310-30191-10	10 - GP-7 6'	Silica Gel Cleanup	Soil	WI-DRO	47696
310-30191-11	11 - GP-7 13.5'	Silica Gel Cleanup	Soil	WI-DRO	47696
LCS 310-47696/2-A	Lab Control Sample	Silica Gel Cleanup	Solid	WI-DRO	47696
LCSD 310-47696/3-A	Lab Control Sample Dup	Silica Gel Cleanup	Solid	WI-DRO	47696
MB 310-47696/1-A	Method Blank	Silica Gel Cleanup	Solid	WI-DRO	47696

Air - GC/MS VOA

Analysis Batch: 72084

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-30191-24	Air 2	Total/NA	Air	TO-15	
LCS 200-72084/3	Lab Control Sample	Total/NA	Air	TO-15	
MB 200-72084/4	Method Blank	Total/NA	Air	TO-15	

Analysis Batch: 72147

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-30191-23	Air 1	Total/NA	Air	TO-15	
LCS 200-72147/3	Lab Control Sample	Total/NA	Air	TO-15	
MB 200-72147/4	Method Blank	Total/NA	Air	TO-15	

Client: Applied Engineering, Inc.
Project/Site: 3D15

TestAmerica Job ID: 310-30191-2

General Chemistry

Analysis Batch: 47680

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-30191-1	1 - GP-1 6'	Total/NA	Soil	Moisture	
310-30191-1 DU	1 - GP-1 6'	Total/NA	Soil	Moisture	
310-30191-2	2 - GP-1 12'	Total/NA	Soil	Moisture	
310-30191-3	3 - GP-2 5'	Total/NA	Soil	Moisture	
310-30191-4	4 - GP-2 16'	Total/NA	Soil	Moisture	
310-30191-5	5 - GP-3 8'	Total/NA	Soil	Moisture	
310-30191-6	6 - GP-4 8'	Total/NA	Soil	Moisture	
310-30191-7	7 - GP-5 8'	Total/NA	Soil	Moisture	
310-30191-8	8 - GP-6 6'	Total/NA	Soil	Moisture	
310-30191-9	9 - GP-6 16'	Total/NA	Soil	Moisture	
310-30191-9 DU	9 - GP-6 16'	Total/NA	Soil	Moisture	
310-30191-10	10 - GP-7 6'	Total/NA	Soil	Moisture	
310-30191-11	11 - GP-7 13.5'	Total/NA	Soil	Moisture	

Client: Applied Engineering, Inc.
Project/Site: 3D15

TestAmerica Job ID: 310-30191-2

Client Sample ID: 1 - GP-1 6'

Lab Sample ID: 310-30191-1
Date Collected: 05/05/14 16:30
Matrix: Soil
Date Received: 05/07/14 09:35
Percent Solids: 80.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			47690	05/08/14 11:02	CMM	TAL CF
Total/NA	Analysis	WI-GRO		1	47736	05/09/14 20:25	CMM	TAL CF
Silica Gel Cleanup	Prep	WI DRO PREP			47696	05/08/14 11:42	EEE	TAL CF
Silica Gel Cleanup	Analysis	WI-DRO		1	48284	05/15/14 08:06	BKT	TAL CF
Total/NA	Analysis	Moisture		1	47680	05/08/14 09:00	SAS	TAL CF

Client Sample ID: 2 - GP-1 12'

Lab Sample ID: 310-30191-2
Date Collected: 05/05/14 16:30
Matrix: Soil
Date Received: 05/07/14 09:35
Percent Solids: 82.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			47690	05/08/14 11:02	CMM	TAL CF
Total/NA	Analysis	WI-GRO		1	47736	05/09/14 21:05	CMM	TAL CF
Silica Gel Cleanup	Prep	WI DRO PREP			47696	05/08/14 11:42	EEE	TAL CF
Silica Gel Cleanup	Analysis	WI-DRO		1	48384	05/16/14 16:57	BKT	TAL CF
Total/NA	Analysis	Moisture		1	47680	05/08/14 09:00	SAS	TAL CF

Client Sample ID: 3 - GP-2 5'

Lab Sample ID: 310-30191-3
Date Collected: 05/05/14 16:30
Matrix: Soil
Date Received: 05/07/14 09:35
Percent Solids: 88.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			47690	05/08/14 11:02	CMM	TAL CF
Total/NA	Analysis	WI-GRO		1	47736	05/10/14 03:04	CMM	TAL CF
Silica Gel Cleanup	Prep	WI DRO PREP			47696	05/08/14 11:42	EEE	TAL CF
Silica Gel Cleanup	Analysis	WI-DRO		100	48384	05/16/14 21:43	BKT	TAL CF
Total/NA	Analysis	Moisture		1	47680	05/08/14 09:00	SAS	TAL CF

Client Sample ID: 4 - GP-2 16'

Lab Sample ID: 310-30191-4
Date Collected: 05/05/14 16:30
Matrix: Soil
Date Received: 05/07/14 09:35
Percent Solids: 84.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			47690	05/08/14 11:02	CMM	TAL CF
Total/NA	Analysis	WI-GRO		1	47736	05/09/14 21:45	CMM	TAL CF
Silica Gel Cleanup	Prep	WI DRO PREP			47696	05/08/14 11:42	EEE	TAL CF
Silica Gel Cleanup	Analysis	WI-DRO		1	48384	05/16/14 17:29	BKT	TAL CF
Total/NA	Analysis	Moisture		1	47680	05/08/14 09:00	SAS	TAL CF

Client Sample ID: 5 - GP-3 8'

Lab Sample ID: 310-30191-5

Date Collected: 05/05/14 16:30
Matrix: Soil
Date Received: 05/07/14 09:35
Percent Solids: 81.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			47690	05/08/14 11:02	CMM	TAL CF
Total/NA	Analysis	WI-GRO		1	47736	05/09/14 22:25	CMM	TAL CF
Silica Gel Cleanup	Prep	WI DRO PREP			47696	05/08/14 11:42	EEE	TAL CF
Silica Gel Cleanup	Analysis	WI-DRO		1	48384	05/16/14 18:01	BKT	TAL CF
Total/NA	Analysis	Moisture		1	47680	05/08/14 09:00	SAS	TAL CF

Client Sample ID: 6 - GP-4 8'

Lab Sample ID: 310-30191-6

Date Collected: 05/05/14 16:30
Matrix: Soil
Date Received: 05/07/14 09:35
Percent Solids: 80.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			47690	05/08/14 11:02	CMM	TAL CF
Total/NA	Analysis	WI-GRO		1	47736	05/09/14 23:04	CMM	TAL CF
Silica Gel Cleanup	Prep	WI DRO PREP			47696	05/08/14 11:42	EEE	TAL CF
Silica Gel Cleanup	Analysis	WI-DRO		1	48384	05/16/14 18:33	BKT	TAL CF
Total/NA	Analysis	Moisture		1	47680	05/08/14 09:00	SAS	TAL CF

Client Sample ID: 7 - GP-5 8'

Lab Sample ID: 310-30191-7

Date Collected: 05/05/14 16:30
Matrix: Soil
Date Received: 05/07/14 09:35
Percent Solids: 81.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			47690	05/08/14 11:02	CMM	TAL CF
Total/NA	Analysis	WI-GRO		1	47736	05/09/14 23:44	CMM	TAL CF
Silica Gel Cleanup	Prep	WI DRO PREP			47696	05/08/14 11:42	EEE	TAL CF
Silica Gel Cleanup	Analysis	WI-DRO		1	48384	05/16/14 19:04	BKT	TAL CF
Total/NA	Analysis	Moisture		1	47680	05/08/14 09:00	SAS	TAL CF

Client Sample ID: 8 - GP-6 6'

Lab Sample ID: 310-30191-8

Date Collected: 05/05/14 16:30
Matrix: Soil
Date Received: 05/07/14 09:35
Percent Solids: 82.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			47719	05/08/14 14:16	CMM	TAL CF
Total/NA	Analysis	WI-GRO		1	47735	05/09/14 07:07	CMM	TAL CF
Silica Gel Cleanup	Prep	WI DRO PREP			47696	05/08/14 11:42	EEE	TAL CF
Silica Gel Cleanup	Analysis	WI-DRO		1	48384	05/16/14 19:36	BKT	TAL CF
Total/NA	Analysis	Moisture		1	47680	05/08/14 09:00	SAS	TAL CF

Client Sample ID: 9 - GP-6 16'

Lab Sample ID: 310-30191-9

Date Collected: 05/05/14 16:30
Matrix: Soil
Date Received: 05/07/14 09:35
Percent Solids: 85.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			47719	05/08/14 14:16	CMM	TAL CF
Total/NA	Analysis	WI-GRO		1	47735	05/09/14 07:47	CMM	TAL CF
Silica Gel Cleanup	Prep	WI DRO PREP			47696	05/08/14 11:42	EEE	TAL CF
Silica Gel Cleanup	Analysis	WI-DRO		1	48384	05/16/14 20:08	BKT	TAL CF
Total/NA	Analysis	Moisture		1	47680	05/08/14 09:00	SAS	TAL CF

Client Sample ID: 10 - GP-7 6'

Lab Sample ID: 310-30191-10

Date Collected: 05/05/14 16:30
Matrix: Soil
Date Received: 05/07/14 09:35
Percent Solids: 81.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			47719	05/08/14 14:16	CMM	TAL CF
Total/NA	Analysis	WI-GRO		1	47735	05/09/14 08:27	CMM	TAL CF
Silica Gel Cleanup	Prep	WI DRO PREP			47696	05/08/14 11:42	EEE	TAL CF
Silica Gel Cleanup	Analysis	WI-DRO		1	48384	05/16/14 20:40	BKT	TAL CF
Total/NA	Analysis	Moisture		1	47680	05/08/14 09:00	SAS	TAL CF

Client Sample ID: 11 - GP-7 13.5'

Lab Sample ID: 310-30191-11

Date Collected: 05/05/14 16:30
Matrix: Soil
Date Received: 05/07/14 09:35
Percent Solids: 82.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			47719	05/08/14 14:16	CMM	TAL CF
Total/NA	Analysis	WI-GRO		1	47735	05/09/14 09:07	CMM	TAL CF
Silica Gel Cleanup	Prep	WI DRO PREP			47696	05/08/14 11:42	EEE	TAL CF
Silica Gel Cleanup	Analysis	WI-DRO		1	48384	05/16/14 21:11	BKT	TAL CF
Total/NA	Analysis	Moisture		1	47680	05/08/14 09:00	SAS	TAL CF

Client Sample ID: 1 - GP-1

Lab Sample ID: 310-30191-15

Date Collected: 05/05/14 16:30
Matrix: Ground Water
Date Received: 05/07/14 09:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	47990	05/13/14 15:27	SJN	TAL CF
Total/NA	Prep	3510C			47788	05/09/14 08:22	EEE	TAL CF
Total/NA	Analysis	WI-DRO		1	48090	05/13/14 20:41	BKT	TAL CF

Lab Chronicle

Client: Applied Engineering, Inc.
Project/Site: 3D15

TestAmerica Job ID: 310-30191-2

Client Sample ID: 2 - GP-6

Lab Sample ID: 310-30191-16

Date Collected: 05/05/14 16:30
Matrix: Ground Water
Date Received: 05/07/14 09:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	47990	05/13/14 15:03	SJN	TAL CF
Total/NA	Prep	3510C			47788	05/09/14 08:22	EEE	TAL CF
Total/NA	Analysis	WI-DRO		1	48090	05/13/14 21:13	BKT	TAL CF

Client Sample ID: 3 - GP-3

Lab Sample ID: 310-30191-17

Date Collected: 05/05/14 16:30
Matrix: Ground Water
Date Received: 05/07/14 09:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	48111	05/14/14 00:45	SJN	TAL CF
Total/NA	Prep	3510C			47788	05/09/14 08:22	EEE	TAL CF
Total/NA	Analysis	WI-DRO		1	48090	05/13/14 21:46	BKT	TAL CF

Client Sample ID: 4 - GP-4

Lab Sample ID: 310-30191-18

Date Collected: 05/05/14 16:30
Matrix: Ground Water
Date Received: 05/07/14 09:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	48111	05/14/14 00:21	SJN	TAL CF
Total/NA	Prep	3510C			47788	05/09/14 08:22	EEE	TAL CF
Total/NA	Analysis	WI-DRO		1	48090	05/13/14 22:18	BKT	TAL CF

Client Sample ID: 5 - GP-5

Lab Sample ID: 310-30191-19

Date Collected: 05/05/14 16:30
Matrix: Ground Water
Date Received: 05/07/14 09:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	48111	05/13/14 23:57	SJN	TAL CF
Total/NA	Prep	3510C			47788	05/09/14 08:22	EEE	TAL CF
Total/NA	Analysis	WI-DRO		1	48090	05/13/14 22:51	BKT	TAL CF

Client Sample ID: 7 - GP-7

Lab Sample ID: 310-30191-20

Date Collected: 05/05/14 16:30
Matrix: Ground Water
Date Received: 05/07/14 09:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	48111	05/13/14 23:32	SJN	TAL CF
Total/NA	Analysis	8260B		10	48351	05/16/14 14:28	SJN	TAL CF
Total/NA	Prep	3510C			47788	05/09/14 08:22	EEE	TAL CF
Total/NA	Analysis	WI-DRO		1	48090	05/13/14 23:24	BKT	TAL CF

Lab Chronicle

Client: Applied Engineering, Inc.
Project/Site: 3D15

TestAmerica Job ID: 310-30191-2

Client Sample ID: MeOH Blank

Lab Sample ID: 310-30191-21

Date Collected: 05/05/14 00:00
Matrix: Soil
Date Received: 05/07/14 09:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			47719	05/08/14 14:16	CMM	TAL CF
Total/NA	Analysis	WI-GRO		1	47735	05/09/14 11:46	CMM	TAL CF

Client Sample ID: Trip Blank

Lab Sample ID: 310-30191-22

Date Collected: 05/05/14 00:00
Matrix: Water
Date Received: 05/07/14 09:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	47990	05/13/14 11:48	SJN	TAL CF

Client Sample ID: Air 1

Lab Sample ID: 310-30191-23

Date Collected: 05/05/14 16:30
Matrix: Air
Date Received: 05/07/14 09:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		2	72147	05/16/14 06:53	WRD	TAL BUR

Client Sample ID: Air 2

Lab Sample ID: 310-30191-24

Date Collected: 05/05/14 16:30
Matrix: Air
Date Received: 05/07/14 09:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		3.03	72084	05/14/14 23:47	BPL	TAL BUR

Laboratory References:

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

TAL CF = TestAmerica Cedar Falls, 704 Enterprise Drive, Cedar Falls, IA 50613, TEL (319)277-2401

Certification Summary

Client: Applied Engineering, Inc.
Project/Site: 3D15

TestAmerica Job ID: 310-30191-2

Laboratory: TestAmerica Cedar Falls

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Minnesota	NELAP	5	019-999-319	12-31-14

Laboratory: TestAmerica Burlington

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Connecticut	State Program	1	PH-0751	09-30-15
DE Haz. Subst. Cleanup Act (HSCA)	State Program	3	NA	02-13-15
Florida	NELAP	4	E87467	06-30-14 *
L-A-B	DoD ELAP		L2336	02-26-17
Louisiana	NELAP	6	176292	06-30-14
Maine	State Program	1	VT00008	04-17-15
Minnesota	NELAP	5	050-999-436	12-31-14
New Hampshire	NELAP	1	2006	12-18-14
New Jersey	NELAP	2	VT972	06-30-14 *
New York	NELAP	2	10391	03-31-15
Pennsylvania	NELAP	3	68-00489	04-30-15
Rhode Island	State Program	1	LAO00298	12-30-14
US Fish & Wildlife	Federal		LE-058448-0	02-28-15
USDA	Federal		P330-11-00093	10-28-16
Vermont	State Program	1	VT-4000	12-31-14
Virginia	NELAP	3	460209	12-14-14

* Expired certification is currently pending renewal and is considered valid.

Method Summary

Client: Applied Engineering, Inc.
Project/Site: 3D15

TestAmerica Job ID: 310-30191-2

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CF
WI-GRO	Wisconsin - Gasoline Range Organics (GC)	WI-GRO	TAL CF
WI-DRO	Wisconsin - Diesel Range Organics (GC)	WI-DRO	TAL CF
TO-15	Volatile Organic Compounds in Ambient Air	EPA	TAL BUR
Moisture	Percent Moisture	EPA	TAL CF

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

WI-DRO = "Modified DRO: Method For Determining Diesel Range Organics", Wisconsin DNR, Publ-SW-141, September, 1995.

WI-GRO = "Modified GRO: Method For Determining Gasoline Range Organics", Wisconsin DNR, Publ-SW-140, September, 1995.

Laboratory References:

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

TAL CF = TestAmerica Cedar Falls, 704 Enterprise Drive, Cedar Falls, IA 50613, TEL (319)277-2401

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

Job Number: 310-30191-3

Job Description: 3D15

For:
Applied Engineering, Inc.
1161 Wayzata Blvd. E.
Suite 60
Wayzata, MN 55391

Attention: Mr. Thomas Greene

Approved for release.
Derrick L Klinkenberg
Project Manager I
5/19/2014 3:55 PM

Derrick L Klinkenberg, Project Manager I
704 Enterprise Drive, Cedar Falls, IA, 50613
derrick.klinkenberg@testamericainc.com
05/19/2014

EXECUTIVE SUMMARY - Detections

Client: Applied Engineering, Inc. Job Number: 310-30191-3

Lab Sample ID / Analyte	Client Sample ID	Result	Qualifier	Reporting Limit	Units	Method
310-30191-12	**6 - GP-1**					
Sieve Size 3 inch - Percent Finer		100.0			% Passing	D422
Gravel		0.0			%	D422
Hydrometer Reading 1 - Particle Size		35.6			um	D422
Sieve Size 2 inch - Percent Finer		100.0			% Passing	D422
Sand		95.8			%	D422
Hydrometer Reading 2 - Particle Size		22.6			um	D422
Sieve Size 1.5 inch - Percent Finer		100.0			% Passing	D422
Coarse Sand		0.4			%	D422
Hydrometer Reading 3 - Particle Size		13.1			um	D422
Sieve Size 1 inch - Percent Finer		100.0			% Passing	D422
Medium Sand		11.5			%	D422
Hydrometer Reading 4 - Particle Size		9.3			um	D422
Sieve Size 0.75 inch - Percent Finer		100.0			% Passing	D422
Fine Sand		83.9			%	D422
Hydrometer Reading 5 - Particle Size		6.5			um	D422
Sieve Size 0.375 inch - Percent Finer		100.0			% Passing	D422
Silt		2.3			%	D422
Hydrometer Reading 6 - Particle Size		3.3			um	D422
Sieve Size #4 - Percent Finer		100.0			% Passing	D422
Clay		1.9			%	D422
Hydrometer Reading 7 - Particle Size		1.4			um	D422
Sieve Size #10 - Percent Finer		99.6			% Passing	D422
Sieve Size #20 - Percent Finer		98.0			% Passing	D422
Sieve Size #40 - Percent Finer		88.1			% Passing	D422
Sieve Size #60 - Percent Finer		50.5			% Passing	D422
Sieve Size #80 - Percent Finer		11.9			% Passing	D422
Sieve Size #100 - Percent Finer		6.8			% Passing	D422
Sieve Size #200 - Percent Finer		4.2			% Passing	D422
Hydrometer Reading 1 - Percent Finer		3.8			% Passing	D422
Hydrometer Reading 2 - Percent Finer		3.4			% Passing	D422
Hydrometer Reading 3 - Percent Finer		2.9			% Passing	D422
Hydrometer Reading 4 - Percent Finer		2.9			% Passing	D422
Hydrometer Reading 5 - Percent Finer		1.9			% Passing	D422
Hydrometer Reading 6 - Percent Finer		1.2			% Passing	D422
Hydrometer Reading 7 - Percent Finer		1.2			% Passing	D422

EXECUTIVE SUMMARY - Detections

Client: Applied Engineering, Inc. Job Number: 310-30191-3

Lab Sample ID / Analyte	Client Sample ID	Result	Qualifier	Reporting Limit	Units	Method
310-30191-13	**10 - GP-1**					
Sieve Size 3 inch - Percent Finer		100.0			% Passing	D422
Gravel		0.0			%	D422
Hydrometer Reading 1 - Particle Size		35.9			um	D422
Sieve Size 2 inch - Percent Finer		100.0			% Passing	D422
Sand		96.1			%	D422
Hydrometer Reading 2 - Particle Size		22.7			um	D422
Sieve Size 1.5 inch - Percent Finer		100.0			% Passing	D422
Coarse Sand		1.2			%	D422
Hydrometer Reading 3 - Particle Size		13.1			um	D422
Sieve Size 1 inch - Percent Finer		100.0			% Passing	D422
Medium Sand		27.4			%	D422
Hydrometer Reading 4 - Particle Size		9.3			um	D422
Sieve Size 0.75 inch - Percent Finer		100.0			% Passing	D422
Fine Sand		67.5			%	D422
Hydrometer Reading 5 - Particle Size		6.8			um	D422
Sieve Size 0.375 inch - Percent Finer		100.0			% Passing	D422
Silt		2.0			%	D422
Hydrometer Reading 6 - Particle Size		3.3			um	D422
Sieve Size #4 - Percent Finer		100.0			% Passing	D422
Clay		1.9			%	D422
Hydrometer Reading 7 - Particle Size		1.4			um	D422
Sieve Size #10 - Percent Finer		98.8			% Passing	D422
Sieve Size #20 - Percent Finer		94.1			% Passing	D422
Sieve Size #40 - Percent Finer		71.4			% Passing	D422
Sieve Size #60 - Percent Finer		43.4			% Passing	D422
Sieve Size #80 - Percent Finer		11.6			% Passing	D422
Sieve Size #100 - Percent Finer		6.7			% Passing	D422
Sieve Size #200 - Percent Finer		3.9			% Passing	D422
Hydrometer Reading 1 - Percent Finer		3.0			% Passing	D422
Hydrometer Reading 2 - Percent Finer		3.0			% Passing	D422
Hydrometer Reading 3 - Percent Finer		3.0			% Passing	D422
Hydrometer Reading 4 - Percent Finer		2.5			% Passing	D422
Hydrometer Reading 5 - Percent Finer		1.9			% Passing	D422
Hydrometer Reading 6 - Percent Finer		1.3			% Passing	D422
Hydrometer Reading 7 - Percent Finer		1.3			% Passing	D422

EXECUTIVE SUMMARY - Detections

Client: Applied Engineering, Inc. Job Number: 310-30191-3

Lab Sample ID / Analyte	Client Sample ID	Result	Qualifier	Reporting Limit	Units	Method
310-30191-14	**14 - GP-1**					
Sieve Size 3 inch - Percent Finer		100.0			% Passing	D422
Gravel		0.2			%	D422
Hydrometer Reading 1 - Particle Size		36.2			um	D422
Sieve Size 2 inch - Percent Finer		100.0			% Passing	D422
Sand		96.7			%	D422
Hydrometer Reading 2 - Particle Size		22.9			um	D422
Sieve Size 1.5 inch - Percent Finer		100.0			% Passing	D422
Coarse Sand		1.6			%	D422
Hydrometer Reading 3 - Particle Size		13.2			um	D422
Sieve Size 1 inch - Percent Finer		100.0			% Passing	D422
Medium Sand		23.2			%	D422
Hydrometer Reading 4 - Particle Size		9.4			um	D422
Sieve Size 0.75 inch - Percent Finer		100.0			% Passing	D422
Fine Sand		71.9			%	D422
Hydrometer Reading 5 - Particle Size		6.5			um	D422
Sieve Size 0.375 inch - Percent Finer		100.0			% Passing	D422
Silt		1.3			%	D422
Hydrometer Reading 6 - Particle Size		3.4			um	D422
Sieve Size #4 - Percent Finer		99.8			% Passing	D422
Clay		1.8			%	D422
Hydrometer Reading 7 - Particle Size		1.4			um	D422
Sieve Size #10 - Percent Finer		98.2			% Passing	D422
Sieve Size #20 - Percent Finer		88.4			% Passing	D422
Sieve Size #40 - Percent Finer		75.0			% Passing	D422
Sieve Size #60 - Percent Finer		29.9			% Passing	D422
Sieve Size #80 - Percent Finer		8.9			% Passing	D422
Sieve Size #100 - Percent Finer		4.8			% Passing	D422
Sieve Size #200 - Percent Finer		3.1			% Passing	D422
Hydrometer Reading 1 - Percent Finer		1.8			% Passing	D422
Hydrometer Reading 2 - Percent Finer		1.8			% Passing	D422
Hydrometer Reading 3 - Percent Finer		1.8			% Passing	D422
Hydrometer Reading 4 - Percent Finer		1.8			% Passing	D422
Hydrometer Reading 5 - Percent Finer		1.8			% Passing	D422
Hydrometer Reading 6 - Percent Finer		0.2			% Passing	D422
Hydrometer Reading 7 - Percent Finer		0.2			% Passing	D422

METHOD SUMMARY

Client: Applied Engineering, Inc. Job Number: 310-30191-3

Description	Lab Location	Method	Preparation Method
Matrix: Soil			
Grain Size	TAL BUR	ASTM D422	

Lab References:

TAL BUR = TestAmerica Burlington

Method References:

ASTM = ASTM International

METHOD / ANALYST SUMMARY

Client: Applied Engineering, Inc. Job Number: 310-30191-3

Method	Analyst	Analyst ID
ASTM D422	Degree, Steven L	SLD

SAMPLE SUMMARY

Client: Applied Engineering, Inc. Job Number: 310-30191-3

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
310-30191-12	6 - GP-1	Soil	05/05/2014 1630	05/07/2014 0935
310-30191-13	10 - GP-1	Soil	05/05/2014 1630	05/07/2014 0935
310-30191-14	14 - GP-1	Soil	05/05/2014 1630	05/07/2014 0935

SAMPLE RESULTS

Client: Applied Engineering, Inc. Job Number: 310-30191-3

Client Sample ID: **6 - GP-1**

Lab Sample ID: 310-30191-12 Date Sampled: 05/05/2014 1630
Client Matrix: Soil Date Received: 05/07/2014 0935

D422 Grain Size

Analysis Method:	D422	Analysis Batch:	200-72188	Instrument ID:	D422_import
	N/A	Prep Batch:	N/A	Lab File ID:	310-30191-A-12.txt
Dilution:	1.0			Initial Weight/Volume:	195.9 g
Analysis Date:	05/09/2014 1730			Final Weight/Volume:	
Prep Date:	N/A				

Analyte	DryWt Corrected: N	Result (% Passing)	Qualifier	NONE
Sieve Size 3 inch - Percent Finer		100.0		
Sieve Size 2 inch - Percent Finer		100.0		
Sieve Size 1.5 inch - Percent Finer		100.0		
Sieve Size 1 inch - Percent Finer		100.0		
Sieve Size 0.75 inch - Percent Finer		100.0		
Sieve Size 0.375 inch - Percent Finer		100.0		
Sieve Size #4 - Percent Finer		100.0		
Sieve Size #10 - Percent Finer		99.6		
Sieve Size #20 - Percent Finer		98.0		
Sieve Size #40 - Percent Finer		88.1		
Sieve Size #60 - Percent Finer		50.5		
Sieve Size #80 - Percent Finer		11.9		
Sieve Size #100 - Percent Finer		6.8		
Sieve Size #200 - Percent Finer		4.2		
Hydrometer Reading 1 - Percent Finer		3.8		
Hydrometer Reading 2 - Percent Finer		3.4		
Hydrometer Reading 3 - Percent Finer		2.9		
Hydrometer Reading 4 - Percent Finer		2.9		
Hydrometer Reading 5 - Percent Finer		1.9		
Hydrometer Reading 6 - Percent Finer		1.2		
Hydrometer Reading 7 - Percent Finer		1.2		

Client: Applied Engineering, Inc. Job Number: 310-30191-3

Client Sample ID: **6 - GP-1**

Lab Sample ID: 310-30191-12 Date Sampled: 05/05/2014 1630
Client Matrix: Soil Date Received: 05/07/2014 0935

D422 Grain Size

Analysis Method:	D422	Analysis Batch:	200-72188	Instrument ID:	D422_import
	N/A	Prep Batch:	N/A	Lab File ID:	310-30191-A-12.txt
Dilution:	1.0			Initial Weight/Volume:	195.9 g
Analysis Date:	05/09/2014 1730			Final Weight/Volume:	
Prep Date:	N/A				

Analyte	DryWt Corrected: N	Result (%)	Qualifier	NONE
Gravel		0.0		
Sand		95.8		
Coarse Sand		0.4		
Medium Sand		11.5		
Fine Sand		83.9		
Silt		2.3		
Clay		1.9		

Client: Applied Engineering, Inc. Job Number: 310-30191-3

Client Sample ID: **6 - GP-1**

Lab Sample ID: 310-30191-12 Date Sampled: 05/05/2014 1630
Client Matrix: Soil Date Received: 05/07/2014 0935

D422 Grain Size

Analysis Method:	D422	Analysis Batch:	200-72188	Instrument ID:	D422_import
	N/A	Prep Batch:	N/A	Lab File ID:	310-30191-A-12.txt
Dilution:	1.0			Initial Weight/Volume:	195.9 g
Analysis Date:	05/09/2014 1730			Final Weight/Volume:	
Prep Date:	N/A				

Analyte	DryWt Corrected: N	Result (um)	Qualifier	NONE
Hydrometer Reading 1 - Particle Size		35.6		
Hydrometer Reading 2 - Particle Size		22.6		
Hydrometer Reading 3 - Particle Size		13.1		
Hydrometer Reading 4 - Particle Size		9.3		
Hydrometer Reading 5 - Particle Size		6.5		
Hydrometer Reading 6 - Particle Size		3.3		
Hydrometer Reading 7 - Particle Size		1.4		

Client: Applied Engineering, Inc.

Job Number: 310-30191-3

Client Sample ID: **10 - GP-1**

Lab Sample ID: 310-30191-13
Client Matrix: Soil

Date Sampled: 05/05/2014 1630
Date Received: 05/07/2014 0935

D422 Grain Size

Analysis Method:	D422	Analysis Batch:	200-72188	Instrument ID:	D422_import
	N/A	Prep Batch:	N/A	Lab File ID:	310-30191-A-13.txt
Dilution:	1.0			Initial Weight/Volume:	184.53 g
Analysis Date:	05/09/2014 1731			Final Weight/Volume:	
Prep Date:	N/A				

Analyte	DryWt Corrected: N	Result (% Passing)	Qualifier	NONE
Sieve Size 3 inch - Percent Finer		100.0		
Sieve Size 2 inch - Percent Finer		100.0		
Sieve Size 1.5 inch - Percent Finer		100.0		
Sieve Size 1 inch - Percent Finer		100.0		
Sieve Size 0.75 inch - Percent Finer		100.0		
Sieve Size 0.375 inch - Percent Finer		100.0		
Sieve Size #4 - Percent Finer		100.0		
Sieve Size #10 - Percent Finer		98.8		
Sieve Size #20 - Percent Finer		94.1		
Sieve Size #40 - Percent Finer		71.4		
Sieve Size #60 - Percent Finer		43.4		
Sieve Size #80 - Percent Finer		11.6		
Sieve Size #100 - Percent Finer		6.7		
Sieve Size #200 - Percent Finer		3.9		
Hydrometer Reading 1 - Percent Finer		3.0		
Hydrometer Reading 2 - Percent Finer		3.0		
Hydrometer Reading 3 - Percent Finer		3.0		
Hydrometer Reading 4 - Percent Finer		2.5		
Hydrometer Reading 5 - Percent Finer		1.9		
Hydrometer Reading 6 - Percent Finer		1.3		
Hydrometer Reading 7 - Percent Finer		1.3		

Client: Applied Engineering, Inc. Job Number: 310-30191-3

Client Sample ID: **10 - GP-1**

Lab Sample ID: 310-30191-13 Date Sampled: 05/05/2014 1630
Client Matrix: Soil Date Received: 05/07/2014 0935

D422 Grain Size

Analysis Method:	D422	Analysis Batch:	200-72188	Instrument ID:	D422_import
	N/A	Prep Batch:	N/A	Lab File ID:	310-30191-A-13.txt
Dilution:	1.0			Initial Weight/Volume:	184.53 g
Analysis Date:	05/09/2014 1731			Final Weight/Volume:	
Prep Date:	N/A				

Analyte	DryWt Corrected: N	Result (%)	Qualifier	NONE
Gravel		0.0		
Sand		96.1		
Coarse Sand		1.2		
Medium Sand		27.4		
Fine Sand		67.5		
Silt		2.0		
Clay		1.9		

Client: Applied Engineering, Inc. Job Number: 310-30191-3

Client Sample ID: **10 - GP-1**

Lab Sample ID: 310-30191-13 Date Sampled: 05/05/2014 1630
Client Matrix: Soil Date Received: 05/07/2014 0935

D422 Grain Size

Analysis Method:	D422	Analysis Batch:	200-72188	Instrument ID:	D422_import
	N/A	Prep Batch:	N/A	Lab File ID:	310-30191-A-13.txt
Dilution:	1.0			Initial Weight/Volume:	184.53 g
Analysis Date:	05/09/2014 1731			Final Weight/Volume:	
Prep Date:	N/A				

Analyte	DryWt Corrected: N	Result (um)	Qualifier	NONE
Hydrometer Reading 1 - Particle Size		35.9		
Hydrometer Reading 2 - Particle Size		22.7		
Hydrometer Reading 3 - Particle Size		13.1		
Hydrometer Reading 4 - Particle Size		9.3		
Hydrometer Reading 5 - Particle Size		6.8		
Hydrometer Reading 6 - Particle Size		3.3		
Hydrometer Reading 7 - Particle Size		1.4		

Client: Applied Engineering, Inc. Job Number: 310-30191-3

Client Sample ID: **14 - GP-1**

Lab Sample ID: 310-30191-14 Date Sampled: 05/05/2014 1630
Client Matrix: Soil Date Received: 05/07/2014 0935

D422 Grain Size

Analysis Method:	D422	Analysis Batch:	200-72188	Instrument ID:	D422_import
	N/A	Prep Batch:	N/A	Lab File ID:	310-30191-A-14.txt
Dilution:	1.0			Initial Weight/Volume:	196.56 g
Analysis Date:	05/09/2014 1733			Final Weight/Volume:	
Prep Date:	N/A				

Analyte	DryWt Corrected: N	Result (% Passing)	Qualifier	NONE
Sieve Size 3 inch - Percent Finer		100.0		
Sieve Size 2 inch - Percent Finer		100.0		
Sieve Size 1.5 inch - Percent Finer		100.0		
Sieve Size 1 inch - Percent Finer		100.0		
Sieve Size 0.75 inch - Percent Finer		100.0		
Sieve Size 0.375 inch - Percent Finer		100.0		
Sieve Size #4 - Percent Finer		99.8		
Sieve Size #10 - Percent Finer		98.2		
Sieve Size #20 - Percent Finer		88.4		
Sieve Size #40 - Percent Finer		75.0		
Sieve Size #60 - Percent Finer		29.9		
Sieve Size #80 - Percent Finer		8.9		
Sieve Size #100 - Percent Finer		4.8		
Sieve Size #200 - Percent Finer		3.1		
Hydrometer Reading 1 - Percent Finer		1.8		
Hydrometer Reading 2 - Percent Finer		1.8		
Hydrometer Reading 3 - Percent Finer		1.8		
Hydrometer Reading 4 - Percent Finer		1.8		
Hydrometer Reading 5 - Percent Finer		1.8		
Hydrometer Reading 6 - Percent Finer		0.2		
Hydrometer Reading 7 - Percent Finer		0.2		

Client: Applied Engineering, Inc. Job Number: 310-30191-3

Client Sample ID: **14 - GP-1**

Lab Sample ID: 310-30191-14 Date Sampled: 05/05/2014 1630
Client Matrix: Soil Date Received: 05/07/2014 0935

D422 Grain Size

Analysis Method:	D422	Analysis Batch:	200-72188	Instrument ID:	D422_import
	N/A	Prep Batch:	N/A	Lab File ID:	310-30191-A-14.txt
Dilution:	1.0			Initial Weight/Volume:	196.56 g
Analysis Date:	05/09/2014 1733			Final Weight/Volume:	
Prep Date:	N/A				

Analyte	DryWt Corrected: N	Result (%)	Qualifier	NONE
Gravel		0.2		
Sand		96.7		
Coarse Sand		1.6		
Medium Sand		23.2		
Fine Sand		71.9		
Silt		1.3		
Clay		1.8		

Client: Applied Engineering, Inc. Job Number: 310-30191-3

Client Sample ID: **14 - GP-1**

Lab Sample ID: 310-30191-14 Date Sampled: 05/05/2014 1630
Client Matrix: Soil Date Received: 05/07/2014 0935

D422 Grain Size

Analysis Method:	D422	Analysis Batch:	200-72188	Instrument ID:	D422_import
	N/A	Prep Batch:	N/A	Lab File ID:	310-30191-A-14.txt
Dilution:	1.0			Initial Weight/Volume:	196.56 g
Analysis Date:	05/09/2014 1733			Final Weight/Volume:	
Prep Date:	N/A				

Analyte	DryWt Corrected: N	Result (um)	Qualifier	NONE
Hydrometer Reading 1 - Particle Size		36.2		
Hydrometer Reading 2 - Particle Size		22.9		
Hydrometer Reading 3 - Particle Size		13.2		
Hydrometer Reading 4 - Particle Size		9.4		
Hydrometer Reading 5 - Particle Size		6.5		
Hydrometer Reading 6 - Particle Size		3.4		
Hydrometer Reading 7 - Particle Size		1.4		

Particle Size of Soils by ASTM D422

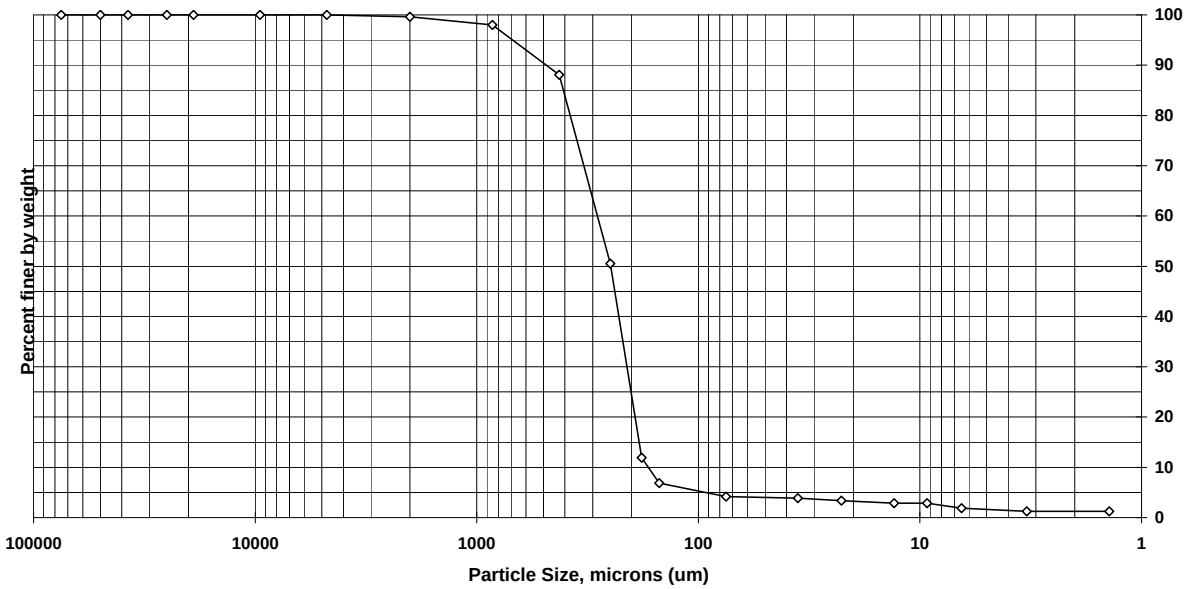
Sample ID: 6 - GP-1
Lab ID: 310-30191-A-12

Percent Solids: 83.0%
Specific Gravity: 2.650

Date Received: 5/7/2014
Start Date: 5/9/2014
End Date: 5/15/2014

Shape (> #10): subrounded

Non-soil material: na
Hardness (> #10): hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	99.6	0.4
#20	850	98.0	1.6
#40	425	88.1	9.9
#60	250	50.5	37.6
#80	180	11.9	38.6
#100	150	6.8	5.1
#200	75	4.2	2.7
Hyd1	35.6	3.8	0.3
Hyd2	22.6	3.4	0.5
Hyd3	13.1	2.9	0.5
Hyd4	9.3	2.9	0.0
Hyd5	6.5	1.9	1.0
Hyd6	3.3	1.2	0.6
Hyd7	1.4	1.2	0.0

Soil Classification	Percent of sample
Gravel	0.0
Sand	95.8
Coarse Sand	0.4
Medium Sand	11.5
Fine Sand	83.9
Silt	2.3
Clay	1.9

Particle Size of Soils by ASTM D422

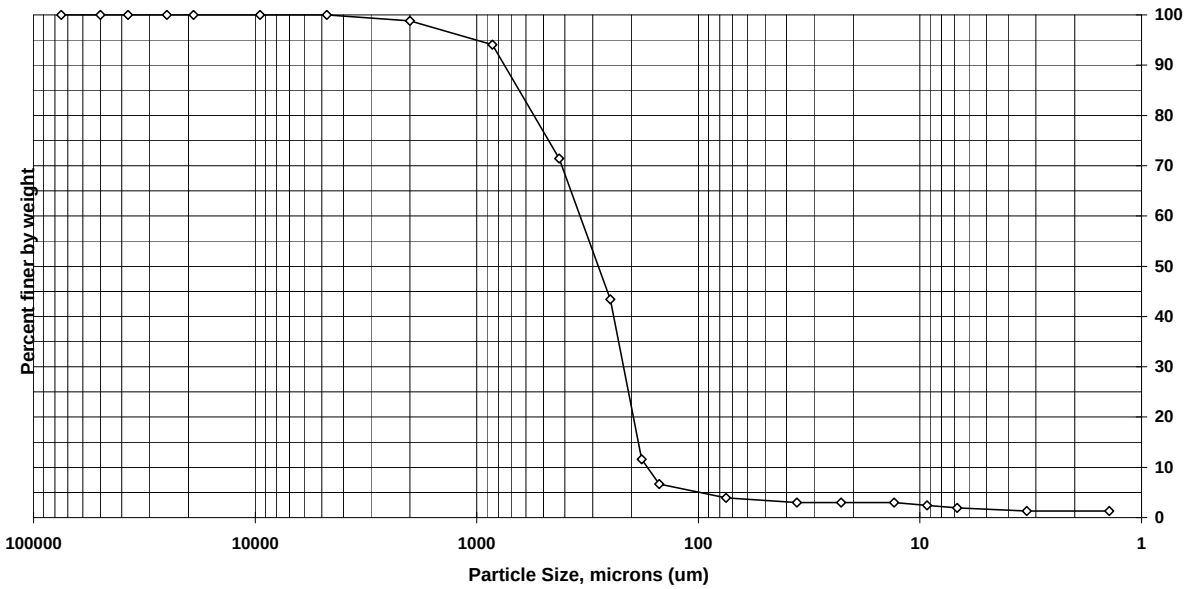
Sample ID: 10 - GP-1
Lab ID: 310-30191-A-13

Percent Solids: 84.1%
Specific Gravity: 2.650

Date Received: 5/7/2014
Start Date: 5/9/2014
End Date: 5/16/2014

Shape (> #10): subrounded

Non-soil material: plant
Hardness (> #10): hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	98.8	1.2
#20	850	94.1	4.7
#40	425	71.4	22.7
#60	250	43.4	28.0
#80	180	11.6	31.8
#100	150	6.7	4.9
#200	75	3.9	2.8
Hyd1	35.9	3.0	0.9
Hyd2	22.7	3.0	0.0
Hyd3	13.1	3.0	0.0
Hyd4	9.3	2.5	0.5
Hyd5	6.8	1.9	0.5
Hyd6	3.3	1.3	0.6
Hyd7	1.4	1.3	0.0

Soil Classification	Percent of sample
Gravel	0.0
Sand	96.1
Coarse Sand	1.2
Medium Sand	27.4
Fine Sand	67.5
Silt	2.0
Clay	1.9

Particle Size of Soils by ASTM D422

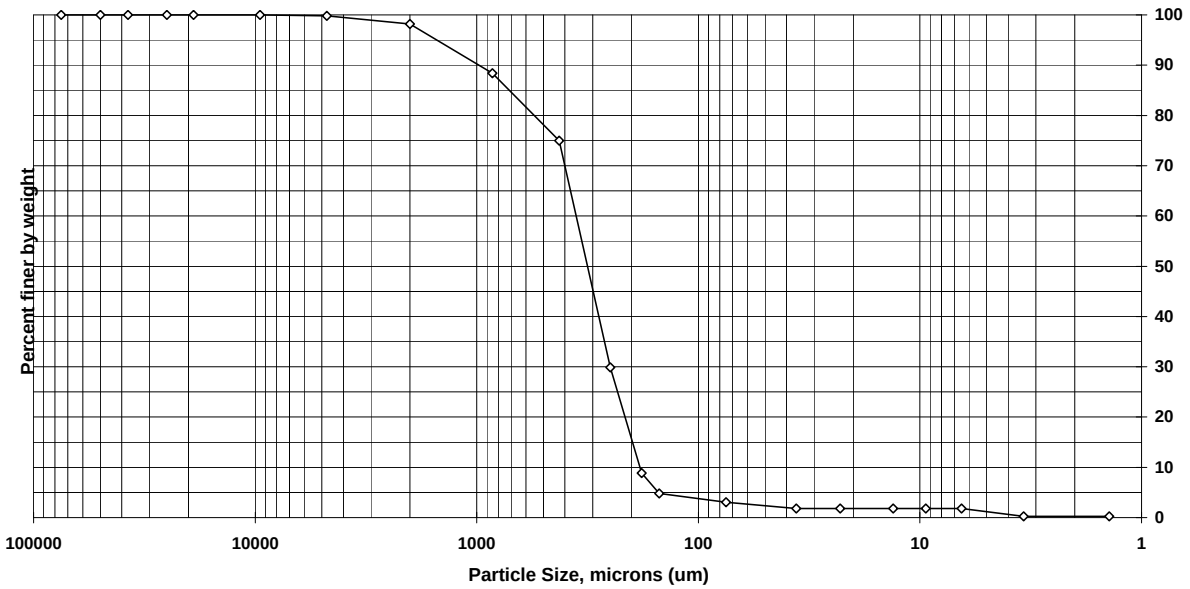
Sample ID: 14 - GP-1
Lab ID: 310-30191-A-14

Percent Solids: 85.5%
Specific Gravity: 2.650

Date Received: 5/7/2014
Start Date: 5/9/2014
End Date: 5/16/2014

Shape (> #10): subrounded

Non-soil material: plant
Hardness (> #10): hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	99.8	0.2
#10	2000	98.2	1.6
#20	850	88.4	9.8
#40	425	75.0	13.4
#60	250	29.9	45.1
#80	180	8.9	21.0
#100	150	4.8	4.1
#200	75	3.1	1.8
Hyd1	36.2	1.8	1.3
Hyd2	22.9	1.8	0.0
Hyd3	13.2	1.8	0.0
Hyd4	9.4	1.8	0.0
Hyd5	6.5	1.8	0.0
Hyd6	3.4	0.2	1.6
Hyd7	1.4	0.2	0.0

Soil Classification	Percent of sample
Gravel	0.2
Sand	96.7
Coarse Sand	1.6
Medium Sand	23.2
Fine Sand	71.9
Silt	1.3
Clay	1.8

Sediment Grain Size - D422

Client	
Client Sample ID	6 - GP-1
Lab Sample ID	310-30191-A-12

Date Received	5/7/2014
Start Date	05/09/2014 17:30
End Date	05/15/2014 17:16

Dry Weight Determination

Tin Weight	1.01	g
Wet Sample + Tin	20.42	g
Dry Sample + Tin	17.11	g
% Moisture	17.05	%

Non-soil material:	na
Shape (> #10):	subrounded
Hardness (> #10):	hard

Date/Time in oven	05/09/2014 17:31
Date/Time out of oven	05/12/2014 14:20

Sample Weights	Tare (g)	Pan+Samp (g)	Samp (g)
Sample Weight (Wet)		195.90	195.9
Sample Weight (Oven Dried)			162

Sample Split (oven dried)	Tare (g)	Pan+Samp (g)	Samp (g)
Sample >=#10			0.65
Sample <#10			161
% Passing #10			82.2

Hydrometer Data

Serial Number	265739
Calib. Date (mm/dd/yyyy)	01/07/2014
Low Temp (C)	17.0
Reading at Low Temp	1.0045
High Temp (C)	23.0
Reading at High Temp	1.0030
Hydrometer Cal Slope	-0.00025
Hydrometer Cal Intercept	1.00875
Default Soil Gravity	2.6500

Gravel/Sand Fraction (Sieves)

Sample Fraction	Size (um)	Pan Tare (g)	Pan+Sample (g)	Sample		% Finer	Classification	Sub Class
3 inch	75000			0.00	g	100.0	Gravel	
2 inch	50000			0.00	g	100.0	Gravel	
1.5 inch	37500			0.00	g	100.0	Gravel	
1 inch	25000			0.00	g	100.0	Gravel	
3/4 inch	19000			0.00	g	100.0	Gravel	
3/8 inch	9500			0.00	g	100.0	Gravel	
#4	4750			0.00	g	100.0	Gravel	
#10	2000	462.92	463.57	0.65	g	99.6	Sand	Coarse
#20	850	389.66	392.33	2.67	g	98.0	Sand	Medium
#40	425	367.06	383.04	15.98	g	88.1	Sand	Medium
#60	250	346.07	406.91	60.84	g	50.5	Sand	Fine
#80	180	331.92	394.39	62.47	g	11.9	Sand	Fine
#100	150	335.73	343.93	8.20	g	6.8	Sand	Fine
#200	75	320.54	324.87	4.33	g	4.2	Sand	Fine
				0.00	g	4.2		

Adjusted Hydrometer Sample Mass

Hydrometer Sample Mass (g)	162

Silt/Clay Fraction (Hydrometer Test)

Hydrometer Test Time (min)	Actual	Spec. Gravity	Temp C	Particle Size (Micron)	% Finer	Classification	Sub Class
2	2	1.0070	22.5	35.6	3.84	Silt	
5	5	1.0065	22.5	22.6	3.35	Silt	
15	15	1.0060	22.5	13.1	2.85	Silt	
30	30	1.0060	22.5	9.3	2.85	Silt	
60	63	1.0050	22.5	6.5	1.86	Silt	
250	253	1.0045	22.0	3.3	1.24	Clay	
1440	1400	1.0045	22.0	1.4	1.24	Clay	

Sediment Grain Size - D422

Client	
Client Sample ID	10 - GP-1
Lab Sample ID	310-30191-A-13

Date Received	5/7/2014
Start Date	05/09/2014 17:31
End Date	05/16/2014 9:10

Dry Weight Determination

Tin Weight	1.03	g
Wet Sample + Tin	24.98	g
Dry Sample + Tin	21.16	g
% Moisture	15.95	%

Non-soil material:	plant
Shape (> #10):	subrounded
Hardness (> #10):	hard

Date/Time in oven	05/09/2014 17:32
Date/Time out of oven	05/12/2014 14:20

Sample Weights	Tare (g)	Pan+Samp (g)	Samp (g)
Sample Weight (Wet)		184.53	184.53
Sample Weight (Oven Dried)			155

Sample Split (oven dried)	Tare (g)	Pan+Samp (g)	Samp (g)
Sample >=#10			1.93
Sample <#10			153
% Passing #10			82.9

Hydrometer Data

Serial Number	265739
Calib. Date (mm/dd/yyyy)	01/07/2014
Low Temp (C)	17.0
Reading at Low Temp	1.0045
High Temp (C)	23.0
Reading at High Temp	1.0030
Hydrometer Cal Slope	-0.00025
Hydrometer Cal Intercept	1.00875
Default Soil Gravity	2.6500

Gravel/Sand Fraction (Sieves)

Sample Fraction	Size (um)	Pan Tare (g)	Pan+Sample (g)	Sample		% Finer	Classification	Sub Class
3 inch	75000			0.00	g	100.0	Gravel	
2 inch	50000			0.00	g	100.0	Gravel	
1.5 inch	37500			0.00	g	100.0	Gravel	
1 inch	25000			0.00	g	100.0	Gravel	
3/4 inch	19000			0.00	g	100.0	Gravel	
3/8 inch	9500			0.00	g	100.0	Gravel	
#4	4750			0.00	g	100.0	Gravel	
#10	2000	462.92	464.85	1.93	g	98.8	Sand	Coarse
#20	850	380.94	388.21	7.27	g	94.1	Sand	Medium
#40	425	353.82	388.98	35.16	g	71.4	Sand	Medium
#60	250	350.68	394.15	43.47	g	43.4	Sand	Fine
#80	180	339.43	388.74	49.31	g	11.6	Sand	Fine
#100	150	330.73	338.33	7.60	g	6.7	Sand	Fine
#200	75	320.75	325.08	4.33	g	3.9	Sand	Fine
				0.00	g	3.9		

Adjusted Hydrometer Sample Mass

Hydrometer Sample Mass (g)	155

Silt/Clay Fraction (Hydrometer Test)

Hydrometer Test Time (min)	Actual	Spec. Gravity	Temp C	Particle Size (Micron)	% Finer	Classification	Sub Class
2	2	1.0060	22.5	35.9	2.98	Silt	
5	5	1.0060	22.5	22.7	2.98	Silt	
15	15	1.0060	22.5	13.1	2.98	Silt	
30	30	1.0055	22.5	9.3	2.46	Silt	
60	57	1.0050	22.5	6.8	1.94	Silt	
250	247	1.0045	22.0	3.3	1.3	Clay	
1440	1394	1.0045	22.0	1.4	1.3	Clay	

Sediment Grain Size - D422

Client	
Client Sample ID	14 - GP-1
Lab Sample ID	310-30191-A-14

Date Received	5/7/2014
Start Date	05/09/2014 17:33
End Date	05/16/2014 9:14

Dry Weight Determination

Tin Weight	1.02	g
Wet Sample + Tin	28.89	g
Dry Sample + Tin	24.86	g
% Moisture	14.46	%

Non-soil material:	plant
Shape (> #10):	subrounded
Hardness (> #10):	hard

Date/Time in oven	05/09/2014 17:34
Date/Time out of oven	05/12/2014 14:20

Sample Weights	Tare (g)	Pan+Samp (g)	Samp (g)
Sample Weight (Wet)		196.56	196.56
Sample Weight (Oven Dried)			168

Sample Split (oven dried)	Tare (g)	Pan+Samp (g)	Samp (g)
Sample >=#10			2.95
Sample <#10			165
% Passing #10			83.9

Hydrometer Data

Serial Number	265739
Calib. Date (mm/dd/yyyy)	01/07/2014
Low Temp (C)	17.0
Reading at Low Temp	1.0045
High Temp (C)	23.0
Reading at High Temp	1.0030
Hydrometer Cal Slope	-0.00025
Hydrometer Cal Intercept	1.00875
Default Soil Gravity	2.6500

Gravel/Sand Fraction (Sieves)

Sample Fraction	Size (um)	Pan Tare (g)	Pan+Sample (g)	Sample		% Finer	Classification	Sub Class
3 inch	75000			0.00	g	100.0	Gravel	
2 inch	50000			0.00	g	100.0	Gravel	
1.5 inch	37500			0.00	g	100.0	Gravel	
1 inch	25000			0.00	g	100.0	Gravel	
3/4 inch	19000			0.00	g	100.0	Gravel	
3/8 inch	9500			0.00	g	100.0	Gravel	
#4	4750	488.18	488.45	0.27	g	99.8	Gravel	
#10	2000	462.92	465.60	2.68	g	98.2	Sand	Coarse
#20	850	389.66	406.12	16.46	g	88.4	Sand	Medium
#40	425	367.06	389.54	22.48	g	75.0	Sand	Medium
#60	250	346.07	421.85	75.78	g	29.9	Sand	Fine
#80	180	331.92	367.23	35.31	g	8.9	Sand	Fine
#100	150	335.73	342.57	6.84	g	4.8	Sand	Fine
#200	75	320.54	323.48	2.94	g	3.1	Sand	Fine
				0.00	g	3.1		

Adjusted Hydrometer Sample Mass

Hydrometer Sample Mass (g)	168

Silt/Clay Fraction (Hydrometer Test)

Hydrometer Test Time (min)	Actual	Spec. Gravity	Temp C	Particle Size (Micron)	% Finer	Classification	Sub Class
2	2	1.0050	22.5	36.2	1.79	Silt	
5	5	1.0050	22.5	22.9	1.79	Silt	
15	15	1.0050	22.5	13.2	1.79	Silt	
30	30	1.0050	22.5	9.4	1.79	Silt	
60	63	1.0050	22.5	6.5	1.79	Silt	
250	241	1.0035	22.0	3.4	0.239	Clay	
1440	1388	1.0035	22.0	1.4	0.239	Clay	

DATA REPORTING QUALIFIERS

Lab Section	Qualifier	Description

QUALITY CONTROL RESULTS

Client: Applied Engineering, Inc. Job Number: 310-30191-3

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
Geotechnical					
Analysis Batch:200-72188					
310-30191-12	6 - GP-1	T	Solid	D422	
310-30191-13	10 - GP-1	T	Solid	D422	
310-30191-14	14 - GP-1	T	Solid	D422	

Report Basis
T = Total

Login Sample Receipt Checklist

Client: Applied Engineering, Inc.

Job Number: 310-30191-3

Login Number: 30191

List Source: TestAmerica Cedar Falls

List Number: 1

Creator: Facciani, Melene K

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	False	no GP2 bottles, but gp6. go w/bottles per client
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Applied Engineering, Inc.

Job Number: 310-30191-3

Login Number: 30191

List Source: TestAmerica Burlington

List Number: 2

Creator: Gagne, Eric M

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	NO SEALS
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	AMBIENT.
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	False	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	Containers labels list sample start times only.
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	

Login Sample Receipt Checklist

Client: Applied Engineering, Inc.

Job Number: 310-30191-3

Login Number: 30191
List Number: 3
Creator: Lavigne, Scott M

List Source: TestAmerica Burlington
List Creation: 05/09/14 12:45 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	123566
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	3.0C°/IR GUN ID 181. CF= 0
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Applied Engineering, Inc.

Job Number: 310-30191-3

Login Number: 30191
List Number: 4
Creator: Gagne, Eric M

List Source: TestAmerica Burlington
List Creation: 05/12/14 11:10 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	No SEALS
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	Thermal preservation not required.
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	AMBIENT
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	False	Refer to Job Narrative for details.
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	CONTAINER LABELS LIST SAMPLE START TIMES ONLY.
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
704 Enterprise Drive • Cedar Falls, IA 50613
Tel 319-277-2401 • Fax: 319-277-2425

TestAmerica Sample Rece... Cedar Falls Facility

310-30191 Chain of Custody

Client: Applied Env. Project: Waste Mgmt.

City: _____ State: _____

Date: 5-7-14 Receiver's Initials: CH Time (Delivered): 9:35

Temperature Record:

Cooler ID# (If Applicable): RW

Uncorrected Temp: 1.2 °C

Corrected Temp: 1.0 °C

Thermometer:

- [ ] IR "E" - 111531506
- [ ] IR "Front" - 61854108
- [ ] IR "G" - 130195822
- [x] IR "H" - 130195853
- [ ] Other:

Courier:

- [ ] UPS
- [x] FedEx
- [ ] FedEx Ground
- [ ] US Postal Service
- [ ] Spee-Dee
- [ ] TA Courier
- [ ] TA Field Services
- [ ] Client
- [ ] Other: _____

- [x] Temperature blank
- [ ] Temperature out of compliance

Coolant Record:

- [x] Received on ice
  - [x] Wet ice
  - [ ] Blue ice
  - [ ] Dry ice
  - [ ] Other: _____
- [ ] NONE

Exceptions Noted:

- [ ] Sample(s) not received in cooler
- [ ] Sample(s) received same day of sampling
  - [ ] Evidence of chilling process
- [ ] Temp blank <0°C, samples NOT FROZEN
- [ ] Temp blank <0°C, samples FROZEN
- [ ] Temperature not taken: *(indicate reason)*

_____

- [ ] Non-Conformance Report Started

Custody Seals:

Cooler Custody Seals Present? [x] Yes [ ] No

Cooler Custody Seals Intact? [x] Yes [ ] No [ ] N/A

Sample Custody Seals Present? [ ] Yes [x] No

Sample Custody Seals Intact? [ ] Yes [ ] No [x] N/A

Soils.

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

704 Enterprise Drive • Cedar Falls, IA 50613
Tel 319-277-2401 • Fax 319-277-2425

TestAmerica Sample Rec... Cedar Falls Facility

Client: Applied Env. Project: Waste Mgmt

City: _____ State: _____

Date: 5-7-14 Receiver's Initials: CH Time (Delivered): 9:35

Temperature Record:

Cooler ID# (If Applicable): PACE

Uncorrected Temp: 1.3 °C

Corrected Temp: 1.1 °C

Thermometer:

- [ ] IR "E" - 111531506
- [ ] IR "Front" - 61854108
- [ ] IR "G" - 130195822
- [X] IR "H" - 130195853
- [ ] Other:

Courier:

- [ ] UPS
- [X] FedEx
- [ ] FedEx Ground
- [ ] US Postal Service
- [ ] Spee-Dee
- [ ] TA Courier
- [ ] TA Field Services
- [ ] Client
- [ ] Other: _____

- [X] Temperature blank
- [ ] Temperature out of compliance

Coolant Record:

- [X] Received on ice
  - [X] Wet ice
  - [ ] Blue ice
  - [ ] Dry ice
  - [ ] Other: _____
- [ ] NONE

Exceptions Noted:

- [ ] Sample(s) not received in cooler
- [ ] Sample(s) received same day of sampling
  - [ ] Evidence of chilling process
- [ ] Temp blank <0°C, samples NOT FROZEN
- [ ] Temp blank <0°C, samples FROZEN
- [ ] Temperature not taken: *(indicate reason)*

_____

- [ ] Non-Conformance Report Started

Custody Seals:

Cooler Custody Seals Present? [X] Yes [ ] No

Cooler Custody Seals Intact? [X] Yes [ ] No [ ] N/A

Sample Custody Seals Present? [ ] Yes [X] No

Sample Custody Seals Intact? [ ] Yes [ ] No [X] N/A

Waters

LAB SAMPLE CHAIN OF CUSTODY and REQUEST FOR ANALYSES

To Laboratory:
TEST AMERICA
~~Pace Analytical Labs~~ 704 ENTERPRISE DR
~~1700 Elm St., Suite 200~~ CEDAR FALLS, IA
~~Minneapolis, MN 55414~~ 50613

AE Proj / P.O. # 3D15 **(Lab -** PLEASE ensure this Project# appears on **Lab Report)**

From: THOMAS GREENE
Applied Engineering, Inc.
2905 Oak Lea Terrace
Wayzata, MN 55391-2533
Tel 952-939-9095 Fax 952-939-0178

Site Name WASTE MANAGEMENT
Site Address 12448 PENNSYLVANIA AVE S. SAVAGE, MN 55378 Sampler Signature: [signature]
tom@appliedengineeringusa.com

#	Sample Code	2014 Date	Time	Soil Water or Air	Location (all samples grab unless noted)	Depth	HNU ~~Type Soil~~	~~HNU Level~~	Preservative (b)	#Containers	GRO (c)	DRO (c)	MTBE & BTEX	VOCs 465 (d)	Lead (d)	Metals &PCBs (a,d)	Other
1	1	5-5	1630	S	GP-1	6'	30		M	4		✓	✓				
2	2	↓	↓	↓	GP-1	12'	ND		↓	↓		✓	✓				
3	3				GP-2	4'	30					✓	✓				
4	4				GP-2	16'	ND					✓	✓				
5	5				GP-3	8'	ND					✓	✓				
6	6				GP-4	8'	ND					✓	✓				
7	7				GP-5	8'	ND					✓	✓				
8	8				GP-6	6'	190					✓	✓				
9	9				GP-6	16'	ND					✓	✓				
10	10				GP-7	6'	25					✓	✓				
11	11				GP-7	13.5	ND					✓	✓				
12																	
13	4				GP-1												*
14	10				"												*
15	16				"												*
16																	
17	~~AIR-1~~																~~**~~
18	~~AIR-2~~																~~**~~
19																	
20																	

Comments:
TestAmerica ~~Pace~~ Special Quote # 31005074

* ANALYZE GRAIN SIZE W/ HYDROMETER
~~** ANALYZE AIR - MN TO-15~~

Samples shipped on ice: [X] yes [ ] no
Lab: Provide results in MPCA Report Table [X] **yes [ ] no**
Lab: Provide Chromatograms per MPCA requirements: [X] yes [ ] no
Lab: Provide Hard Copy of Lab Report [ ] yes [X] no

a Metals to be analyzed include Arsenic, Barium, Cadmium, Chromium, Lead, Mercury, Selenium, and Silver. Also analyze for PCB's
b Type Preservative: M = Methanol; H = Hydrochloric Acid (HCl)
c Analyze sample constituents per Wisconsin DNR GRO and/or DRO Methods; Also perform Dry Weight Analysis
d All water samples to be FILTERED upon arrival by LABORATORY
e California Modified EPA Method 8015

Relinquished by: / Received by

1. Sig., Date, & Time [signature] 5-6-14 0900 Applied Engineering, Inc. — Sig., Company: TA [signature] 5-6-14 0900 Print Name Beneath Sig.:
2. Sig., Date, Time [signature] 5-6-14 1700 Print Name Beneath Sig.: [signature] 5-6-14 1700 — Sig., Company: [signature] 5-6-14 1700 Print Name Beneath Sig.: [signature] 5/7/14 930

chain-tg 03/07

5/19/2014

LAB SAMPLE CHAIN OF CUSTODY and REQUEST FOR ANALYSES

To Laboratory:
TEST AMERICA
~~Pace Analytical Labs~~
~~1700 Elm St., Suite 200~~
~~Minneapolis, MN 55414~~
704 ENTERPRISE DR
CEDAR FALLS, IA 50613

AE Proj / P.O. # 3 D15 (Lab - PLEASE ensure this Project# appears on Lab Report)

Site Name WASTE MANAGEMENT

Site Address 12448 PENNSYLVANIA AVE S. Sampler Signature: J. C. Greene
SAVAGE, MN 55378

From:
Applied Engineering, Inc.
2905 Oak Lea Terrace
Wayzata, MN 55391-2533
Tel 952-939-9095 Fax 952-939-0178 ATTN: THOMAS GREENE tomc@appliedengineering usa.com

#	Sample Code	2014 Date	Time	Soil Water or Air	Location (all samples grab unless noted)	Depth	Type Soil	HNU Level	Presr-vative (b)	#Con-tain-ers	GRO (c)	DRO (c)	~~VOCs~~ BTEX	VOCs 465 (d)	Metals Lead (d)	Metals &PCBs (a,d)	Other
												REQUESTED ANALYSES:					
1	1	5-5	1630	W	GP-1	3'			H	4		✓	✓	✓			*
2	2	"	"	"	GP-2	"			"	"		✓	✓	✓			*
3	3				GP-3							✓	✓	✓			*
4	4				GP-4							✓	✓	✓			*
5	5				GP-5							✓	✓	✓			*
6	7	↓	↓	↓	GP-7	↓			↓	↓		✓	✓	✓			*
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	
18																	
19																	
20																	

Comments:
* IT'S ASSUMED BTEX IS INCLUDED IN VOC ANALYSIS.

TEST AMERICA
~~Pace~~ Special Quote # 31805074

Samples shipped on ice: [X] yes [ ] no
Lab: Provide Chromatograms per MPCA requirements: [X] yes [ ] no

Lab: Provide results in MPCA Report Table [ ] yes [ ] no
Lab: Provide Hard Copy of Lab Report [ ] yes [X] no

a	Metals to be analyzed include Arsenic, Barium, Cadmium, Chromium, Lead, Mercury, Selenium, and Silver. Also analyze for PCB's
b	Type Preservative: M = Methanol; H = Hydrochloric Acid (HCl)
c	Analyze sample constituents per Wisconsin DNR GRO and/or DRO Methods; Also perform Dry Weight Analysis
d	All water samples to be FILTERED upon arrival by LABORATORY
e	California Modified EPA Method 8015

Relinquished by:

1. Sig., Date, & Time J. C. Greene 5-6-14 0900
Applied Engineering, Inc.

2. Sig., Date, Time Barb Butler 5-6-14 1700
Print Name Beneath Sig.:
Barb 5-6-14 1700

Received by

Sig., Company: TA Barb Butler 5-6-14 0900
Print Name Beneath Sig.:

Sig., Company: Barb 5-6-14 1700
Print Name Beneath Sig.:

chain-tg 03/07

Login Sample Receipt Checklist

Client: Applied Engineering, Inc.

Job Number: 310-30191-1

Login Number: 30191

List Source: TestAmerica Cedar Falls

List Number: 1

Creator: Facciani, Melene K

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	False	no GP2 bottles, but gp6. go w/bottles per client
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

200-21306-A-1
5630
Location: Air-Storage
Bottle: Summa Canister 6L
Sampled: 3/9/2014 12:00 AM 200-636176

Loc: 200
21306
#1
A

Pre-Shipment Clean Canister Certification Rep

Certification Type: ☒ Batch ☐ Individual

Canister Cleaning & Pre-Shipment Leak Test

System ID	# Cycles	Cleaning Date	Technician	Canister Size		
				6L	1L	3L
Bottom	5	3/9/14				

Leak Test

Port	Can ID	Initial[1] ("Hg)	Final ("Hg)	Adjusted Initial[2] ("Hg)	Difference[3]
1	5630	-29.5	-29.7	-29.3	0.4
2	7944				
3	4948				
4	5145				
5	4159				
6	3361				
7	5057				
8	4447				
9	4453				
10	5402				
11	5129				
12	4818	✓	✓	✓	✓

Initial Reading		Final Reading	
Gauge ID:	G11	Gauge ID:	G13
Date:	3/10/14	Date:	3/12/14
Time:	1000	Time:	1520
Tech:	MK	Tech:	VS
BP:	29.5 ("Hg)	BP:	29.3 ("Hg)
Temp	22 (°C)	Temp:	22 (°C)

[3]Acceptance Criteria:
(1) The difference must be less than or equal to + 0.5
(2) Pressure readings must be at least 24 hours apart.
If time frame was not met, the PM must authorize shipment of canister:
PM Authorization:

Signature Date

[1] Batch Certification: The reading is taken on the "batch" canister and this value is used as the initial pressure for all canisters in the batch.

[2] To calculate Adjusted Initial Pressure, subtract Final BP from Initial BP and add the result (positive or negative) to the initial pressure reading.

[3] To calculate Difference, subtract the Adjusted Initial Pressure from the Final Pressure (See Acceptance Criteria)

Clean Canister Certification Analysis & Authorization of Release to Inventory

Test Method: ☐TO15 Routine ☐ TO15 LL ☐ NJDEP-LL TO15

Can ID	Date	Sequence	Analyst	Inventory Level 1	2	3	4	Limited	Secondary Review Review Date	Reviewer
5630	3/12/14	6519	WRD		✓				3/17/14	✓

Inventory Level 1: Individual Canister Certification Only. Certified clean to RLs listed in laboratory SOP for LLTO15.
Inventory Level 2: Individual or Batch Certification. Certified clean to 0.04 ppbv.
Inventory Level 3: Individual or Batch Certification. Certified clean to 0.20 ppbv.
Inventory Level 4: Individual or Batch Certification. Certified clean following procedures and RLs listed in laboratory SOP NJDEP-LLTO15.
Inventory Level Limited Use: Canisters may only be used for certain projects.

Comments: Routine

200-21510-A-4
3437
Location: Air-Storage
Bottle: Summa Canister 6L
Sampled: 3/22/2014 12:00 AM 200-639505

Loc: 200
21510
#4
A

Pre-Shipment Clean Canister Certification Rep

Certification Type: ☒ Batch ☐ Individual

Canister Cleaning & Pre-Shipment Leak Test

System ID	# Cycles	Cleaning Date	Technician	Canister Size
Can 3/4	25	3/22/14	MT	(6L) 1L 3L

Leak Test

Port	Can ID	Initial[1] ("Hg)	Final ("Hg)	Adjusted Initial[2] ("Hg)	Difference[3]
1	4093	-29.8	-30.1	-29.7	0.4
2	4361				
3	4100				
4	3437				
5	4335				
6	4150				
7	509				
8	3538				
9	3553				
10	5442				
11	3515				
12	4907				

Initial Reading	Final Reading
Gauge ID: 613	Gauge ID: G13
Date: 3/24/14	Date: 3/25/14
Time: 1030	Time: 1540
Tech: MC	Tech: VS
BP: 29.8 ("Hg)	BP: 29.7 ("Hg)
Temp 22 (°C)	Temp: 22 (°C)

[3]Acceptance Criteria:
(1) The difference must be less than or equal to + 0.5
(2) Pressure readings must be at least 24 hours apart.
If time frame was not met, the PM must authorize shipment of canister:
PM Authorization:

Signature Date

[1] Batch Certification: The reading is taken on the "batch" canister and this value is used as the initial pressure for all canisters in the batch.

[2] To calculate Adjusted Initial Pressure, subtract Final BP from Initial BP and add the result (positive or negative) to the initial pressure reading.

[3] To calculate Difference, subtract the Adjusted Initial Pressure from the Final Pressure (See Acceptance Criteria)

Clean Canister Certification Analysis & Authorization of Release to Inventory

Test Method: ☐TO15 Routine ☐ TO15 LL ☐ NJDEP-LL TO15

Can ID	Date	Sequence	Analyst	Inventory Level 1	2	3	4	Limited	Secondary Review: Review Date	Reviewer
5442										
3437	3/25/14	60672 (6)	BL		✓				3/25/14	AMH

MS 3/22/14

Inventory Level 1: Individual Canister Certification Only. Certified clean to RLs listed in laboratory SOP for LLTO15.
Inventory Level 2: Individual or Batch Certification. Certified clean to 0.04 ppbv.
Inventory Level 3: Individual or Batch Certification. Certified clean to 0.20 ppbv.
Inventory Level 4: Individual or Batch Certification. Certified clean following procedures and RLs listed in laboratory SOP NJDEP-LLTO15.
Inventory Level Limited Use: Canisters may only be used for certain projects.

Comments:

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Burlington Job No.: 200-21306-1

SDG No.:

Client Sample ID: 5630 Lab Sample ID: 200-21306-1

Matrix: Air Lab File ID: 6519_09.D

Analysis Method: TO-15 Date Collected: 03/09/2014 00:00

Sample wt/vol: 1000(mL) Date Analyzed: 03/11/2014 19:02

Soil Aliquot Vol: Dilution Factor: 0.2

Soil Extract Vol.: GC Column: RTX-624 ID: 0.32(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 69389 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
115-07-1	Propylene	1.0	U *	1.0	1.0
75-71-8	Dichlorodifluoromethane	0.10	U	0.10	0.10
75-45-6	Freon 22	0.10	U *	0.10	0.10
74-87-3	Chloromethane	0.10	U *	0.10	0.10
106-97-8	n-Butane	0.10	U *	0.10	0.10
75-01-4	Vinyl chloride	0.040	U	0.040	0.040
106-99-0	1,3-Butadiene	0.040	U	0.040	0.040
74-83-9	Bromomethane	0.040	U	0.040	0.040
75-00-3	Chloroethane	0.10	U *	0.10	0.10
593-60-2	Bromoethene(Vinyl Bromide)	0.040	U	0.040	0.040
75-69-4	Trichlorofluoromethane	0.040	U	0.040	0.040
64-17-5	Ethanol	1.0	U *	1.0	1.0
76-13-1	Freon TF	0.040	U	0.040	0.040
75-35-4	1,1-Dichloroethene	0.040	U	0.040	0.040
67-64-1	Acetone	1.0	U *	1.0	1.0
67-63-0	Isopropyl alcohol	1.0	U *	1.0	1.0
75-15-0	Carbon disulfide	0.10	U	0.10	0.10
107-05-1	3-Chloropropene	0.10	U *	0.10	0.10
75-09-2	Methylene Chloride	0.10	U	0.10	0.10
75-65-0	tert-Butyl alcohol	1.0	U	1.0	1.0
1634-04-4	Methyl tert-butyl ether	0.040	U	0.040	0.040
156-60-5	trans-1,2-Dichloroethene	0.040	U	0.040	0.040
110-54-3	n-Hexane	0.040	U	0.040	0.040
75-34-3	1,1-Dichloroethane	0.040	U	0.040	0.040
108-05-4	Vinyl acetate	1.0	U *	1.0	1.0
141-78-6	Ethyl acetate	1.0	U	1.0	1.0
78-93-3	Methyl Ethyl Ketone	0.10	U	0.10	0.10
156-59-2	cis-1,2-Dichloroethene	0.040	U	0.040	0.040
540-59-0	1,2-Dichloroethene, Total	0.040	U	0.040	0.040
67-66-3	Chloroform	0.040	U	0.040	0.040
109-99-9	Tetrahydrofuran	1.0	U *	1.0	1.0
71-55-6	1,1,1-Trichloroethane	0.040	U	0.040	0.040
110-82-7	Cyclohexane	0.040	U	0.040	0.040
56-23-5	Carbon tetrachloride	0.040	U	0.040	0.040
540-84-1	2,2,4-Trimethylpentane	0.040	U	0.040	0.040
71-43-2	Benzene	0.040	U	0.040	0.040

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Burlington Job No.: 200-21306-1

SDG No.:

Client Sample ID: 5630 Lab Sample ID: 200-21306-1

Matrix: Air Lab File ID: 6519_09.D

Analysis Method: TO-15 Date Collected: 03/09/2014 00:00

Sample wt/vol: 1000(mL) Date Analyzed: 03/11/2014 19:02

Soil Aliquot Vol: Dilution Factor: 0.2

Soil Extract Vol.: GC Column: RTX-624 ID: 0.32(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 69389 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
107-06-2	1,2-Dichloroethane	0.040	U	0.040	0.040
142-82-5	n-Heptane	0.040	U	0.040	0.040
79-01-6	Trichloroethene	0.040	U	0.040	0.040
80-62-6	Methyl methacrylate	0.10	U	0.10	0.10
78-87-5	1,2-Dichloropropane	0.040	U	0.040	0.040
123-91-1	1,4-Dioxane	1.0	U	1.0	1.0
75-27-4	Bromodichloromethane	0.040	U	0.040	0.040
10061-01-5	cis-1,3-Dichloropropene	0.040	U	0.040	0.040
108-10-1	methyl isobutyl ketone	0.10	U *	0.10	0.10
108-88-3	Toluene	0.040	U	0.040	0.040
10061-02-6	trans-1,3-Dichloropropene	0.040	U	0.040	0.040
79-00-5	1,1,2-Trichloroethane	0.040	U	0.040	0.040
127-18-4	Tetrachloroethene	0.040	U	0.040	0.040
591-78-6	Methyl Butyl Ketone (2-Hexanone)	0.10	U *	0.10	0.10
124-48-1	Dibromochloromethane	0.040	U	0.040	0.040
106-93-4	1,2-Dibromoethane	0.040	U	0.040	0.040
108-90-7	Chlorobenzene	0.040	U	0.040	0.040
100-41-4	Ethylbenzene	0.040	U	0.040	0.040
179601-23-1	m,p-Xylene	0.10	U	0.10	0.10
95-47-6	Xylene, o-	0.040	U	0.040	0.040
1330-20-7	Xylene (total)	0.040	U	0.040	0.040
100-42-5	Styrene	0.040	U	0.040	0.040
75-25-2	Bromoform	0.040	U	0.040	0.040
98-82-8	Cumene	0.040	U	0.040	0.040
79-34-5	1,1,2,2-Tetrachloroethane	0.040	U	0.040	0.040
103-65-1	n-Propylbenzene	0.040	U	0.040	0.040
622-96-8	4-Ethyltoluene	0.040	U	0.040	0.040
108-67-8	1,3,5-Trimethylbenzene	0.040	U	0.040	0.040
95-49-8	2-Chlorotoluene	0.040	U	0.040	0.040
98-06-6	tert-Butylbenzene	0.040	U	0.040	0.040
95-63-6	1,2,4-Trimethylbenzene	0.040	U	0.040	0.040
135-98-8	sec-Butylbenzene	0.040	U	0.040	0.040
99-87-6	4-Isopropyltoluene	0.040	U	0.040	0.040
541-73-1	1,3-Dichlorobenzene	0.040	U	0.040	0.040
106-46-7	1,4-Dichlorobenzene	0.040	U	0.040	0.040
100-44-7	Benzyl chloride	0.040	U	0.040	0.040

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Burlington Job No.: 200-21306-1

SDG No.:

Client Sample ID: 5630 Lab Sample ID: 200-21306-1

Matrix: Air Lab File ID: 6519_09.D

Analysis Method: TO-15 Date Collected: 03/09/2014 00:00

Sample wt/vol: 1000(mL) Date Analyzed: 03/11/2014 19:02

Soil Aliquot Vol: Dilution Factor: 0.2

Soil Extract Vol.: GC Column: RTX-624 ID: 0.32(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 69389 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
104-51-8	n-Butylbenzene	0.040	U	0.040	0.040
95-50-1	1,2-Dichlorobenzene	0.040	U	0.040	0.040
120-82-1	1,2,4-Trichlorobenzene	0.10	U	0.10	0.10
87-68-3	Hexachlorobutadiene	0.040	U	0.040	0.040
91-20-3	Naphthalene	0.10	U ^ *	0.10	0.10

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Burlington Job No.: 200-21306-1

SDG No.:

Client Sample ID: 5630 Lab Sample ID: 200-21306-1

Matrix: Air Lab File ID: 6519_09.D

Analysis Method: TO-15 Date Collected: 03/09/2014 00:00

Sample wt/vol: 1000(mL) Date Analyzed: 03/11/2014 19:02

Soil Aliquot Vol: Dilution Factor: 0.2

Soil Extract Vol.: GC Column: RTX-624 ID: 0.32(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 69389 Units: ppm v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
76-14-2	1,2-Dichlorotetrafluoroethane	0.000040	U	0.000040	0.000040

TestAmerica Burlington
Target Compound Quantitation Report

Data File: \\BTV-LIMS1\ChromData\CHC.i\20140311-6519.b\6519_09.D
Lims ID: 200-21306-A-1 Lab Sample ID: 200-21306-1
Client ID: 5630
Sample Type: Client
Inject. Date: 11-Mar-2014 19:02:30 ALS Bottle#: 8 Worklist Smp#: 9
Purge Vol: 200.000 mL Dil. Factor: 0.2000
Sample Info: 200-0006519-009
Misc. Info.: 21306-01
Operator ID: wrd Instrument ID: CHC.i

Method: \\BTV-LIMS1\ChromData\CHC.i\20140311-6519.b\TO15_LLNJ_TO3_CHC.m
Limit Group: AI_TO15_ICAL
Last Update: 12-Mar-2014 07:14:38 Calib Date: 03-Jan-2014 15:48:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal/External Standard Quant By: Initial Calibration
Last ICal File: \\BTV-LIMS1\ChromData\CHC.i\20140103-5623.b\cma010.D

Column 1 : RTX-624 (0.32 mm) Det: MS SCAN
Process Host: XAWRK014

First Level Reviewer: desjardinsb Date: 12-Mar-2014 09:31:08

	Compound	Sig	RT	ADJ RT	DLT RT	Q	Response	On-Col Amt ppb v/v	Flags
	1 Propene	41		3.186					
	2 Dichlorodifluoromethane	85		3.261					
	6 Chlorodifluoromethane	51		3.325					
	7 1,2-Dichloro-1,1,2,2-tetrafluoro	85		3.555					
	8 Chloromethane	50		3.704					
	9 Butane	43		3.923					
	10 Vinyl chloride	62		3.976					
	11 Butadiene	54		4.056					
	12 Bromomethane	94		4.798					
	13 Chloroethane	64		5.054					
	15 Vinyl bromide	106		5.471					
	16 Trichlorofluoromethane	101		5.577					
	19 Ethanol	45		6.234					
	23 1,1,2-Trichloro-1,2,2-trifluoroe	101		6.719					
	24 1,1-Dichloroethene	96		6.762					
	25 Acetone	43		7.040					
	26 Carbon disulfide	76		7.152					
	27 Isopropyl alcohol	45		7.365					
	29 3-Chloro-1-propene	41		7.595					
	31 Methylene Chloride	49		7.904					
	32 2-Methyl-2-propanol	59		8.166					
	33 Methyl tert-butyl ether	73		8.320					
	34 trans-1,2-Dichloroethene	61		8.347					
	36 Hexane	57		8.742					
	37 1,1-Dichloroethane	63		9.270					
	38 Vinyl acetate	43		9.361					
S	41 1,2-Dichloroethene, Total	61		10.200					
	39 cis-1,2-Dichloroethene	96		10.434					
	40 2-Butanone (MEK)	72		10.509					
	42 Ethyl acetate	88		10.551					
*	43 Chlorobromomethane	128	10.914	10.920	-0.006	69	277354	10.0	

Sig		RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response		On-Col Amt ppb v/v	Flags
	44 Tetrahydrofuran	42		10.936					
	45 Chloroform	83		11.064					
	46 Cyclohexane	84		11.293					
	47 1,1,1-Trichloroethane	97		11.336					
	48 Carbon tetrachloride	117		11.592					
	51 Isooctane	57		12.046					
	50 Benzene	78		12.094					
	52 1,2-Dichloroethane	62		12.296					
	53 n-Heptane	43		12.462					
*	54 1,4-Difluorobenzene	114	12.980	12.990	-0.010	93	1431313	10.0	
	56 Trichloroethene	95		13.471					
	58 1,2-Dichloropropane	63		14.068					
	59 Methyl methacrylate	69		14.250					
	60 1,4-Dioxane	88		14.319					
	61 Dibromomethane	174		14.335					
	62 Dichlorobromomethane	83		14.639					
	64 cis-1,3-Dichloropropene	75		15.600					
	65 4-Methyl-2-pentanone (MIBK)	43		15.904					
	66 Toluene	92		16.198					
	70 trans-1,3-Dichloropropene	75		16.806					
	71 1,1,2-Trichloroethane	83		17.190					
	72 Tetrachloroethene	166		17.281					
	73 2-Hexanone	43		17.649					
	74 Chlorodibromomethane	129		17.959					
	75 Ethylene Dibromide	107		18.236					
*	76 Chlorobenzene-d5	117	19.128	19.128	0.0	83	1289407	10.0	
	77 Chlorobenzene	112		19.192					
	78 Ethylbenzene	91		19.336					
	81 m-Xylene & p-Xylene	106		19.592					
S	82 Xylenes, Total	106		20.100					
	83 o-Xylene	106		20.398					
	84 Styrene	104		20.446					
	85 Bromoform	173		20.846					
	86 Isopropylbenzene	105		21.033					
$	87 4-Bromofluorobenzene	95	21.380	21.385	-0.005	91	934264	NC	
	88 1,1,2,2-Tetrachloroethane	83		21.652					
	90 N-Propylbenzene	91		21.716					
	91 4-Ethyltoluene	105		21.892					
	92 2-Chlorotoluene	91		21.908					
	94 1,3,5-Trimethylbenzene	105		21.994					
	96 tert-Butylbenzene	119		22.469					
	97 1,2,4-Trimethylbenzene	105		22.559					
	98 sec-Butylbenzene	105		22.778					
	99 4-Isopropyltoluene	119		22.976					
	100 1,3-Dichlorobenzene	146		23.013					
	101 1,4-Dichlorobenzene	146		23.152					
	102 Benzyl chloride	91		23.360					
	103 n-Butylbenzene	91		23.568					
	105 1,2-Dichlorobenzene	146		23.707					
	107 1,2,4-Trichlorobenzene	180		26.338					
	108 Hexachlorobutadiene	225		26.525					
	109 Naphthalene	128		26.866					

WorkSheet Quantitation Report

Sig	RT	Lower RT	Upper RT	Q	Response	On-Col Amt ppb v/v	Ratio Range	Ratio	Flags

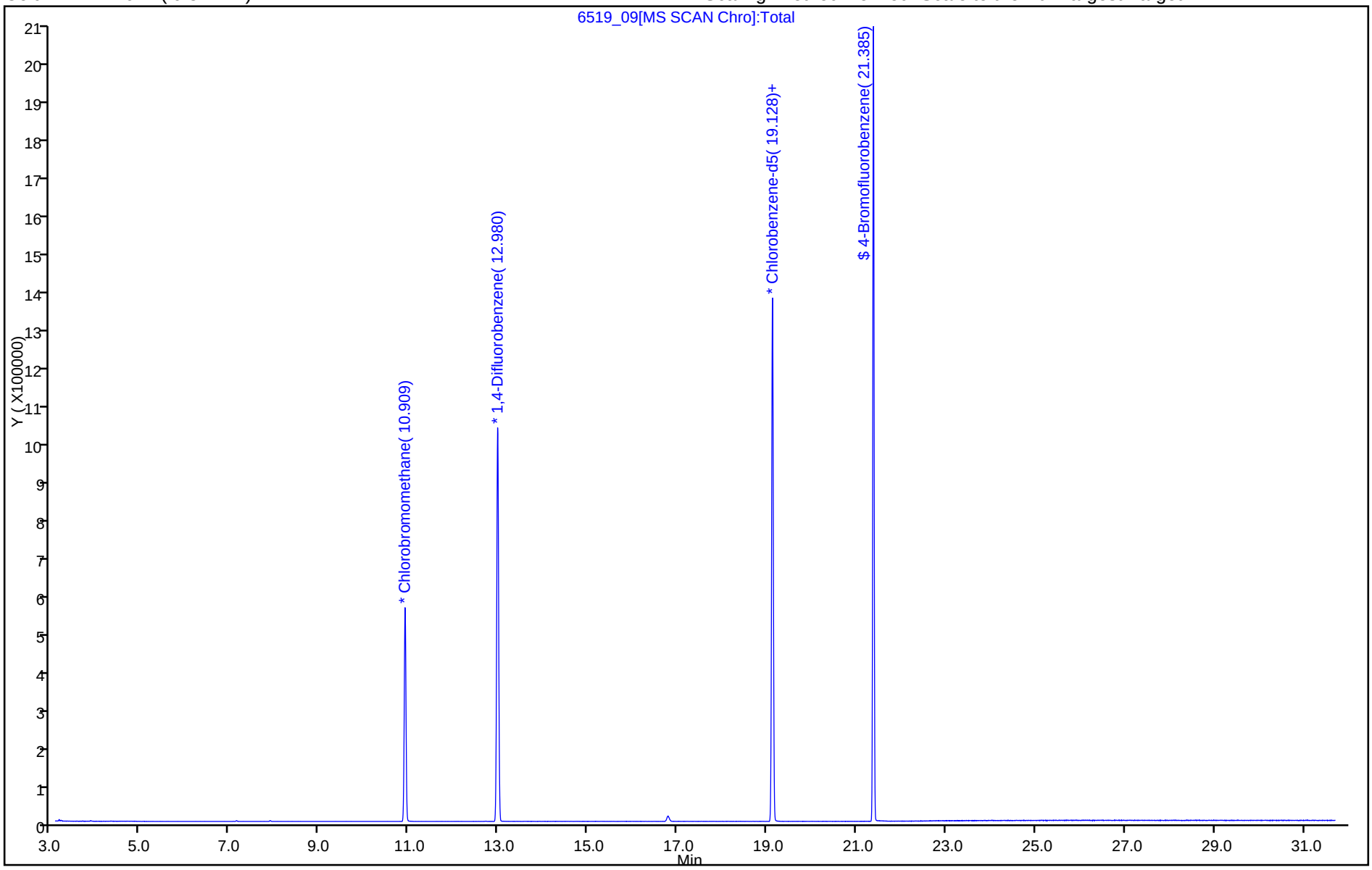
Report Date: 12-Mar-2014 09:31:08 Chrom Revision: 2.2 28-Feb-2014 15:12:04

TestAmerica Burlington

Data File: \\BTV-LIMS1\ChromData\CHC.i\20140311-6519.b\6519_09.D

Injection Date:	11-Mar-2014 19:02:30	Instrument ID:	CHC.i	Operator ID:	wrd
Lims ID:	200-21306-A-1	Lab Sample ID:	200-21306-1	Worklist Smp#:	9
Client ID:	5630				
Purge Vol:	200.000 mL	Dil. Factor:	0.2000	ALS Bottle#:	8
Method:	TO15_LLNJ_TO3_CHC	Limit Group:	AI_TO15_ICAL		

Column: RTX-624 (0.32 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Burlington Job No.: 200-21510-1

SDG No.:

Client Sample ID: 3437 Lab Sample ID: 200-21510-4

Matrix: Air Lab File ID: 6672_005.D

Analysis Method: TO-15 Date Collected: 03/22/2014 00:00

Sample wt/vol: 1000(mL) Date Analyzed: 03/24/2014 14:34

Soil Aliquot Vol: Dilution Factor: 0.2

Soil Extract Vol.: GC Column: RTX-624 ID: 0.32(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 69811 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
115-07-1	Propylene	1.0	U *	1.0	1.0
75-71-8	Dichlorodifluoromethane	0.10	U	0.10	0.10
75-45-6	Freon 22	0.10	U	0.10	0.10
76-14-2	1,2-Dichlorotetrafluoroethane	0.040	U	0.040	0.040
74-87-3	Chloromethane	0.10	U	0.10	0.10
106-97-8	n-Butane	0.10	U	0.10	0.10
75-01-4	Vinyl chloride	0.040	U	0.040	0.040
106-99-0	1,3-Butadiene	0.040	U	0.040	0.040
74-83-9	Bromomethane	0.040	U	0.040	0.040
75-00-3	Chloroethane	0.10	U	0.10	0.10
593-60-2	Bromoethene(Vinyl Bromide)	0.040	U	0.040	0.040
75-69-4	Trichlorofluoromethane	0.040	U	0.040	0.040
64-17-5	Ethanol	1.0	U	1.0	1.0
76-13-1	Freon TF	0.040	U	0.040	0.040
75-35-4	1,1-Dichloroethene	0.040	U	0.040	0.040
67-64-1	Acetone	1.0	U	1.0	1.0
67-63-0	Isopropyl alcohol	1.0	U	1.0	1.0
75-15-0	Carbon disulfide	0.10	U	0.10	0.10
107-05-1	3-Chloropropene	0.10	U	0.10	0.10
75-09-2	Methylene Chloride	0.10	U	0.10	0.10
75-65-0	tert-Butyl alcohol	1.0	U	1.0	1.0
1634-04-4	Methyl tert-butyl ether	0.040	U	0.040	0.040
156-60-5	trans-1,2-Dichloroethene	0.040	U	0.040	0.040
110-54-3	n-Hexane	0.040	U	0.040	0.040
75-34-3	1,1-Dichloroethane	0.040	U	0.040	0.040
108-05-4	Vinyl acetate	1.0	U	1.0	1.0
141-78-6	Ethyl acetate	1.0	U	1.0	1.0
78-93-3	Methyl Ethyl Ketone	0.10	U	0.10	0.10
156-59-2	cis-1,2-Dichloroethene	0.040	U	0.040	0.040
540-59-0	1,2-Dichloroethene, Total	0.040	U	0.040	0.040
67-66-3	Chloroform	0.040	U	0.040	0.040
109-99-9	Tetrahydrofuran	1.0	U	1.0	1.0
71-55-6	1,1,1-Trichloroethane	0.040	U	0.040	0.040
110-82-7	Cyclohexane	0.040	U	0.040	0.040
56-23-5	Carbon tetrachloride	0.040	U	0.040	0.040
540-84-1	2,2,4-Trimethylpentane	0.040	U	0.040	0.040

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Burlington Job No.: 200-21510-1

SDG No.:

Client Sample ID: 3437 Lab Sample ID: 200-21510-4

Matrix: Air Lab File ID: 6672_005.D

Analysis Method: TO-15 Date Collected: 03/22/2014 00:00

Sample wt/vol: 1000(mL) Date Analyzed: 03/24/2014 14:34

Soil Aliquot Vol: Dilution Factor: 0.2

Soil Extract Vol.: GC Column: RTX-624 ID: 0.32(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 69811 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
71-43-2	Benzene	0.040	U	0.040	0.040
107-06-2	1,2-Dichloroethane	0.040	U	0.040	0.040
142-82-5	n-Heptane	0.040	U	0.040	0.040
79-01-6	Trichloroethene	0.040	U	0.040	0.040
80-62-6	Methyl methacrylate	0.10	U	0.10	0.10
78-87-5	1,2-Dichloropropane	0.040	U	0.040	0.040
123-91-1	1,4-Dioxane	1.0	U	1.0	1.0
75-27-4	Bromodichloromethane	0.040	U	0.040	0.040
10061-01-5	cis-1,3-Dichloropropene	0.040	U	0.040	0.040
108-10-1	methyl isobutyl ketone	0.10	U	0.10	0.10
108-88-3	Toluene	0.040	U	0.040	0.040
10061-02-6	trans-1,3-Dichloropropene	0.040	U	0.040	0.040
79-00-5	1,1,2-Trichloroethane	0.040	U	0.040	0.040
127-18-4	Tetrachloroethene	0.040	U	0.040	0.040
591-78-6	Methyl Butyl Ketone (2-Hexanone)	0.10	U	0.10	0.10
124-48-1	Dibromochloromethane	0.040	U	0.040	0.040
106-93-4	1,2-Dibromoethane	0.040	U	0.040	0.040
108-90-7	Chlorobenzene	0.040	U	0.040	0.040
100-41-4	Ethylbenzene	0.040	U	0.040	0.040
179601-23-1	m,p-Xylene	0.10	U	0.10	0.10
95-47-6	Xylene, o-	0.040	U	0.040	0.040
1330-20-7	Xylene (total)	0.040	U	0.040	0.040
100-42-5	Styrene	0.040	U	0.040	0.040
75-25-2	Bromoform	0.040	U	0.040	0.040
98-82-8	Cumene	0.040	U	0.040	0.040
79-34-5	1,1,2,2-Tetrachloroethane	0.040	U	0.040	0.040
103-65-1	n-Propylbenzene	0.040	U	0.040	0.040
622-96-8	4-Ethyltoluene	0.040	U	0.040	0.040
108-67-8	1,3,5-Trimethylbenzene	0.040	U	0.040	0.040
95-49-8	2-Chlorotoluene	0.040	U	0.040	0.040
98-06-6	tert-Butylbenzene	0.040	U	0.040	0.040
95-63-6	1,2,4-Trimethylbenzene	0.040	U	0.040	0.040
135-98-8	sec-Butylbenzene	0.040	U	0.040	0.040
99-87-6	4-Isopropyltoluene	0.040	U	0.040	0.040
541-73-1	1,3-Dichlorobenzene	0.040	U	0.040	0.040
106-46-7	1,4-Dichlorobenzene	0.040	U	0.040	0.040

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Burlington Job No.: 200-21510-1

SDG No.:

Client Sample ID: 3437 Lab Sample ID: 200-21510-4

Matrix: Air Lab File ID: 6672_005.D

Analysis Method: TO-15 Date Collected: 03/22/2014 00:00

Sample wt/vol: 1000(mL) Date Analyzed: 03/24/2014 14:34

Soil Aliquot Vol: Dilution Factor: 0.2

Soil Extract Vol.: GC Column: RTX-624 ID: 0.32(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 69811 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
100-44-7	Benzyl chloride	0.040	U	0.040	0.040
104-51-8	n-Butylbenzene	0.040	U	0.040	0.040
95-50-1	1,2-Dichlorobenzene	0.040	U	0.040	0.040
120-82-1	1,2,4-Trichlorobenzene	0.10	U	0.10	0.10
87-68-3	Hexachlorobutadiene	0.040	U	0.040	0.040
91-20-3	Naphthalene	0.10	U	0.10	0.10

TestAmerica Burlington
Target Compound Quantitation Report

Data File: \\BTV-LIMS1\ChromData\CHG.i\20140324-6672.b\6672_005.D
Lims ID: 200-21510-A-4 Lab Sample ID: 200-21510-4
Client ID: 3437
Sample Type: Client
Inject. Date: 24-Mar-2014 14:34:30 ALS Bottle#: 4 Worklist Smp#: 5
Purge Vol: 200.000 mL Dil. Factor: 0.2000
Sample Info: 200-0006672-005
Misc. Info.: 200-21510-a-4
Operator ID: WRD Instrument ID: CHG.i

Method: \\BTV-LIMS1\ChromData\CHG.i\20140324-6672.b\TO15_LLNJ_TO3_G.m
Limit Group: AI_TO15_ICAL
Last Update: 25-Mar-2014 04:46:48 Calib Date: 20-Feb-2014 21:54:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal/External Standard Quant By: Initial Calibration
Last ICal File: \\BTV-LIMS1\ChromData\CHG.i\20140220-6246.b\6246_013.D

Column 1 : RTX-624 (0.32 mm) Det: MS SCAN
Process Host: XAWRK003

First Level Reviewer: lyonsb Date: 25-Mar-2014 08:00:28

Compound	Sig	RT	ADJ RT	DLT RT	Q	Response	On-Col Amt ppb v/v	Flags
1 Propene	41		3.058					
2 Dichlorodifluoromethane	85		3.133					
6 Chlorodifluoromethane	51		3.181					
7 1,2-Dichloro-1,1,2,2-tetrafluoro	85		3.405					
8 Chloromethane	50		3.539					
9 Butane	43		3.753					
10 Vinyl chloride	62		3.791					
11 Butadiene	54		3.876					
12 Bromomethane	94		4.572					
14 Chloroethane	64		4.818					
16 Vinyl bromide	106		5.219					
17 Trichlorofluoromethane	101		5.342					
19 Ethanol	45		5.909					
23 1,1,2-Trichloro-1,2,2-trifluoroe	101		6.460					
24 1,1-Dichloroethene	96		6.481					
25 Acetone	43		6.701					
26 Carbon disulfide	76		6.867					
27 Isopropyl alcohol	45		7.027					
29 3-Chloro-1-propene	41		7.284					
31 Methylene Chloride	49		7.573					
32 2-Methyl-2-propanol	59		7.824					
33 Methyl tert-butyl ether	73		8.022					
34 trans-1,2-Dichloroethene	61		8.038					
36 Hexane	57	8.461	8.477	-0.016	54	1388	0.0304	
37 1,1-Dichloroethane	63		8.921					
38 Vinyl acetate	43		9.023					
39 cis-1,2-Dichloroethene	96		10.060					
40 2-Butanone (MEK)	72		10.103					
42 Ethyl acetate	88		10.183					
S 41 1,2-Dichloroethene, Total	61		10.200					
* 43 Chlorobromomethane	128	10.526	10.531	-0.005	70	544521	10.0	

Sig		RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response		On-Col Amt ppb v/v	Flags
	44 Tetrahydrofuran	42		10.553					
	45 Chloroform	83		10.676					
	46 Cyclohexane	84		10.970					
	47 1,1,1-Trichloroethane	97		10.981					
	48 Carbon tetrachloride	117		11.248					
	50 Benzene	78	11.708	11.714	-0.006	1	455	0.002282	
	51 Isooctane	57		11.740					
	52 1,2-Dichloroethane	62		11.879					
	53 n-Heptane	43	12.147	12.152	-0.005	9	1145	0.0129	
*	54 1,4-Difluorobenzene	114	12.591	12.591	0.0	92	2988704	10.0	
	56 Trichloroethene	95		13.083					
	58 1,2-Dichloropropane	63		13.645					
	59 Methyl methacrylate	69		13.859					
	60 1,4-Dioxane	88		13.891					
	61 Dibromomethane	174		13.907					
	62 Dichlorobromomethane	83		14.217					
	64 cis-1,3-Dichloropropene	75		15.202					
	65 4-Methyl-2-pentanone (MIBK)	43		15.506					
	66 Toluene	92	15.822	15.827	-0.005	15	621	0.003482	
	70 trans-1,3-Dichloropropene	75		16.411					
	71 1,1,2-Trichloroethane	83		16.785					
	72 Tetrachloroethene	166		16.940					
	73 2-Hexanone	43		17.261					
	74 Chlorodibromomethane	129		17.561					
	75 Ethylene Dibromide	107		17.834					
*	76 Chlorobenzene-d5	117	18.759	18.759	0.0	81	2434328	10.0	
	77 Chlorobenzene	112		18.823					
	78 Ethylbenzene	91	18.984	18.989	-0.005	1	1467	0.003960	
	80 m-Xylene & p-Xylene	106	19.240	19.246	-0.006	1	964	0.006365	
	83 o-Xylene	106	20.075	20.075	0.0	1	350	0.002214	
S	82 Xylenes, Total	106				0		0.008579	
	84 Styrene	104		20.123					
	85 Bromoform	173		20.508					
	86 Isopropylbenzene	105		20.744					
$	87 4-Bromofluorobenzene	95	21.091	21.092	-0.001	98	889286	NC	
	88 1,1,2,2-Tetrachloroethane	83		21.343					
	90 N-Propylbenzene	91		21.450					
	92 2-Chlorotoluene	91		21.632					
	91 4-Ethyltoluene	105		21.637					
	94 1,3,5-Trimethylbenzene	105		21.739					
	96 tert-Butylbenzene	119		22.220					
	97 1,2,4-Trimethylbenzene	105		22.311					
	98 sec-Butylbenzene	105		22.547					
	99 4-Isopropyltoluene	119		22.745					
	100 1,3-Dichlorobenzene	146		22.761					
	101 1,4-Dichlorobenzene	146		22.894					
	102 Benzyl chloride	91		23.087					
	103 n-Butylbenzene	91		23.322					
	105 1,2-Dichlorobenzene	146		23.429					
	107 1,2,4-Trichlorobenzene	180		25.992					
	108 Hexachlorobutadiene	225		26.206					
	109 Naphthalene	128		26.479					

WorkSheet Quantitation Report

Sig	RT	Lower RT	Upper RT	Q	Response	On-Col Amt ppb v/v	Ratio Range	Ratio	Flags

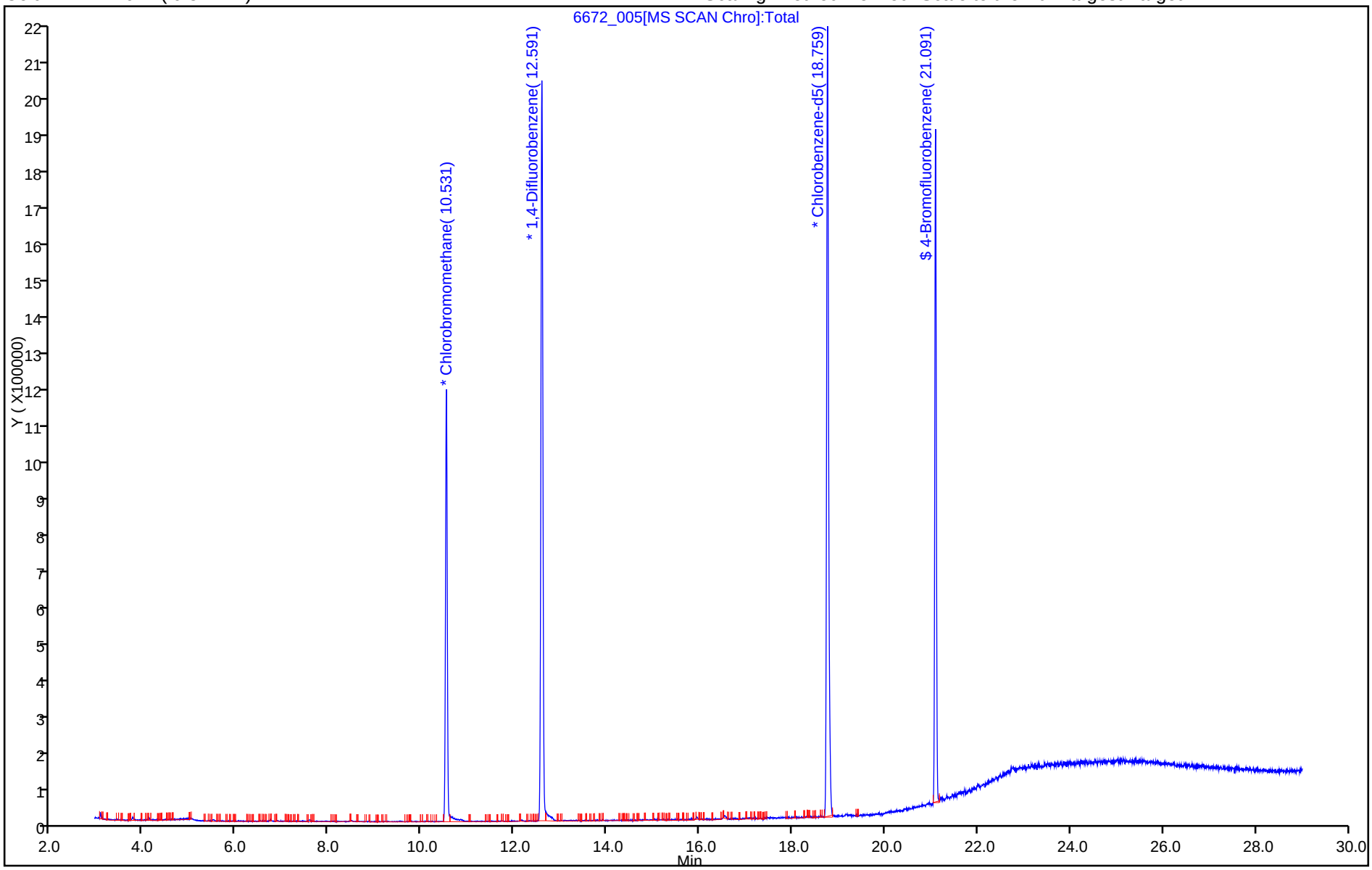
Report Date: 25-Mar-2014 08:00:29 Chrom Revision: 2.2 12-Mar-2014 11:19:24

TestAmerica Burlington

Data File: \\BTV-LIMS1\ChromData\CHG.i\20140324-6672.b\6672_005.D

Injection Date:	24-Mar-2014 14:34:30	Instrument ID:	CHG.i	Operator ID:	WRD
Lims ID:	200-21510-A-4	Lab Sample ID:	200-21510-4	Worklist Smp#:	5
Client ID:	3437				
Purge Vol:	200.000 mL	Dil. Factor:	0.2000	ALS Bottle#:	4
Method:	TO15_LLNJ_TO3_G	Limit Group:	AI_TO15_ICAL		

Column: RTX-624 (0.32 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Appendix G

Methodologies and Procedures, Including Field Screening of Soil, Other Field Analyses, Soil Boring, Soil Sampling, Soil Gas Air Sampling, Well Installation, and Water Sampling

The following methods were used to conduct this investigation:

Field Screening Methods

Field screening methods used to distinguish impacted soil from non-impacted soil included visual identification, any obvious odors, and use of a Photoionization Detector (PID)

PID Soil Analysis

PID analysis included use of a Photoionization Detector (PID) manufactured by HNU Systems, Inc. (Model PI-101 with a 10.2 eV lamp, calibrated to a benzene standard). Soil samples were collected from the Geoprobe acetate liner into a clean, sealable plastic bag. The bag was sealed and agitated. Vapor headspace readings were obtained by inserting the PID probe through the seal, extracting a vapor sample, and reading the meter level indicator.

Push-Probe Soil Borings

Push-probe technology uses small-diameter sampling rods which are driven through the soil to retrieve soil or water samples from a desired depth.

The push-probe equipment was operated by Stevens Drilling, Subcontracted to NCG Drilling, to collect soil samples at this location. The equipment was a Geoprobe 6600 track-mounted pneumatic percussion probe rod driver and hydraulic pulling system.

Soil samples were collected by driving the sealed core-sampler with a clean acetate liner to the desired depth. Upon removal from the bore hole, the liner containing the sample was retrieved from the core sampler.

Groundwater samples were collected from the temporary monitoring wells created by PVC well points pushed to the bottom of the boring. Samples were collected with 1/4" polyethylene tubing and a ball check valve. Water samples were immediately placed into sample vials and placed on ice for follow-up laboratory analyses.

The temporary wells were sealed in accordance with Minnesota Rules, Dept of Health, Wells and Borings, Chapter 4725.3850.

Method used to Measure Water Levels in Borings

The method used to measure water levels in borings was use of an electronic water level guage provided by the soil boring contractor.

Soil Gas

Soil gas samples were collected by driving the hollow threaded probe rods with a sacrificial drive point to the desired depth. The rods were then partially extracted, dislodging the sacrificial point, and exposing the soil interval of approximately one foot. The rods were air-sealed to the ground with wet bentonite, and PVC tubing (3/8" OD) was threaded to the bottom of the rod. The air inside the tubing was purged with a 60 cc syringe several times. The tubing was then connected to the Summa sampling canister and the sample collected. The Summa canisters were provided to the laboratory for Analysis by EPA method TO-15 (full scan) for compounds in the Minnesota Soil Gas List and THC.

Sample Handling Methods

Soil sample collection followed MPCA LUST Cleanup Program Guidance documents. Samples were collected using clean, latex gloves. GRO and BTEX samples were quickly measured and placed into sampling jars, preserved with methanol provided by the Laboratory. DRO samples were weighed and placed into sampling jars. All samples were immediately put on ice and kept cold until delivered to the laboratory with a chain of custody for analysis.

Samples were analyzed by the fixed-base laboratory in accordance with laboratory-specified guidelines and Wisconsin modified EPA methods for gasoline range organic (GRO) and/or diesel range organic (DRO) methods as applicable.

Laboratory Sample Analysis, Fixed-Base Laboratory

Laboratory analyses were conducted on selected samples. Samples were analyzed in accordance with MPCA guidelines at a state certified laboratory, for the constituents identified on the chain of custody. According to the laboratory, all analyses were performed using Wisconsin modified EPA methods or other EPA methods.

Appendix I

Grain Size Analysis, Hydraulic Conductivity Measurements, Other Calculations, and Lab Reports

Hydraulic Conductivity (K)

To calculate the hydraulic conductivity of the sediments, the Hazen method (Hazen 1911) was used. The Hazen approximation is:

$K = C(d10)^2$

where

K is the hydraulic conductivity (cm/sec)
d10 is the effective grain size (cm)
C is a coefficient based on the following table:

Very fine sand, poorly sorted	40-80
Fine sand with appreciable fines	40-80
Medium sand, well sorted	80-120
Coarse sand, poorly sorted	80-120
Coarse sand, well sorted, clean	120-150

The effective grain size (d10) was determined graphically from the grain size analysis. A graph was constructed for each sample of percent finer by mass versus grain size using a logarithmic scale for the sizes. The graph was used to determine the effective grain size, the final ten percent of material that passes through the sieves.

For this site:
based on inspection of the grain size analysis graph, d10 = 0.0183 cm
based on an estimation from the above table, C is determined to be: 50
$K = C(d10)^2$
$= 50 \times 0.0183^2$
=0.0167 cm/sec
multiply by 18,288 to get ft/day
= 306 ft/day

Aquifer Transmistivity (T)

T_{High} =Kb (estimated thickest aquifer dimension)
=K x b
= 306 x 14
= **4,287 ft^2/day**

Effective Porosity (n) (or Pe)

TABLE 3.1 Range of Porosity Values	
Soil Type	Porosity, p_t
Unconsolidated deposits	
Gravel	0.25 - 0.40
Sand	0.25 - 0.50
Silt	0.35 - 0.50
Clay	0.40 - 0.70
Rocks	
Fractured basalt	0.05 - 0.50
Karst limestone	0.05 - 0.50
Sandstone	0.05 - 0.30
Limestone, dolomite	0.00 - 0.20
Shale	0.00 - 0.10
Fractured crystalline rock	0.00 - 0.10
Dense crystalline rock	0.00 - 0.05
Source: Freeze and Cherry (1979).	

TABLE 3.2 Representative Porosity Values

	Total Porosity, p_t			Effective Porosity,[a] p_e	
Material	Range	Arithmetic Mean		Range	Arithmetic Mean
Sedimentary material					
Sandstone (fine)	-[b]	-		0.02 - 0.40	0.21
Sandstone (medium)	0.14 - 0.49	0.34		0.12 - 0.41	0.27
Siltstone	0.21 - 0.41	0.35		0.01 - 0.33	0.12
Sand (fine)	0.25 - 0.53	0.43		0.01 - 0.46	0.33
Sand (medium)	-	-		0.16 - 0.46	0.32
Sand (coarse)	0.31 - 0.46	0.39		0.18 - 0.43	0.3
Gravel (fine)	0.25 - 0.38	0.34		0.13 - 0.40	0.28
Gravel (medium)	-	-		0.17 - 0.44	0.24
Gravel (coarse)	0.24 - 0.36	0.28		0.13 - 0.25	0.21
Silt	0.34 - 0.51	0.45		0.01 - 0.39	0.2
Clay	0.34 - 0.57	0.42		0.01 - 0.18	0.06
Limestone	0.07 - 0.56	0.3		~0 - 0.36	0.14
Igneous rock					
Weathered granite	0.34 - 0.57	0.45		-	-
Weathered gabbro	0.42 - 0.45	0.43		-	-
Basalt	0.03 - 0.35	0.17		-	-
Metamorphic rock					
Schist	0.04 - 0.49	0.38		0.22 - 0.33	0.26
Source: McWorter and Sunada (1977).					

For this site, the effective porosity for the fine sand is estimated to be its arithmetic mean, 0.33

Average horizontal Gradient

The Average horizontal Gradient was calculated by measuring the distance between wells and dividing by the overall change in ground water elevation. For this site:

dh / dl =
180 ft / 1.512 ft
= 0.0084 (unitless)

where:
dh is the distance between wells
dl is the difference in elevation of the wells

Groundwater velocity (v)

Using above values of K=206; dh/dl=0.0084 and an effective porosity value of 0.33,

V = K x (dh/dl) / n
= 206 x 0.0084 / 0.33
= 5.24

Where K=ft/day

Gradient and Flow Direction Calculations

The gradient and flow directions were based on the results of an EPA web-based calculator to determine Gradient and Flow direction (http://www.epa.gov/athens/learn2model/part-two/onsite/gradient4plus-ns.htm):

Hydraulic Gradient
Gradient Calculation from fitting a plane to as many as fifteen points
a x1 + b y1 + c = h1
a x2 + b y2 + c = h2
a x3 + b y3 + c = h3...
a x15 + b y15 + c = h15

where (xi,yi) are the coordinates of the well and hi is the head

i = 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15

The coefficients a, b, and c are calculated by a least-squares fitting of the data to a plane

The gradient is calculated from the square root of (a2 + b2) and the angle from the arctangent of a/b or b/a depending on the quadrant